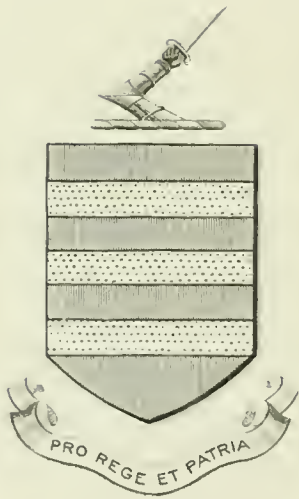


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MEDICAL RECORD

A Weekly Journal of Medicine and Surgery

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Original Articles.

TUBERCULOSIS IN THE FRENCH ARMY DURING THE WAR.*

BY COLONEL C. U. DERCLE,
MEDICAL CORPS, FRENCH ARMY.

ON DUTY IN THE OFFICE OF THE SURGEON GENERAL, U. S. ARMY.
WASHINGTON, D. C.

MR. PRESIDENT AND MEMBERS OF THE AMERICAN SANATORIUM ASSOCIATION: I esteem it a great privilege and a real honor to be thus admitted to your Association. I thank you very much. I am glad of the opportunity to address you, because it seems to me that this, above all other times, is the time for common counsel, for the drawing, not only of the energies but of the minds of all together. I thought indeed that it was a welcome opportunity for disclosing to you some of the thoughts that have been gathering in my mind about the so important question of tuberculosis in the French army since the war.

I have often been interviewed as to the frequency of tuberculosis in the French army. The indirect manner in which the questions were asked excited my suspicions and led me to seek the reasons for such persistence. Following the thought of my interlocutors, I soon perceived that a legend had been created as to this malady, said to rage in France, making it a veritable bogey.

I have heard it said that the American people, so thoughtful and at the same time so courageous, have the terrifying conviction that the entire American Army is doomed to death upon the soil of France. And what is to be the agent to sweep it away? You will think perhaps that it is the engines for destruction of every kind employed by the Germans—rifle balls, artillery projectiles, bombs from aeroplanes or Zeppelins, asphyxiating gases? Not at all. Certainly it is admitted that a great number will inevitably be victims of these murderous engines, but it is declared also that those who will be spared by them will encounter another enemy, as implacable, since it also slays—I mean pulmonary tuberculosis, which they will not escape.

Without intending to diminish the gravity of the tuberculosis situation in my country, resulting from the prolonged war, I still cannot admit that it is as serious as certain ones claim. In this short address I wish to consider this point of view. I propose to go back to what I believe to be the origin of these exaggerated rumors. I shall show upon how slight a foundation they are based, and set before you the real truth, stripped of all concealment, just as it appears from official statistics received a few

days ago. Finally, I shall try to draw a conclusion.

As a matter of fact, in the beginning* of the war, our medical men considered it their duty to send back to the field hospitals all the drafted men whom they regarded as suspicious of tuberculosis. From the field hospitals they were sent to base hospitals in the interior, and a number of them were definitely discharged, a very considerable number indeed.

In December, 1915, at the French Academy of Medicine, Professor Landouzy, Dean of the Medical Faculty, published the official figures, which showed that during the first year of the war no less than 86,000 men had been discharged from the army on account of pulmonary tuberculosis.

They were really appalling figures and spread much alarm, not only in France but in allied and friendly countries, and especially in the United States, of course. From the beginning and long before you actually entered this war, the men and women of your country had given to France, in her distress, the most generous, the most lavish, the most uncompromising moral and material support. Long before you entered the war, young men from America fought and died on the battlefields of France for what is now our common cause. Long before you entered the war, doctors, nurses, social workers, and ambulance drivers from America came to take care of our wounded and sick, to give a home to our widows and orphans. From these states came warm clothing for our soldiers in the trenches, and Christmas presents for our refugee children. Millions of dollars have been given by individual Americans to alleviate the misery of fighting France.

No wonder, therefore, that this terribly high rate of discharge for pulmonary tuberculosis came as a shock to our American friends. No wonder that they had the impression that the whole French nation was literally permeated with tuberculosis and was sure to die from it, if immediate measures were not taken to prevent it.

But this high figure, 86,000 discharges for tuberculosis in one year, contrasts so strikingly with the experience of the tuberculosis experts, who were working in the French army, that it cannot be admitted as representing the real condition of things. What it represents is nothing but the sum total of diagnosis of tuberculosis made by average practitioners, accustomed to stamp as tuberculosis every throat or lung affection which was not manifestly something else.

Undoubtedly, it is extremely important not to

*Read by invitation before the American Sanatorium Association, at its 13th Mid-winter Meeting, at the New York Academy of Medicine, December 14, 1917.

*The following paragraphs are from an address delivered by Major Rist of the French Army, at Fort Benjamin Harrison, and published in the *Military Surgeon*, December, 1917.

admit into the ranks men who are in the early stage of active tuberculosis. But it is equally important not to reject, on account of a mistaken diagnosis of active tuberculosis, men who are really fit for military service. It would not only be improper, it would be unjust. Doubtless there is no one in our profession who is not aware of the great diffusion of endemic tuberculosis, of the danger which results from it, for the nation as well as for the individual, and of the necessity of struggling against the evil. Nor does anyone fail to admit the peculiar contagiousness of pulmonary phthisis, its curability when it is treated early, and, consequently, the especial interest which is attached to the early diagnosis of the affection and to the discovery of its masked forms. But the progress of modern medicine has given to tuberculosis so preponderant a rank in pathology and in nosology, it has set forth so strongly its frequency, the variety of its effects in the individual, and the gravity of its consequences for society; it has worked so anxiously against the stealthiness of its beginnings, and the infinity of its disguises, that, in the presence of this disease, *par excellence*, many physicians lose their balance. They are haunted by tuberculosis. So that when a patient coughs, loses weight, or presents abnormal temperature, the first question which occurs to them is not what is the matter, but rather, has he tuberculosis or not?

Among the numerous lesions of the lungs are those created by the tubercle bacillus; they are certainly the most frequent, but they are not the only ones, and one cannot depend upon their frequency to relieve himself from the obligation of justifying the diagnosis by certain proofs, especially by that given by the bacilli in the sputum. In too many cases one has acquired the habit of presuming the existence of tuberculosis a priori. The peril which this state of mind creates is great even in peace; it is not a matter of indifference to pronounce an individual tuberculous, when he is not. But in time of war the peril grows worse for the nation, for it means so many soldiers, really in good health, eliminated from the army.

This is what happened. The melting away of the effectives, under the pretext of tuberculosis, assumed such alarming proportions that it became the absolute duty of the physicians to resist this deplorable tendency.

Major Rist, of the French Army, well known to many of you, and whose activities as a physician in civilian life, as a hospital and laboratory worker, and as a teacher, are entirely devoted to the question of tuberculosis, was one of the first to do this.

This is what he says: "During the whole of 1915, and half of 1916, I was in charge of a large hospital in the war zone. This hospital was part of a group of hospitals of which I was the consultant physician. At first my activity was absorbed by the typhoid situation. But later on, when the typhoid outbreak subsided, I was able to give some attention to the question of tuberculosis in that particular section of the front. A very great number of men were sent from the advanced front to the hospital center with a diagnosis of tuberculosis. A large percentage of them did not exhibit any sign of tuberculosis on close examination, but the practice in this hospital center, which was often con-

gested and often shelled by the Germans, was to send to the base hospital in the interior all such cases. Our base hospitals at that time consisted of a great number of small units, scattered over the whole country, mostly under the care of civilian doctors, local practitioners, who were only too prone to regard as tuberculous all suspicious cases and to propose them for discharge.

"I very soon saw the necessity of holding in the field hospital all these cases and of sending to the base hospitals only the men who could be pronounced tuberculous on justifiable grounds. At my suggestion the medical officer in command of that section of the war zone ordered all the men coming from the front with a history of coughing, of blood spitting, of pleurisy, or with a diagnosis of tuberculosis, to be taken to a clearing station, of which I was given charge. All the men had their sputum examined in my laboratory; all were x-rayed by myself and all were examined by a throat and nose specialist. They were kept in my ward for an average of a week and were thoroughly examined.

"The result of this procedure was that in a few weeks I was able to send back to duty at the front several hundreds of soldiers who, if there had been no clearing station for such cases, would have been sent to the base hospital with a diagnosis of tuberculosis, would have been kept for months in the interior, and the greater part would have been finally discharged. As a matter of fact, between 80 and 90 per cent of those supposedly tuberculous soldiers were not tuberculous at all."

These observations are not the only ones that have been recorded. The clinical data from the clearing station have been corroborated by those of others, created since that time.

Here are indeed other facts, reported by the well-known French physician, Major Emile Sergeant, member of the Medical Society of Paris, and by Colonel Delamare, physician in chief of our military hospital in Paris, called Val de Grace. These physicians communicated to the Academy of Medicine of Paris, on October 31, 1916, the results of an examination of 600 soldiers, sent as tuberculous suspects to the clearing station. From their results it appears that the diagnosis of this affection should be admitted only after sufficient observation and after methodical use of the various diagnostic procedures which are employed at the present time. They established the fact that though the danger of the tuberculosis of war is incontestable, and though it is well to strive against it, yet it is not necessary, on the other hand, to fall into a tuberculophobia. Of the 600 soldiers of the service, 89 were recognized to be non-tuberculous, only 83 expectorated tubercle bacilli; the other 428 represented the most complex group—that of the suspects; that is to say, the patients who, though not having the tubercle bacillus in their sputum, yet presented clinical and radiological anomalies capable of invoking the idea of tuberculosis. Of these 428 suspects, a methodical examination permitted the recognition of 216 cases of tuberculosis in evolution, and 212 healed cases. If to these cicatrized cases one adds the 89 subjects recognized to be non-tuberculous, one obtains the imposing number of 301 soldiers free of active tuberculosis in this group of 600, that is, almost exactly 50 per cent. These results demonstrate

most strongly the importance of the service rendered by the clearing stations, which alone can safeguard the interests of the individual, of the fighting force, and of the government.

Indeed, such clearing stations, with a laboratory for sputum examination, with an x-ray department, and a nose and throat expert—the latter because the most frequent cause for chronic recurrent coughing outside of pulmonary tuberculosis is to be found in the nasal condition—such clearing stations, I say, were established in every French unit, called army.

Those experiences at the clearing stations, and the reports which were issued from them, were received at first with quite an amount of skepticism. But later on other tuberculosis experts in France, such as Besançon, came forward with facts which certainly corroborated the views of the others. Since that time the number of discharges on account of tuberculosis has been considerably reduced. I have received recently the figures concerning the first 1,000 cases examined in one of these newly created clearing stations; they are very interesting.

Out of the 1,000 men who had been sent to the clearing station with a diagnosis of tuberculosis, 193 only had active tuberculosis—less than 20 per cent. Here are indisputable facts—and facts are worth more than all the arguments.

To return now to Dr. Landouzy's 86,000, here are corrections very recently obtained from the Minister of War at Paris. Landouzy's figures (86,000) must be diminished by 11,000 men temporarily removed from the army who were wrongly considered to be positive cases of tuberculosis and who, recently re-examined, have been, in great part, reincorporated into the ranks; and (A) by the erroneous diagnosis 50 per cent. of the patients are separated in the clearing stations as exempt from all active tuberculosis—this is the average for all clearing stations—and (B) by 8 per cent. cases of false tuberculosis who, notwithstanding the clearing stations, reach the hospitals.

Finally, the monthly mean of those eliminated for tuberculosis from August, 1916, to July, 1917, is 530.

Here, at last, are the facts, which have all the authenticity that can be desired, the veracity of which can be absolutely relied upon.

There is no doubt that war, with its formidable appeals to physical and moral courage, its material privations, its intense emotions, its food sometimes insufficient or badly cooked, its cold, etc., predisposes to the awakening of ancient latent foci practically healed; or that it develops elsewhere new internal foci, under the influence of violent physical exertions, which stimulate the circulation of blood and of lymph and facilitate the dissemination of germs.

On the other hand, life in the open air, muscular exercise, and the strengthening of the character are adjuvants against the effect of infectious germs. Also, in many cases, the ancient foci remain latent and the number of men in whom tuberculosis manifests itself in an active state is less than might have been expected. This appears from the relatively low figures of 530 per month discharged for pulmonary tuberculosis, referred to above.

It should be added that, of these 530, there is a large number who have returned tuberculous from captivity. There is nothing strange in that for one

who knows the pitiable condition of our compatriots, prisoners in Germany. How much unmerited suffering, how much misery, has been undergone! One refuses to believe it.

The official reports of the Ambassador of the United States at Berlin were needed before the civilized world could begin to comprehend what was happening in the prison camps, the camps of reprisal, and the places of compulsory toil. It was unworthy of a civilized nation.

The picture made by an impartial observer, a neutral, a Danish physician, Dr. de Christmas, in his book entitled "The Treatment of the French Prisoners in Germany," gives the impression that Germany has been led to trample under foot the highest of the social virtues, that which is greatest in humanity, sublime pity. Through the thought of Dr. Christmas one sees the manifestations of the satanic efforts of an impious race, a cursed race, which strives for the destruction of another race, our race; of the English race, and, we may say now, of your race.

All the faults against hygiene, the homicidal overcrowding, the rottenness, the vermin, the cold, the hunger, and the punishments inflicted upon the sick and wounded—all this foulness is said to have been regulated, wished, distributed by order to the vanquished.

The murderous epidemics of typhus, of typhoid fever, of dysentery—in a word, all the pathology which decimates our unfortunate brothers, chained in the frightful camps of concentration or of reprisal—are said to have been kept up if not planned.

And, to say all in one word, pulmonary tuberculosis, the supreme evil, since it is the inevitable result of privation, of insufficient alimentation, of overcrowding in a vitiated air, of all prolonged physical or moral suffering, pulmonary tuberculosis is said to have been actually cultivated in the French prisoners by their executioners. And this, perhaps, for the sole purpose of sending them to us as "carriers of the germs of death," after peace has been signed.

It is a new war, says Professor Letulle, of the Academy of Medicine in Paris, which we cannot avoid more than the other. We must accept its terrible burdens, and we do accept them as our implacable enemies impose them upon us. Conscious as we are of all our duties, prepared for the formidable To-morrow which menaces us all, in our health, in our families, in our race, we have only to act quickly and to act well.

It is by thousands that our brothers in arms return to us, and it is by tens of thousands that they will return after the war—free, but wounded with tuberculosis, according to the expression of Landouzy, and, for the most part, infectious. We are endeavoring to ward off this disaster of the present and the future by creating in all the territory of France dispensaries, houses of treatment and repose, asylums in which we are receiving, and shall receive fittingly, those who have doubly suffered. We receive them as heroes and they merit it; we dry their tears, we save their families, and, especially, we seek to cure all those who are still curable.

France has made barbarism recoil; it has saved the world, it shall not die, conquered by the last but

the most formidable ally of Germany, our all-powerful hereditary enemy, the tubercle bacillus!

In conclusion, I think we are justified in considering that out of the 86,000 soldiers discharged during the first year of the war less than 50 per cent, and even, as you have heard less than, 20 per cent., were really tuberculous. The calculations which have been based on this figure of 86,000, and which tended to show that there was much more tuberculosis in France than in any other country of the world, must, therefore, be corrected to a considerable degree.

We may then confidently reassure the anxious mothers of this country, who have naturally been much concerned by the rumors which have been circulated about the prevalence of tuberculosis in the French army, and who have been told that their own sons would be exposed to the tuberculous contagion in France. They may be sure that in France there is constant attention paid to the sanitary service, in order to procure the best conditions of health for all the troops which are on her soil, to put them into the best shape to gain the final victory, which is certain, what may be.

TUBERCULOSIS AND WAR.

BY COLONEL G. E. BUSHNELL,
MEDICAL CORPS, U. S. ARMY.
WASHINGTON, D. C.

WE have just heard the moving reference to the tragedy which has overwhelmed our ally, France, from the lips of one who is himself a hero and a victim, who bears in his body almost countless scars, who has gone to the very gates of death from wounds incurred while succoring others, and has returned again to vigorous health. Let us hope that as this is true of the representative of France it will not be less true of his beloved country, that it also will again flourish in freedom and in vigor, unmutated, its lands now occupied by the enemy restored to it, its sufferings forgotten in prosperity and in undisturbed peace and security.

I was desirous that you should hear the facts as to tuberculosis in the French army, not only because the prevalence of the disease has been much exaggerated, but because the experience of France brings a lesson for us.

The examiner for tuberculosis in military practice has two dangers to avoid. The civil examiner has but one. The latter desires to avoid, above all things, failure to detect tuberculosis, whereas the military observer has to detect all tuberculosis on the one hand, and on the other must be equally careful to avoid the error of classing cases as active which are really those of arrested tuberculosis or are not tuberculosis at all. The first thing that an army must have is men. While it is necessary to remove the sick from it, is it not equally or more necessary that no steps shall be taken which shall interfere with the formation of the army by the needless exclusion of those who are able to bear arms? If you have visited one of the cantonments of the National Army you have seen a town of such extent that you despaired of encompassing it by your own powers of locomotion—a town everywhere

swarming with inhabitants. Yet none of the cantonments at present have more than 40,000 soldiers, and some have a much less number. Now, if we recall the fact that of the 86,000 soldiers of France declared to be tuberculous, in the figures of Landouzy, only 50 per cent. have been found to be really tuberculous, we shall see that by errors of diagnosis a number of men have been unnecessarily removed from the fighting force of France that equals the number of soldiers in one of our most populous camps. Not only have more than 40,000 men been subtracted from the none too large army, but these men have occupied space needed for the sick, have taken the time of the overworked surgeons, have needed for their feeding and maintenance in idleness the services of a numerous corps of attendants who might better have been employed elsewhere. These cases of erroneous diagnosis were, of course, scattered through the millions of the army, and thus escaped observation until the statistics had been formed. But supposing that they had all been collected together at one place, and at one time, and that some one, pointing out the vast assemblage, had said: "Here is an army of men not allowed to fight on account of the errors of the physicians, who say they have a deadly disease, when really there is nothing the matter with them." Fancy the indignation of the patriot at such an unheard-of spectacle! Now, gentlemen, it is an evil of this kind, less spectacularly exhibited, from which we have endeavored to protect our army. In examining for tuberculosis, we try, first of all, of course, to exclude cases of active tuberculosis, but we have given equal thought to the question how to protect men who were really fit to serve from being excluded, on the ground of the existence of some uncertain or slight indications of past mischief. As I have pointed out elsewhere, the evils of such faulty diagnosis are world wide; they have been encountered in the armies of Germany and of Great Britain, as well as in that of France. There is small blame to us if we err on the side of a too minute and pedantic regard for slight changes in breath sounds, or in percussion, for all the world is committing, or until recently has committed, the same mistake, and the standpoint is maintained by so many writers of repute that the unwary are scarcely to blame if they believe that it represents the standpoint of the truth.

One little good has certainly come out of the great mass of evil of this terrible war—that experience in the field has proved that men with slight, old, healed tuberculosis, or doubtful tuberculosis, do not need to be excused from military service, that most cases do well in active service, that they improve in health in the outdoor life, and consequently that our practice in peace has been in error in giving too great weight to slight indications of structural change. If a man presents himself for enlistment who shows slight old pulmonary changes, such changes should be viewed as evidence of bygone disease, cured, and, if the soldier is in vigorous health, to be disregarded in the decision as to his acceptance, and disregarded also in the record of his case, so that if it should unfortunately happen that the man in question should break down with active tuberculosis at a later time his disease will be regarded as incurred in line of duty.

*Read at the thirteenth midwinter meeting of the American Sanatorium Association, December 14, 1917.

Do not seize upon this admission of the possibility of such breakdown. Such cases may break down, but so also may men with athletic chests, and the breakdown of the latter is sometimes more serious and acute than that of the former. There is an unavoidable percentage of tuberculosis for which we must be prepared, which the most acute observer cannot foresee. Pardon me for repeating what I have said in part elsewhere.

The examinations for tuberculosis are conducted rapidly with a view to excluding active cases of the disease. Contraction of an apex, the changes being confined to the supra-clavicular region, is ignored; only cases of active tuberculosis, and those showing old lesions below the clavicle of some extent, are rejected. A ruling of this kind seemed necessary in order to prevent the exclusion of a large number of men in good health whose services the army needs. I do not need to say that such a ruling will not meet with favor in the eyes of many tuberculosis specialists. Already the Surgeon General receives letters protesting at the speed of the examinations (though without speed they could never be finished), and demanding that the slightest indication of even old tuberculosis shall be sufficient ground for the exclusion of the subject from the army. As a practical military proposition it is impossible to yield to such demands, and, as we have seen, the experience of the war shows that the demands are unjustified. I am an optimist as to the benefit of the outdoor life for the healthy men. Better than all others, we, as sanatorium physicians, know the benefits of such a life for the tuberculous. We do not perhaps realize fully how rude a health results from the outdoor life when led, under other hygienic precautions, by those who have not at the same time to resist the inroads of active disease. We moderns have, I believe, a wholly exaggerated idea of the dangers of fasting and hardship. In the time of the ancients, in the Middle Ages, among our Indians at the present day, that man was most esteemed as a warrior who could best endure hunger and thirst, cold and heat, and laborious days. They believed rightly that by such endurance the warrior became hardened and better fitted for the hand-to-hand combat that was his profession. And now that, in the round of time, combats have again come to be hand to hand, where strength, agility and endurance count as they have not hitherto counted since firearms were invented, our soldiers must be hardened athletes. There is, I believe, too much of a tendency to coddle them, to keep them filled with chocolates and to stuff their pipes with unending amounts of tobacco, to amuse them at all costs. Let us at least spare them undue anxiety as to the dangers of wet and cold and hunger; and let us, above all things, not hold before them the specter of tuberculosis as the inevitable result of warfare. As for the unfortunate prisoners of war, treated with unexampled brutality by their captors, that is quite a different matter. One may well despair who falls captive into the hands of the Germans. But it may be pointed out no selection at the time of entrance into the military service could have prevented such a result. The captives who become tuberculous do not break down with this disease because they already had it in active form on entrance into the army, but because insufficient nour-

ishment and bad hygiene can in time break the resistance of the strongest. We all have a little tuberculosis; that we resist it depends upon our fortune in avoiding depressing influences.

We need your confidence and help. I know that you are anxious to do all in your power to assist the Surgeon General, and through him the army and the people of the United States. You see the position of the military examiner. Here are enormous masses of men who must be examined without delay. When the National Army camps are finished we shall have examined about 800,000 men. Decision must be made quickly, yet the examiner must detect all active cases while careful not to reject obsolete or doubtful cases of tuberculosis. We know too well the difficulties of diagnosis in the doubtful cases. Some cases have come before the office for revision in which the army examiners were sustained against the opinion of leading men in the profession. In other cases we have been obliged to admit that the army examiners have erred, that as far as we could discover there was no activity of tuberculous disease. Only a fraction of such cases can come under our observation; there are doubtless many cases remaining that should have been excluded, as well as many good men who have been rejected without due cause. But we have done the best that we could; we have secured the best examiners available in the country. The standard, on the whole, has been very high, and, I would point out especially, the examination has been performed by army surgeons who but yesterday belonged to the civilian medical profession. The examinations constitute a revision of the work of the army medical officer in the examination of the recruit for voluntary enlistment, and of the work of the draft boards, and of the preliminary examinations of the conscripts at the cantonments. This is the court of appeal whose decision, however faulty it may be, is still the final decision. The Surgeon General wishes you to understand the difficulties under which we labor. I have set them forth as best I could.

Now, what can you do to help in this? You can sustain the hands of the Surgeon General by using your great influence with the public in a helpful way. You recognize the need of haste in the conduct of the examinations. Help us by sustaining the position that active tuberculosis can be quickly detected, and that it is not desirable that note shall be made of small, obsolete lesions; that experience in the field has shown that such cases do well in active service. And when the inevitable tuberculosis presents itself, whether because the examiners have failed, or because the tuberculosis had not developed clinically at the time of the examination, help the public to understand the situation. There will be unjust claims that the Medical Department has broken down, that the examinations have been a failure; take the broad view and teach the people that some tuberculosis must be expected. Above all, combat the widespread notion that trench warfare is deadly to the health, that our troops are doomed to be ravaged with tuberculosis. You have heard the views of Colonel Derle and of Major Rist; they represent the best thought of the French profession. Encourage the anxious parents to anticipate a robust health for their vigorous sons. Be optimists, and you will have deserved well of your country.

PSYCHOPATHOLOGY.*

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THE subject of Psychopathology is one of so much importance that no attempt can be made to present it adequately here in the short time allowed for it. But a brief statement of some general principles involved in mental pathology may help to explain the nature of the group of mental disorders called psychoneuroses. For a correct diagnosis of such conditions the general physician needs a working knowledge of mental physiology. This must be the basis of a scientific psychopathology essential for rational treatment in accordance with the principles of general medicine.

In the progress of the medical sciences the provision in the schools and hospitals for the study and treatment of these cases is only beginning to receive proper attention in this country. The methods taught have been essentially objective, while the subjective methods which are vitally important in mental, psychopathological, or psychoneurotic cases have received but comparatively recent and limited recognition. In his clinical work the student is taught the refinements of the diagnosis of physical diseases. Such objective methods cannot in their very nature be employed in mental disorders of a functional character. Hence the physician with all his long years of training in our medical schools feels helpless in all cases of psychoneurosis, both in theory and practice. He is forced to fall back on drugs and other mechanical treatment without even so much as correctly diagnosing his case.

In the investigations of psychoneuroses the psychopathologist finds a strikingly clear pathological condition in each individual case. The symptoms of a psychoneurotic case are not isolated. They are intimately related. The symptom complex is grouped as a rule around a pathological nucleus which controls and guides the morbid manifestations. In a well developed case of "nervousness" the dizziness, faintness, nausea, acid stomach, etc., the headaches, the anesthesia and hyperesthesia, the fatigue, the abulia, insomnia, and general depression bear severally a definite relation to some pathological focus which the psychopathologist must find by a searching examination before an effective treatment can be undertaken.

The pathological focus of which I speak may more properly be expressed as a residual organic habit in the neurones or nerve cells. From this focus there develops the complex. One fixed idea associates itself with another idea until a group of ideas is formed—a complex, or idea-system, which may be in conflict with the main personality of the patient; and this conflict may be so buried in the subconscious mind that the patient himself may lose all recognition of its existence; and the functioning of this buried complex may produce a condition resembling in many ways a mild case of manic depressive insanity. That is, the patient may have days or weeks or months of apparently normal health when there breaks upon the consciousness a feeling of depression, of nervousness, of restlessness, an inner sense of excitement. With this the

patient's appetite is gone, an actual disgust for food may develop, accompanied by constipation or diarrhea. The buried complex may be expressed, as in a case reported, where the patient's mother had been for a long time at the point of death. She expected to get a telephone message at any time announcing the death of her mother. Consequently every time the telephone rang her heart jumped into her throat, as it were, and she ran to the telephone to get the dreaded news. After a while her mother died. But the association of the two ideas had become so fixed that whenever she heard a telephone ring her heart would palpitate, a thrill of nervousness would seize her, just as though she were to get the dreaded message.

A very important characteristic is the periodicity and remissions in the appearance of the symptoms. The attacks of functioning of the dissociated morbid idea-system may run in cycles. During the attacks the mind seems to run in a vicious circle. In many instances the attack is sharp, followed by a long period of depression and worry. It is pathognomonic of a psychoneurosis to have acute sensory attacks followed by long intervals of brooding. It matters little whether the cause of the brooding is conscious or subconscious. It is there, and the psychopathologist must uncover it if he wishes to diagnose his case clearly and introduce a rational therapeutic treatment.

Another symptom well worth considering in a certain type of psychoneurotic case is the sudden onset of the attack. The morbid mental state flashes on the patient's mind with terror for a brief period, sometimes for a moment like the *petit mal* of epilepsy, and then disappears as suddenly as it came, reappearing on some other unlooked for occasion. These occasions are not accidental. They have a definite causal relation to the attacks. Even here the periodicity of the attack is quite noticeable; in fact, it is so pronounced that some men describe the cases by the term "psychoepilepsy," others by the misused term "psychic epilepsy." These conditions should not be confused with epileptic states which are abnormal to the patient's normal associative life. They appear to the patient himself as dissociated from the rest of his interests, from the rest of his associations and psychomotor adjustments. He wants to extrude these dissociated states from his mind. He does not understand them. Often he is not even aware of them since they may appear subconsciously or completely overwhelm his personality during the entire period of their activity. These states are essentially subconscious dissociated states. They come in attacks manifesting extraordinary violence and emotional disturbances.

A very general characteristic of these morbid psychoneurotic states is the fact that they do recur with apparently the same content of consciousness and with the same almost invariable psychomotor reactions. The patient apparently thinks, acts, and wills in the same way on each occasion. These subconscious dissociated states really belong to the type of recurrent moment consciousness. The suddenness of the attack, the manifestations of the symptom complex so uniform, the overpowering effect on the patient's personal consciousness, are all due to the same underlying condition: the dissociation of

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ideas in the patient's consciousness. The attacks can be traced to the mental trauma, emotional shocks, and especially to experiences of childhood. These early experiences that become subconscious may of course be other than those based on sex trauma as a principle (as urged by Freud, qualified by Jung, and newly interpreted by Adler), even when the early sexual experiences can be shown to have existed. Such experiences are easily exaggerated in the patient's mind as is often done, within my observation, in application of Freud's suggestive methods.

I need not discuss here the relation between brain activity and mind activity. It is enough to say that it is universally accepted that every mental process is accompanied by a physical process in the brain; that associated with every series of thought perceptions and feelings there goes a series of physical changes in the brain neurones. Likewise whenever the same series of physical changes occurs, the conscious series of mental processes, of conscious or subconscious states, arises. In other words, physical brain processes or experiences are related with corresponding mind processes or experiences. Upon this doctrine the whole of psychophysiology and psychopathology rests.

It is an accepted principle of physiology that when a number of neurones, involved, let us say, in a coordinated sensorimotor action, are stimulated into functional activity they become so associated and the paths between them become so opened, or, as it were, sensitized, that a *disposition* becomes established for the whole group, or a number of different groups, to function together and reproduce the original reaction when either one or the other is afterward stimulated into activity. In other words, without going precisely into the matter, it is sufficiently accurate to say that every mental experience leaves behind it a residue or trace of the physical brain process in the chain of brain neurones. These residua are the physical register of the mental experience; and this may or may not be conserved. If it is conserved we have the requisite condition for memory, but it is not until these physical registers are stimulated and the original brain experiences reproduced that we have memory. Prince speaks of such a condition in the term "neurogram." It is the organic habit of ideation. Of course memory must be thought of, as Prince has so aptly put it, as a "process of registration, conservation, and reproduction." Conservation of course implies registration but not necessarily reproduction. The psychophysiological memory must be considered because of the important part that such memories play in pathological conditions. Certain bodily reactions which are purely physiological, such as vasomotor, cardiac, respiratory, intestinal and digestive disturbances, become as the result of certain experiences linked with one or another psychical element: sensations, perceptions, thoughts. And this complex, conserved as a "disposition," the psychic reaction is reproduced whenever its physical element is introduced into consciousness. Here the association of an idea with the physiological process is conserved and reproduced. Such a reproduction is essentially a psychophysiological memory depending entirely upon the acquired disposition of the neurones.

At this point Pawlow's investigations are of interest to us not only as an apt illustration of the psychophysiological memory but of the important role the mind plays in relation to the digestive system.* The actual method employed by Pawlow in obtaining these results is so interesting that I feel constrained to give you a résumé. In his experiments upon dogs he was able by careful surgical methods to make a side pouch of a part of the stomach, the cavity of which was separate from the cavity where the food was received. It was supplied in the normal manner with nerves and blood vessels, and as it opened to the surface of the body it was possible to determine the kind and quality of the gastric juice secreted by it under varying conditions. Its secretions corresponded exactly with those of the main body of the stomach, and it had the added advantage of making possible the examination of the gastric juice unmixed with food. In some of the animals an opening was also made in the esophagus so that the food dropped out on its way to the stomach. The animal thus experienced all the pleasures of eating, and experiments could be continued as long as necessary without any discomfort to the subject. This was called sham feeding. By this method of sham feeding Pawlow showed that the chewing and swallowing of food pleasant to the animal was followed after a delay of about five minutes by a flow of gastric juice from the side pouch in the stomach; and this continued as long as the dog chewed and swallowed food and even for some time after the eating ceased. As there was no food present in the cavity of the pouch it is evident that the actual presence of food is not necessary for secretion of the gastric juice. And since this flow continued only as long as the dogs were hungry and enjoyed the food presented to them, the conclusion is justified that the secretion was truly a psychic one.

Sometimes the mere sight or smell of food was sufficient to start the flow of the gastric juice; this has been demonstrated by experiments of Bidder and Schmidt and later by Schiff. We all know the expression that the mouth "waters" in anticipation of food, and these experiments proved that the stomach may be said to "water" as well. This "watering" of the mouth, or initial psychic secre-

*Pawlow says: "In the course of our experiments it appeared that all the phenomena of adaptation which we saw in the salivary glands under *physiological* conditions, such, for instance, as the introduction of the stimulating substances into the buccal cavity, reappeared in exactly the same manner under the influence of psychological conditions—that is to say, when we merely drew the animal's attention to the substances in question. Thus, when we pretended to throw pebbles into the dog's mouth, or to cast in sand, or to pour in something disagreeable, or, finally, when we offered it this or that kind of food, a secretion either immediately appeared or it did not appear, in accordance with the properties of the substance which we had previously seen to regulate the quantity and nature of the juice when *physiologically* excited to flow. If we pretended to throw in sand, a watery saliva escaped from the mucous glands; if food, a slimy saliva, and if the food were dry—for example, dry bread—a large quantity of saliva flowed out, even when it excited no special interest on the part of the dog. When, on the other hand, a moist food was presented—for example, flesh—much less saliva appeared than in the previous case, however eagerly the dog may have desired the food. This latter effect is particularly obvious in the case of the parotid gland."

tion of the saliva, is important when we consider that materials can only be tasted when dissolved in the mouth and brought into relation with the organs of taste. Hornburg made observations of a little boy under his care which showed that food which he liked produced a more active flow of gastric juice than when the food was indifferent or distasteful to him. A similar result was obtained by some observations of Richet upon a little girl. All these observations show that if the taste of food is pleasant when it is being masticated the flow of the first digestive fluids, saliva and gastric juice, is favorably stimulated; and the same is true when, in anticipation of eating, the sight and smell of the food are such as to inspire the desire to taste it.

This brings us to the point of considering directly the influence of the mind pathologically on the digestive system. A paragraph by Dejerine is a striking description of this:

"It sometimes happens that a physician has patients—they are more apt to be women—whose appearance is truly shocking. Their eyes are brilliant. Their cheeks are hollow, and their cheekbones seem to protrude through the skin. Their withered breasts hang from the walls of their chests. Every rib stands out. Their shoulder blades appear to be loosened from their frame. Every vertebra shows through the skin. The abdominal wall sinks in below the floating ribs and forms a hollow like a basin. Their thighs and the calves of their legs are reduced to a skeleton. One would say it was the picture of an immured nun, such as the old masters have portrayed. These women appear to be fifty or sixty years old. Sometimes they seem to be sustained by some unknown miracle of energy; their voices are strong and their steps firm. On the other hand they often seem at the point of death and ready to draw their last breath.

"Are they tuberculous or cancerous patients, or muscular atrophies in the last stages, these women whom misery and hunger have reduced to this frightful gauntness? Nothing of the kind. Their lungs are healthy; there is no sign of any organic affection. Although they look so old, they are young women, girls, sometimes children. They may belong to good families and be surrounded by every care. These patients are what are known as mental anorexics, who, without having any physical lesions, but by the association of various troubles, all having a psychic origin, have lost a quarter, a third, and sometimes a half of their weight. The affection which has driven them to this point may have lasted months, sometimes years. Let it go on too long and death will occur either from inanition or from secondary tuberculosis. However, it is a case of nothing but a purely psychic affection of which the mechanisms are of many kinds."

A typical case of this character is cited by Dejerine, of a woman who had lost her husband. She grieved for him deeply and continued to live in the apartment which they had occupied together. He says:

"When she sat down to her meals his image would rise up before her, as would be natural from the association of ideas, bringing a whole train of emotional sensations, constrictions of the throat, a feeling of weight in the stomach, lack of appetite, etc. She would get up from the table without having really eaten anything. By degrees this restriction of diet, which was purely emotional in its origin, brought her at last to the condition of mental anorexia."

In my own practice I was once called to see a patient of this type, a woman who in early life had loved a man and had borne a child by him. He had run away from the town without marrying her. She came to think of her conduct as a sin. After the child was born she married and had other chil-

dren, but none so dear to her as this first son. The memory of her early irregularity remained with her as a sin. She constantly tried to repress it by turning her mind away from it. When well and strong this was easy, but when tired the memory came back with increasing force and was more difficult to keep out of consciousness. It became a pathological nucleus, separated from the main current of normal consciousness and thus dissociated from it. When this process of repression had been going on for a long time, with increasing difficulty in times of fatigue, a revivalist happened to come to the town, preaching brimstone and hell fire. This awakened the memory of her supposed sin with redoubled force. She could fairly see her son burning in hell and feel the added punishment that would come to her for having brought him into the world under such irregular circumstances. She was completely upset. She had no taste for food. Her rest was broken by painful dreams. Her stomach and bowels were deranged, her emotions on edge, her heart beating wildly and furiously at times. Being a strong, healthy woman with much work to do, she successfully repressed the idea. When busy and active she would not seem to think of it, but it seemed always there, and a moment's relaxation would bring it into consciousness and it would gnaw at her heart strings.

This condition went on till her son became a man. Early in life he had developed the drink habit, and later on a serious heart trouble. One day on a drunken spree he came toward her, and when within a few feet of her he stumbled and fell dead of heart failure. This she interpreted as the visitation of God's wrath upon her for her sin. It was not merely the loss of her son, but that she, as well as her son, was punished and that both of them would be committed to everlasting punishment. Still being strong she was able for a few days to keep up, to wrestle with her overwhelming consciousness of sin and damnation, but the grief over the loss of her son, over her previous "sin," over God's wrath, had so multiplied itself in her mind as to completely overwhelm her. Even to see a young man would cause her to faint. She refused to eat and was finally put to bed. She lost flesh rapidly, suffered from loss of sleep, from the emotion of excitement, from constipation which later turned into a most violent form of diarrhea. She was sent from one sanitarium to another, from one set of physicians to another. Every effort was made to build up her digestion and to control her diarrhea. Medicine seemed to have no effect. She was at the very threshold of death from exhaustion. After a consultation with her physicians the diagnosis seemed plain. The hyperexcitement of her nervous condition was allayed, the simplest sort of suggestion was given, and in less than a week the diarrhea was under control, and her digestion and assimilation were restored to normal.

Another case was that of a young woman of culture and refinement. She had been healthy all her life, but at the birth of her second child she had some slight trouble which reduced her energies to some extent. She thought she had some form of intestinal disease. She consulted her physician and then passed from one physician to another; one formula after another was given her till she was

taking practically nothing but toast and milk. She had developed a very severe mucous diarrhea. A laboratory examination was made of her stools, and in spite of the fact that the microscope showed considerable trouble my treatment was insisted upon as of a mental condition of expectant attention. When her mental condition was brought into proper relation to her digestive system, when the hyperexcitation of the neural disposition had been reduced, when the psychic tension arising through organic disposition and expectant attention had been allayed, her diarrhea disappeared. This happy change was effected in less than six weeks although when this treatment began she had been suffering from her trouble for five years. The organic habit or disposition was dissipated.

The method remains the same in many dyspeptics having the different symptoms of eructations, vomitings, pain and heaviness in the stomach, dilatation, and gastropnoia. It is the stomach suffering from the effect of the nervous condition. The cause of this form of nervousness is not located in an organ; it is mental. Dubois goes so far as to say that 90 per cent. of dyspeptics are psychoneurotics, and that these patients should have nothing to do with restricted diet and stomachic medication. This opinion has been largely proven in my experience.

There is a host of dyspeptic patients, says Dubois, who haunt the health resorts, forever discussing their symptoms, never able to eat anything yet always in pain. Their stories are similar; they have usually begun by treating themselves, cutting out from their diet foods popularly supposed to be indigestible, such as cabbage, for instance. Conditions would appear to improve for a time, then fresh disturbances would set in and further restrictions in diet, followed again by a new temporary improvement but an added failure. At about this point a physician is usually called in who tries, let us say, washing out the stomach. The patient may now imagine that he has dilatation of the stomach. The course of treatment becomes more and more severe. A specialist is consulted. He may not admit the dilatation but tests it by insufflation and analyzes the contents after a test meal. If these show nothing definite the patient will be classed as "nervous," and usually is sent away for rest and change. Mechanical methods will be resorted to a greater or lesser degree, and the patient stands a chance of improvement. But if an excess of mucus is found, or hyperacidity, or retention of food, then the patient is apt to become the victim of a series of experiments which are only limited by the personal theories of the attending physician. One will prescribe an exclusive diet of milk, another will forbid milk as if it were poison; one will insist upon uncooked foods, while another will demand added hours of cooking to make the food fit for digestion. The patient may be condemned to lavage of the stomach; massage may be prescribed, or electricity; douches may be given on the epigastrium. When all these measures fail to bring relief he may be given tonics and beef juice, raw eggs and wine and phosphates. Watching these successive experiments fail, hopeful of each new experiment only to see it fail in turn, the patient becomes more and more impressed with the seriousness of his case,

and his hypochondria becomes more and more fixed as the physician directs his attention more and more to this or that supposedly diseased organ. The patient's mind needs to be treated and directed from his bodily discomfort. The cause of his trouble is mental, not physical.

In order to diagnose these cases correctly it is necessary for the physician to see the man as a whole, not alone his disturbed physical functions. The factor primarily important in the treatment is to regulate not so much what the patient shall eat or drink, but what he thinks. The whole man must be treated, his whole personality worked upon, and when the cause of the mental disorder has been removed the physical disturbances will of themselves disappear. Want of time forbids me even to mention the many and varied forms of stomach and intestinal disorders directly due to mental and emotional disturbances.

By the terms obsession, compulsion neurosis, anxiety neurosis, or complex, I shall understand any recurrent extra-voluntary idea, feeling or emotion which presents itself automatically in the consciousness, either alone or in combination. We are interested really in the mechanism of these phobias, the manner in which they arise, and the factors by which they are perpetuated. The underlying principle of them all—obsession, compulsion neurosis, anxiety neurosis—reduced to its simplest terms, is really fear manifesting itself pathologically in one form or another. In fact, every obsession has its history, just as a painting has, or a poem, or a symphony. These obsessions arise from conflicts in the consciousness, form complexes, and are dissociated or split off from the main stream of consciousness. The patient's mind is in a state of conflict with itself. A battle royal is going on between the fear complex and the main body of his personality. Whether an obsession appears in consciousness as a complex whose nucleus is an idea, a feeling, or an emotion, it originally arises out of the same psychological mechanism: dissociation. I may say that dissociation and association play equally important roles. When once an obsessional complex has been established it may be aroused to activity in a great many different ways.

For instance, a patient of mine, during a severe attack of grippe, was surprised on one occasion to find that she had lost control of her bladder, and was greatly shocked by it. The idea flashed into consciousness, "What should I do if this should happen at some entertainment?" She repressed the idea as unpleasant and tried to put it away, to forget it; not realizing, of course, that the more she fought the idea and the more she tried to repress it, the more rapidly it would grow from a small nucleus into a complex always ready to torment her. These painful ideas that the patient tries to forget, tries to repress, tries to put out of consciousness, are not really forgotten but stand ready to spring into consciousness when the patient is tired. This patient did apparently forget this particular incident, but several months later when invited to a party she found herself very apprehensive about going—nervous, excited, her heart palpitating, and feeling the necessity of emptying the bladder several times before leaving the house. Then she imagined a real pressure, a sense of irritation in the bladder; she

fancied she had a bladder disease. She was treated for this condition locally, her bladder washed out, etc., with only temporary relief. This fear increased in intensity; the mental excitement intensified her emotions, upset her stomach, disturbed her digestion, and deranged the glandular functions; all this taken together produced severe headache and depression. She was then in a state of nervous prostration. Even the thought of going anywhere would awaken the memory of her former feelings of distress, creating a panic. The fear had changed to a fear of fear. To speak of going out of her room, of visiting, of traveling, caused her the greatest distress without her apparently remembering the loss of her bladder control. When I first saw this patient she had been suffering from this trouble for more than twenty years. The trouble with her bladder was removed from her active consciousness, having lost itself in the great complexity of symptoms that had arisen from it originally. Although in a state of utter prostration, unable to take any substantial food, in the depths of depression and despair, this woman under proper treatment made a complete recovery in two months.

An obsession of different character is that of an able-bodied man, best described by quoting from his own letter:

"I am a strong, robust man, aged 44. Fifteen years ago I was standing in a rather close room with a party of friends when I was suddenly seized with a faint feeling, an all-gone-ness in my stomach. A deadly fear seemed to come over me. From that day for over fifteen years I was an invalid. I was treated for months by the best physicians I could secure, without relief, and finally gave up in despair. I was afraid of everything. I could not meet my friends downtown, could not go into a closed room, could not ride upon a train, could not meet people at dinner, would run and hide if I even saw my best friends coming. I could not let my wife leave the house without being seized with a convulsive fear. The very thought of meeting people or riding on a train would cause the severest form of headache and diarrhea. The fear was so overpowering that I could not have gone to the doctor's office if he had offered me a million dollars, badly as I needed the money."

This patient was first visited at his house. His intense suffering was clearly evident; deep black circles surrounded his eyes; his whole physical condition seemed thoroughly toxic from the fear upsetting his emotions, deranging his digestion, and interfering with the normal functions of the internal secreting glands. After two visits in his own home he was able to come to my office, and in three weeks had completely recovered.

Another case was that of a girl quarantined in school because of an epidemic of smallpox in the community. A letter was received at the school which created a fear that it might carry infection. This girl developed a mysophobia, and the fear of infection caused her to wash her hands continuously; she washed them until they bled. The fear spread to everything. She would not touch a door knob or open a letter, or even allow letters to be delivered at the house. She cried whenever fresh air was let into the room for fear germs would be admitted. Eventually after fifteen years she became a helpless invalid, and finally had developed a marked functional heart trouble. Her legs were much swollen. I mention this because under treatment when she was cured of her fear her physical condition became normal. This patient recovered

her health, and in less than a year took a course in manicuring and hairdressing, and established herself in a lucrative business.

There comes another type of the fixed idea. This can better be described by a concrete example of an old lady of eighty. She had been putting down a carpet one day and held some tacks in her mouth for easy use. She suddenly felt a twinge of pain in the side of her tongue and supposed a piece of tack had gotten into it. She hurried to her doctor's office, where he examined her carefully, told her there was a little sore place there, but he could find no evidence of the tack. He thought he could help her by the use of the violet ray. This he used for some time, the old lady all the time suffering violent pain in her jaw and tongue. After several weeks of treatment without help she went to another doctor, who gave her medicine, but did not help her. Another doctor performed some slight operation which gave her apparent relief for a few days, the pain returning with redoubled force. When this patient first came to me she had been suffering for about four years with her tongue and jaw, which were actually swollen, and on the outside she had blistered and reblistered her face. She would walk the floor in agony night and day. The pain was almost immediately controlled, and this woman was well, even at her age, in six weeks. She lived to be 87 years of age without having any recurrence of her trouble.

As you see, there are many varieties of the instinctive fear psychoses. Great progress has been made in the study of these affections in recent years. The views so briefly given here are not new; it was my fortune to be taught when a medical student at the Harvard Medical School to make the widest application of the underlying general principles to all reactions of emotional feeling combined with their physical complexes. The associative principle so applied makes clear a broad summary of these fear and other emotional affections. They occur in distinctive groups: the *objective* obsessions including fears of inanimate things incapable by themselves of doing any harm by intention—such as lightning or high places—or of naturally irresponsible living things, such as animals; the *subjective* fears of affections or disorders of the body which are known as hypochondriacal fears and hysterias. It was taught also that the same principle is taught *objectively* when fears attach themselves to the actions of other persons capable of intention, thus explaining the genesis of suspicions weaving themselves into systematic delusions of persecution, constituting paranoia or paranoid conditions. This principle, having a primary influence in the essential unit association of *concept*, *emotional reaction* and *motor effects*, these effects may be wholly subjective or be manifested outwardly in behavior, both in normal and abnormal conditions. In the treatment of the special disposition to these mental and somatic complexes in the involution psychoses there is increasing proof of the need of recognizing the principles of psychopathology and the value of psychotherapy.

In this connection I should make mention of the more profound traumatic neuroses of which Dr. Sharpe sees so many in his field of work. The subject is of timely interest because of the large num-

ber of persons suffering from traumatic neurosis incidental to the present war. I can only refer to this large class of cases and quote briefly what Oppenheim has to say as reported by Mayer:

"There is no doubt that the finer organization of the nervous tissue can be directly and indirectly injured without the occurrence of hemorrhage, inflammation, degeneration and necrosis. I refer to finer physical occurrences. The influence of this overestimated impulse seems to me like the removal of a link in the chain, or of the displacement of the molecules, or of an inhibition of tracts, a tearing apart of associated functioning parts, a diasthesis—in short, a condition which is not microscopically demonstrable, which does not represent definite alterations of nervous tissue, but which in every case produces inhibitions to motor impulses."

And Wilson, also quoted by Mayer, sets up the following explanation:

"1. At the synapses there is a structural discontinuity of the nerves. 2. The results produced by impulses traveling in a nerve depend on the way the fiber ends, and not on any differences in the impulses themselves. 3. At the synapses different physiologic systems come in touch with one another and so co-ordinate action in diverse systems is possible. At the synapses there is always a spread of nerve impulse, and the greater the impulse the greater the spread."

It may be possible that the study of the traumatic neuroses, shell shock, etc., may be the means of helping medical men see the psychoneurotic cases less fantastically and more as a *mixed condition of nerve cell exhaustion and mental conflict*. The matter may prove to be really a psychophysiological problem, expressing itself pathologically.

15 EAST FORTY-EIGHTH STREET.

RESTORATION OF MOTOR FUNCTION IN A RESECTED NERVE TREATED BY END-TO-END ANASTOMOSIS WITH REMOVAL OF CONSIDERABLE NERVE TISSUE.*

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THE tremendous number of nerve injuries received during the present war has afforded many opportunities for neuroplastic surgery. Old operations have been modified and new methods devised. When one follows the voluminous literature of that branch, recently published, he is favorably impressed by the excellent results, though it can be inferred that the cases have not been followed up afterward by recording and charting the anatomical return of function in the resected nerves. We must agree with Frazier,¹ who says: "The European war has revived our interest in the problems of dealing with injuries of the peripheral nerves and

*From the Neurologico-orthopedic department of Fordham Hospital, New York. The operation was performed by Dr. A. S. Taylor, the neurological surgeon of the hospital. The details of the operation have been described by him. The orthopedic care and after treatments were carried out by Dr. S. W. Boorstein, orthopedist of the hospital, who also wrote the history and the details of the after treatments. The neurological examinations and the chartings and tracings were done by Dr. J. Byrne, the consulting neurologist of the hospital. The latter also wrote the neurological discussions. The case was presented before the Orthopedic Section of the New York Academy of Medicine, March 16, 1917.

while numerous contributions have appeared in literature, sufficient time has not yet elapsed for a general 'round up' and conclusions at this time can only be surmised. Many interesting observations have been made during the war did we but have time to discuss them."

Being fortunate enough to study and chart carefully a case of a resected nerve from the time of operation to the time of almost complete return of function, we feel that it is of extreme importance for the neurological surgeons to have the benefit of this study. This may be of considerable use to them in their work. Their limited time at present does not permit them to make similar studies. We are, therefore, reporting this case, giving the history and findings in detail, adding only casual comments in the findings. The facts are clear enough without reviewing the literature.

On October 15, 1914, the patient, H. G., a young student of 22, while playing football attempted to make a catch while an opponent tackled him around the waist. The patient was thrown to the ground and received an injury to the left leg. The head of the fibula was pushed outward (dislocated laterally) but the tibia remained in place. The bone was replaced on the field but the patient could not walk home. In a day or two the knee became swollen and tender and he had to be confined to bed for five weeks. By that time the swelling and pain subsided, he began to walk but noticed that he limped, had a drop foot and as he expressed it had no control of the movements of the toes and even had very little sensation in them. Five months later, March, 1915, he came to the orthopedic clinic of Fordham Hospital for relief of these symptoms.

Physical examination showed paralysis of the peronei and tibialis groups. The extensors of the toes were completely paralyzed and there was marked atrophy of the calf and foot muscles. The x-ray picture taken to determine the presence of fracture was negative. Myotatic irritability was present in all four muscles (tibialis and peronei) but considerably diminished as compared with the sound leg, more especially in the peroneal group. A diagnosis of injury to the external popliteal nerve was made. Believing that the nerve was beginning to regenerate we advised conservative treatment.

An ankle brace with a stop joint (allowing full dorsal flexion but no plantar flexion) was put on and massage and exercises were ordered. This was carried out for two months *i.e.*, till May, 1915, with slight improvement in sensation. Neurological examination made May 3, showed:

1. *Motor*: drop foot, steppage gait, inability to flex foot or toes dorsally, atrophy of calf three quarters of an inch with swelling one quarter of an inch over instep. Myotatic irritability well marked in anterior tibial and peroneal groups. (Paralysis of all foot muscles was thus found).

2. *Sensory*:* A. Spontaneous phenomena—numbness on outer aspect of leg and dorsum of foot; occasional feeling of pins and needles on dorsum of foot near roots of toes and about ankle.

B. Elicited phenomena are shown in chart A. The loss for intermediate degrees of heat and cold (38° and 25° C.) corresponded roughly with that for light touch after shaving (lighter von Frey hair used). Along the outer aspect of the foot, the extent of loss for prick with weak and strong stimuli (algometer at 2 and 12 grams pressure) corresponded closely with loss for light touch. This was in marked contrast with the inner aspect of the foot where the loss for light touch was considerably greater in extent than that for prick at 12. No over-reaction was elicited by prick or the dragged pin point with the exception of a mere trace at the roots of the first and second toes.

An operation was then decided on, which was per-

*All the tests done on this case are quantitative determinations as the patient was an intelligent subject and the results are thus reliable.

formed by Dr. A. S. Taylor. At the operation, May 4, 1915, it was found that the nerve at the head of the fibula was imbedded in a mass of fibrous tissue for a distance of 2 to 2½ cm. A section of the nerve (2½ cm.) was removed and an end-to-end anastomosis performed by carefully coapting the ends where good bundles were found and using a layer of fascia to prevent adhesions. Fine chromic catgut was used as suture material. The nerve was not freed for any longer distance. The knee was put in acute flexion to allow complete nerve union. Skin was united by first intention.

The nerve tissue removed was examined by Dr. John H. Larkin, who reported that "The mass consists mainly of connective tissue. Few healthy fibers are present and there is only slight evidence of attempts at regeneration."

On May 11 (one week after resection of the nerve) the sensory loss in the foot was the same as on the day before operation. It is interesting to note that pressure touch with the unweighted esthesiometer was present all over the foot. Rivers and Head² record similar findings after section of the external cutaneous branch of the radial nerve in the arm. Myotatic irritability in

On September 1, 1915 (four months after the operation) patient could extend the four toes and flex the foot slightly dorsally. The adduction power likewise was beginning to return.

On November 7, 1915 (six months after operation) the improvement in the motor power had increased especially in the tibialis anticus. The peronei had not improved much at the time but the patient could flex the foot dorsally quite well. The calf showed one inch of atrophy but the foot showed only one-eighth of an inch of swelling. The flexor brevis digitorum supplied by the tarsal branch of the anterior tibial, was markedly atrophied with no trace of myotatic irritability. The limb was cold. The sensory loss was as shown in chart B. The added area of impairment for light touch, chiefly above and posterior to the original area, was the result of injury of the lateral and other cutaneous branches of the external popliteal at the operation. The

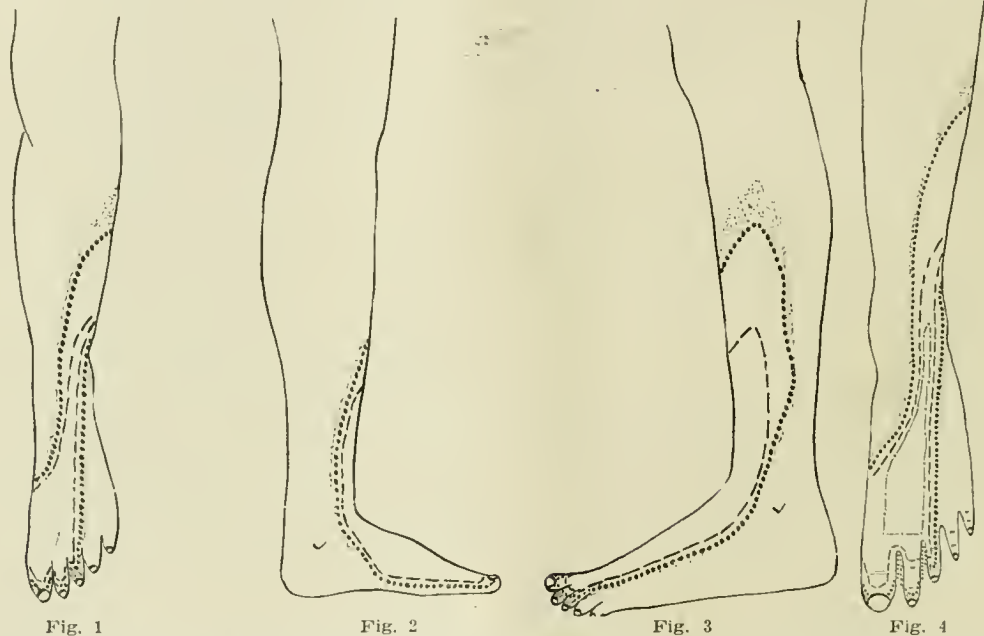


Fig. 1

Fig. 2

Fig. 3

Fig. 4

CHART A.—Sensory chart made May 3, 1915, before operation. Area bounded by heavy dots, sinking to plantar surface between toes at the web shows absolute loss for the lighter von Frey hairs; it shows also loss for intermediate heat (33° C.) and cold (25° C.). Area bounded by lighter dots shows relative loss for light touch. Area bounded by dashes shows absolute loss for prick with algometer at 2 grams pressure. Area bounded by dots and dashes shows loss for prick with the algometer at 12 grams. Area bounded by dashes shows also area of loss for gross heat (55° C.) and cold (ice). Figs. 1 and 4, anterior view of dorsum; Fig. 2, lateral aspect; Fig. 3, mesial aspect.

the anterior tibial and peroneal groups was present but considerably impaired in comparison with the sound side. On May 14 (ten days after section of the nerve) myotatic irritability in these groups had become considerably enhanced.

The patient remained in the hospital for four weeks and was transferred to the orthopedic clinic. We then began to stretch the knee gradually, placing it in plaster and changing this every week. At every sitting the knee was stretched till the patient asserted that there was a sensation of pain as if pricked by a needle.

On June 4, 1915, (one month after nerve section, faradism evoked an exaggerated sensation within the area of touch loss as compared with the sound side. The galvanic current at 5 milliamperes showed a good response. In the peroneal and anterior tibial groups, KCC being greater than ACC. No response to faradism.

On July 1, 1915 (two and one half months after operation) the knee was straight and the brace was re-applied allowing the patient to walk. At the same time, electricity, massage, and muscle training were ordered. The findings at that date showed the sensory loss in the foot was about as on May 3.

irregular sinuous saw-tooth curve of the line bounding the areas of loss for light touch and prick is characteristic of the regenerative period after nerve suture. The shaded areas represent partially returned sensibility for prick. These areas were located (a) about the middle of the area for prick loss on the outer aspect of leg and (b) proximal to the roots of the toes. The area on the leg may have borne some relation to the overlapping nerve supply (external popliteal and its external cutaneous branch) in this region.³ The brace was then changed for a more simple one which would not cause so much atrophy. He was also advised to use the foot for two to three hours daily without the brace.

In February 17, 1916, 9 months after operation, patient was able to flex the foot dorsally to an angle of 100°. Had fair power in the peronei and tibialis and increased motion in the toes.

In April, 1916 (less than a year after the operation), the patient was able to walk without the brace. In June he even played baseball. He found that he could walk without a limp but on running there was a slight limp. The brace was discontinued July, 1916.

On December 10, 1916 (19 months after operation), the sensory loss was as shown in chart C. Sensibility

for prick (algесimeter at 2 and 12 grams pressure) had returned everywhere. Localization for prick was fair in places where sensibility for touch (heavier von Frey hairs) had returned but no over-reaction or radiation was observed anywhere. The small circles on the foot indicate points of returned sensibility, the two lower areas for the finer, and the two upper ones for the coarser von Frey hairs. These spots showed variations in sensibility from day to day. In these tests, made during the cold weather, the feet were first "warm adapted" by immersion in warm water for some time.*

On June 24, 1917 (nearly 25 months after operation), the motor power in the anterior tibial and peroneal groups showed a slight weakness as compared with the sound side. The calf showed three-eighths of an inch of atrophy. Myotatic irritability was present in these groups, the response being almost equal to that on the sound side. The belly of the extensor brevis digitorum

that in which heat at 38° C. was absent. The temperature of the room was 25° C. the day being fine and warm, the relative humidity being low. On the dorsum of the foot the compass tests (points simultaneously applied) showed marked impairment e.g. at 2 cm. right

side $\frac{1}{2} = \frac{10 \text{ right}}{10 \text{ right}}$, left side $\frac{1}{2} = \frac{\quad}{2 \text{ right, 8 wrong}}$.

For the points consecutively applied the record showed almost perfect answers. The tuning fork showed some impairment over the affected limb. Prick at 2 and 12 grams was present all over but slightly impaired in comparison with the sound side. No over-reaction, but stimuli applied upon a small area (2 inches below the lower border of the head of the fibula) were referred to the dorsum of the foot and the roots of the toes. This held also for gross heat and cold (55° C. and ice) but not apparently for pressure pain. Pressure pain showed

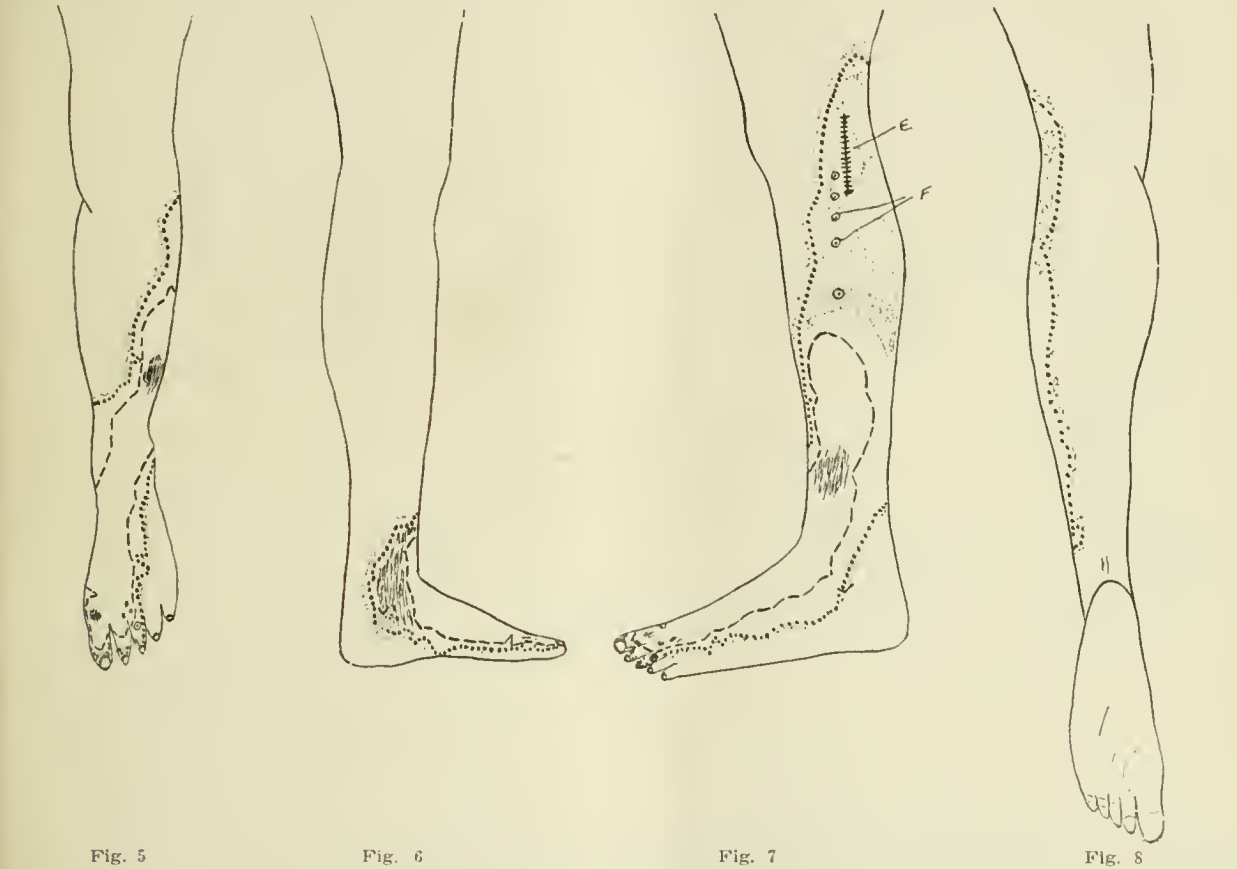


CHART B.—Showing the sensory changes on Nov. 7, 1915 (6 months after resection and suture of the external popliteal nerve). The external cutaneous and other branches have added their quota to the sensory loss. Area bounded by heavy dots shows absolute loss for light touch using the lighter von Frey hairs. Area bounded by stippled shading relative loss for same. Area bounded by dashes absolute loss for prick using algесimeter at 2 grams pressure; it also shows loss for gross heat and cold (same as for prick loss). Area represented by linear shading on lower part of leg and above roots of toes represents returned but impaired sensibility. E represents operative scar; F represents areas in which various forms of stimuli evoked correct specific sensations which were referred to various areas about the roots of the 1st, 2d and 3d toes; Fig. 5, anterior view of foot; Fig. 6, mesial aspect; Fig. 7, lateral aspect; Fig. 8, posterior aspect.

was markedly atrophied and no response could be elicited by tapping though ready response was elicited on the sound side. There were no spontaneous sensory phenomena and the two limbs seemed equally warm to the patient and to the examiner's hand. The loss for the lighter von Frey hairs was of slightly greater extent than that shown for the heavier von Frey hairs in chart C (localization being markedly impaired). The line of change for the dragged pin point corresponded closely with the boundaries of light touch loss set forth in chart C. Heat at 38° C. was absent over an area that corresponded closely with that bounded by the line of change. Cold at various temperatures ranging from 23° to 29° C. was felt all over the limbs. At 30° C. cold was absent over an area corresponding closely with

no material alteration in a series of tests with the algесimeter. On July 13, 1917, myotatic irritability was present but slightly impaired in the anterior tibial and peroneal groups. In the same groups there was a good though somewhat impaired response to faradism and galvanism. No response could be elicited in the atrophied extensor brevis digitorum by faradism and galvanism or by mechanical stimulation. For comparison we reproduce here in chart D a case of musculospiral paralysis. Compare the dorsal views of the foot and toes in chart A.

Comments on the Findings in This Case.—From the neurological aspect these features are interesting:

1. The site of original injury to the nerve was

*Since presenting the case two additional notes viz. June 24 and July 13, 1917, were made.

below the origin of the external cutaneous branch. The area of sensory loss is shown in Chart A. Resection of the nerve at operation did not alter the boundaries of this area upon the foot, but superimposed a new area of loss enlarging the original area upward and posteriorly on the limb. The external and other cutaneous branches of the nerve were evidently involved at or after the operation (the added areas of sensory loss corresponding to the distribution of these branches (see Charts B and C).

2. The external popliteal nerve bears a close analogy to the radial branch of the musculospiral in the arm. Careful sensory tests with measured stimuli showed that the sensory distribution on the

Contrast the hyperalgesia (causalgia of Weir-Mitchell) and the intense suffering which follow untreated wounds of the nerves and imperfectly performed nerve resection and suture, especially where the injured limb is subjected to prolonged immobilization.

4. Well marked allocheiria was present during regeneration, *e.g.* stimuli such as cold at 20° C. applied upon areas of defective sensibility about the level of the head of the fibula were appreciated correctly, but were referred to the region of the roots of the great toe and its immediate neighbors. It was in this latter region only that anything like over-reaction to painful stimuli was obtained at any time. This fact has an important bearing on the

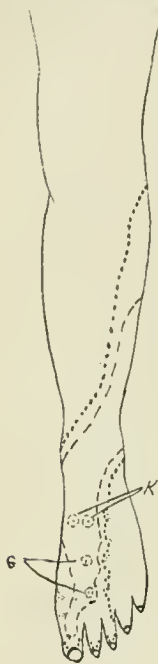


Fig. 9



Fig. 10

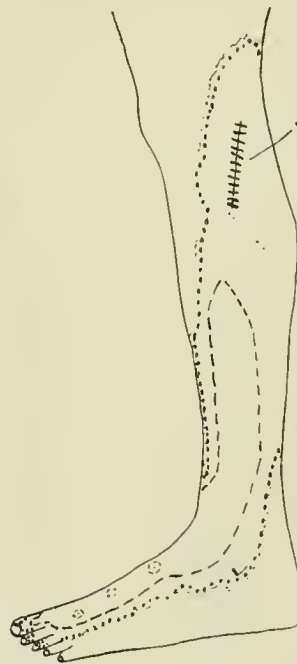


Fig. 11

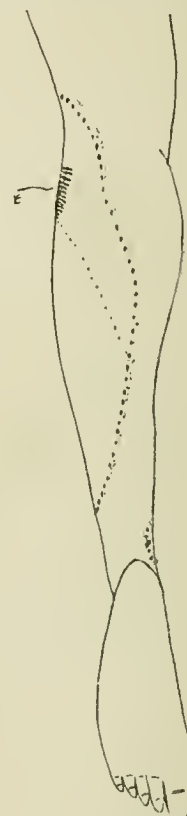


Fig. 12

CHART C.—Area bounded by heavy dots shows loss for light touch, using the lighter von Frey hairs; it shows also marked impairment of compass tests, points simultaneously applied; it shows loss for intermediate heat and cold (corresponding roughly with area of loss for light touch); and it shows also line of change for dragged pin points. Area bounded by dashes shows loss for the heavier von Frey hairs. Prick with algometer at 2 and 12 grams; sensibility present but impaired everywhere. No over-reaction or radiation. Gross heat and cold were felt everywhere but sensibility impaired; G represents area of returned sensibility for the lighter von Frey hairs; K represents area of returned sensibility for the heavier von Frey hairs. A second "line of change" of sensation is represented by the finely dotted line running downward and backward from the operative scar (E), corresponding probably with the bounds of distribution of the external cutaneous branch. Fig. 9, anterior view of foot; Fig. 10, mesial aspect; Fig. 11, lateral aspect; Fig. 12, posterior aspect.

dorsum of the foot also on and between the toes corresponds exactly with the distribution of the radial nerve upon the hand as found by one of us (Byrne) in several cases of section and suture of the radial nerve and of its branches supplying the dorsum of the hand. Compare Charts A and D.

3. There was almost complete absence of spontaneous pain and of the annoying discomfort and over-reaction incidental to the stage of recovery when "protopathic" sensibility is the predominating feature. The painless recovery is to be attributed to the orthopedic after-treatment (massage, judicious exercise, etc.), and the accurate adaptation of the fragments, primary union, manipulation, etc.

question as to the mechanism of allocheiria, referred and reflected pain, etc. Discussion of this question is reserved for a future communication.

5. Before resection of the nerve, April 28, myotatic irritability was present, but impaired as compared with the sound side, in the anterior tibial and peroneal groups. Thus tapping these muscles caused no appreciable response in the foot, toes, tendons, or muscles. Ten days after the operation, May 14, myotatic irritability was markedly increased, tapping the muscles causing well marked contraction with movement of the foot, tendons, and toes (dorsal flexion, etc.) Six months later, Dec. 25, no definite response to tapping the muscles of

this group in either leg could be elicited. At this time, however, the patient was, of course, up and around, and had walked a great deal just before the tests were made. Schiff¹ states that muscle irritability always increases for some time after section of the motor nerve. It is well to remember that the muscles of the outer aspect of the leg, like those of the radial side of the arm, may have a supplementary motor nerve supply coming from the nerves supplying the flexors.

6. The delay in full restoration of "epicritic sensibility," as shown by examination, nearly 26 months after suture of the nerve is a usual occurrence as is marked variability of the "epicritic sensibility" with weather conditions (cold weather impairing and warm weather enhancing sensibility). The appreciation of cold at all degrees below 30° C. shows that no hard and fast limits can be laid down for the epicritic ranges of temperature. The tem-

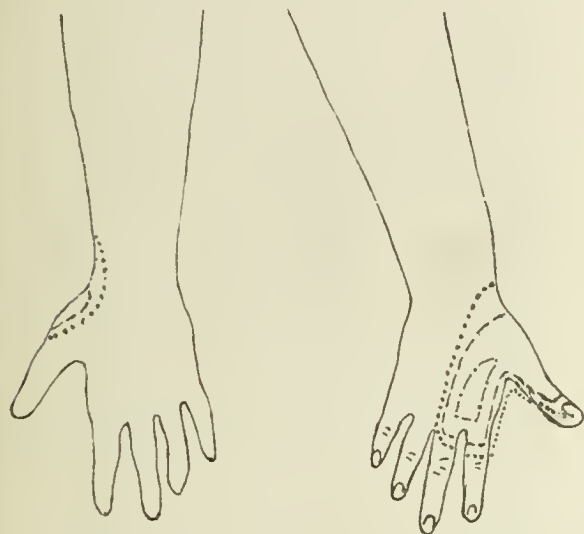


Fig. 13

Fig. 14

CHART D.—A case of musculospiral paralysis following fracture of the humerus for comparison with our case. Area bounded by heavy dots shows loss for the lighter von Frey hairs. This line sinks to the palmar surface between the thumb and index finger and between the index and middle fingers. This corresponds to the loss for light touch after section of the external popliteal nerve, Figs. 13 and 14. Compare Chart A, Figs. 1 and 4. Area bounded by dashes shows loss for prick with algometer at 2 grams pressure. In this case neuroplasty was performed and motor power began to appear in the extensors of the wrist 15 months after the operation. Return of cutaneous sensibility was somewhat irregular and retarded as compared with the case now reported. Fig. 13, palmar surface; Fig. 14, dorsal surface.

perature of the part to be tested is, of course, a factor that always demands consideration. The test, however, made in June 24, 1917, with carefully dried tubes, etc., seem to show that Head's range for epicritic cold, viz., 25° to 27° C., must not be regarded too literally.

7. The rapid recovery of motor function was remarkable even after making due allowance for the proximity of the muscles innervated. This must be attributed (1) partly to the orthopedic treatment (protective apparatus, etc.) from the beginning which prevented overstretching of the toneless muscles and kept the muscles in the optimum condition for functional reunion with the regenerating axone processes, (2) partly to the perfected technique of the neuroplasty, and (3) to the proper use of the muscles.

8. Cases of nerve injury with paralysis of the

muscles should be looked after from the beginning to prevent overstretching, deformity, etc., and where the symptoms, sensory or motor, do not clear up in a short time, *e. g.* in two or three weeks, exploratory operation is indicated.

9. At present many of these operations for injuries of the peripheral nerves caused by bullets are performed at the base hospitals and excellent results are reported. In civil life, on the contrary, such operations are usually neglected. These cripples are sent to the orthopedists and some orthopedic operation is done on the joints. If we can get such improvement after a delay of nine months from injury to operation how much better are the chances if we are able to perform the operation immediately after the injury? We feel certain that in a case where a suspicion of an injury to a peripheral nerve is present, an exploratory incision is justified. The nerve can be inspected and if found intact nothing has been lost. There is only the skin to be closed.

Conclusions and Summary.—1. In any case where an injury to a peripheral nerve capable of causing permanent loss of function is suspected, an exploratory incision is justified.

2. Good results can be obtained in suturing nerves even if a considerable time has elapsed between the injury and the operation.

3. Even a gap of 2½ cm. can be bridged by stretching the nerve gradually and there is no need of nerve grafting or resecting the nerve for some distance.

4. Pain is absent in straightening and using the limb subsequent to the operation if this is done gradually.

5. The motor function returned quite early while the sensory return was slow.

6. Orthopedic treatments are necessary after operation to prevent stretching of the denervated muscles while the regeneration of the nerve is taking place. An overstretched, denervated muscle will not readily recover its normal length or tonus.

REFERENCES.

1. Chas. H. Frazier: *Surgery of Peripheral Nerve; Surgery, Gynecology and Obstetrics*, February, 1917, vol. 24, p. 147.
 2. Rivers and Head: *Brain*, XXXI, 1908.
 3. Head: *Brain*, XXVIII, 1905.
 4. Schiff: *Ges. Beiträge*, Bd. iii 107, Lausanne, 1896.
- 244 WEST ONE HUNDRED AND FIRST STREET.
115 WEST FIFTY-FIFTH STREET.
529 COURTLAND AVENUE.

DERMATOSES OF THE SCALP.*

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CLINICAL material of any specialty in medicine can be classified in several different groups, according to the viewpoint taken as a basis of classification. Thus cases can be divided in groups according to their pathology, etiology, morphology, or according to their subjective, symptomatological, therapeutic, or any other characteristics. Topographic or regional classification has proven its clinical usefulness on many occasions. It is frequently adopted by

*Read before the West End Medical Society of Cincinnati.

surgeons who find it practical and serviceable to consider, as a clinical unit, surgery of a certain part or region of the body, such as surgery of the head, chest, joints, limbs, etc.

A similar principle can be readily adopted by dermatology to emphasize the clinical value of certain parts of the body. The grouping of dermatological lesions of the scalp into one clinical unit is justifiable not only because the scalp is, probably, subject to a greater number of dermatoses than any other part of the body, but also because both diagnosis and treatment of the scalp present peculiar difficulties due to the hairy covering. This anatomical fact of hairy covering readily accounts for the multiplicity of scalp dermatoses and allows us at once to divide these dermatoses into two groups: Diseases of the skin proper and diseases of the hairy appendage.

The difficulties of diagnosis of scalp dermatoses are obvious, since, even in the dry forms, the diseased area is covered and disguised by the mass of hair. In exudative forms these difficulties of recognition greatly increase, as exudative secretions accumulating, drying up, and glueing with the masses of hair, form matted and solid masses of softer or harder consistence. For this reason the first step in making a diagnosis should be the cleaning up of the diseased area by removing crusts and accumulated masses, after softening them with oily solutions, and cutting the hair, if possible.

Eczema.—Among diseases of the skin proper on the scalp, eczema is one of the most common. Yet, in the majority of cases, it does not develop spontaneously and primarily on the scalp, but either spreads on the scalp from the face and neck, or develops secondarily as a complication of some other affection of the scalp, such as pediculosis, impetigo, seborrhea, etc. Thus, in every case of eczema of the scalp, the primary diagnostic consideration should be to determine whether the eczematous condition is of primary or secondary type.

In many cases eczematous features, while having been developed secondarily, so dominate the clinical picture as to disguise and mask the primary affection, such as pediculosis, impetigo, seborrhea, etc. Yet differentiation can be made out, almost in all cases, without particular difficulties, if only we keep in mind the individual clinical characteristics of each dermatosis.

The constant and essential clinical features of eczema without which a positive diagnosis cannot be made are: Eczema has no sites of predilection on any part of the body, and it can occupy any part of the scalp. Eczematous patches have no tendency to assume any definite, regular, or fancy outlines, such as ring-like, circinate, kidney-shaped, etc. Eczematous patches have always ill-defined borders, gradually merging into healthy skin. The only exception to this rule is found in the parasitic types of eczema, which have rather sharply defined outlines. Eczematous lesions, no matter of what type they may be—macular, papular, vesicular, or pustular—never remain discrete, but show a constant tendency to run together into patches. Common eczema never produces ulcers, scars, or loss of hair, and is always associated with intense itching—again with the exception of the parasitic forms, which are the least itchy.

This classical symptom-complex characterizes primary uncomplicated eczema. Should eczema be secondary to some other dermatosis, it will always betray itself by some additional features, uncommon to eczema, or by some modification of cardinal eczematous characteristics.

Thus eczema, following pediculosis, preferably attacks the occipital and temporal regions and follows closely the hairline. Pediculosis eczema is mostly of the pustular variety and presents many scattered patches instead of large diffuse areas spreading in continuity.

Impetiginous eczema of the scalp, *i. e.*, eczema complicated with pus infection, may develop either from a simple eczematous patch, invaded by pus germs, or through eczematous inflammation, engrafting on unrecognized or mistreated impetigo. In spite of a great similarity of these two clinical forms careful examination of the lesions will always enable a clinician to interpret correctly the clinical picture. In the case of eczema complicated with pus infection, there will be presented a diffuse inflammatory area with ill-defined borders, covered with a diffuse purulent exudate or greenish crusts. In the case of impetigo complicated with eczema, there will be found discrete patches with typical impetigo "stuck on" crusts, with inflammatory reaction between and around the patches. Eczema complicating ringworm is particularly common in children, whose tender skin violently reacts to all kinds of irritants. It is the true type of parasitic eczema, and its characteristic features are discrete, sharply defined borders which are usually more active than the central part, slight or no tendency to exudation, and mild itching.

In all these dermatoses of double nature the primary affection is to be treated first, unless the superimposed eczematous inflammation is of hyperacute character, in which case it is to be attended to first.

The treatment of eczema of the scalp is to be conducted on the same general principles as that of eczema of other parts of the body, with one important modification. Should the cutting of the hair be impractical or objectionable, oily or fluid applications should be used in preference to ointments. Should the ointments be used, however, the Lassar paste, which is a most admirable and the most frequently used base elsewhere on the body, is particularly objectionable because of its heaviness and thick coating properties, rendering the cleansing so difficult, and should be replaced by vaseline, lanoline, or lard.

Impetigo.—Impetigo is an extremely common affection of the scalp, mainly in children, and, for this reason, it merits the attention of every practitioner. It may be of the type of impetigo contagiosa, transferred by self-inoculation from the face and hands. In this case the clinical picture will present discrete, sharply defined patches with bulky, "stuck on" crusts, without inflammatory reaction and without itching. The primary impetigo of the scalp is of pustular and follicular type; it may, though, develop secondarily in pediculosis. If not recognized and if treated as eczema with indifferent salves, it may lead to infection of the lymphatics and to deep abscesses. The treatment in the early stages is simple: White precipitate ointment

i.e. mercury ammoniate 5 to 10 per cent. applied after a thorough removal of the crusts acts as a specific; sulphur, 5 to 10 per cent. in lotion, is also good.

Seborrhea.—Seborrhea, i. e., an oily condition, is unquestionably the most important of all diseases of the scalp, not only because it is the most common affection, but because it produces a permanent and extensive alopecia more often than any other disease of the scalp. It is surprising how often it is unrecognized, ignored, and left untreated. Yet by a persistent and rational treatment in the early stages the loss of hair can be stopped, or at least checked and held in abeyance for many years, while in advanced stages it is practically incurable.

Seborrhea is, admittedly, of infectious nature, though the microbe is not specifically isolated. Clinically, seborrhea is manifested in two forms—dry and oily, seborrhea sicca and seborrhea oleosa.

A common condition of furfuraceous exfoliation of dry, grayish white scales—the condition, known to the laity under the name of dandruff—is often regarded as a form of dry seborrhea. This condition—*pityriasis simplex*—is often associated with seborrhea, but, as a clinical entity, it is distinctly separate from seborrhea. Pathologically, pityriasis simplex is simply hyperkeratosis, and its scales are nothing but normal keratinized epithelial cells exfoliating in excess; they have nothing in common with the oily secretion of the sebaceous glands observed in true seborrhea. Bacteriologically, it is due to the spores described by Malassez. Pityriasis should not be left untreated, as it tends to be complicated in time by a true seborrhea with subsequent alopecia. The treatment of pityriasis simplex is similar to that of seborrhea.

The dry form of true seborrhea is characterized clinically by heavy, greasy, yellow scales, adherent to the scalp and hair, and tending to accumulate in crusts. As pointed out by Sabouraud, it commonly develops from pityriasis simplex through a secondary infection with the polymorphous coccus called *Morococcus* of Unna, and growing in characteristic gray colonies; the condition is called *pityriasis steatoides*.

The oily form of seborrhea is manifested by the oily appearance of the scalp, and it is commonly associated with a similar condition of the forehead and nose. If the skin is pinched between the fingers, a number of minute, white wormlike masses can be squeezed out. These greasy accretions are called seborrheic filaments and constitute a characteristic lesion of seborrhea. This condition is often combined with hyperhidrosis. The offending organism is believed to be a microbacillus described by Sabouraud. Occasionally the seborrheic condition sets up an inflammatory reaction of the skin, and thus plain seborrhea is converted into *seborrheic dermatitis*.

The diagnosis of seborrhea presents no difficulty in a typical case. Heavy, greasy, yellowish scales, forming plate-like masses, spreading from the top of the head downward in diffuse, ill-defined areas, are sufficiently characteristic to prevent confusion. *Seborrheic dermatitis* is most likely to give rise to a confusion, as it may closely simulate in appearance eczema, psoriasis, and ringworm. Above all other clinical characteristics should be kept in mind the

tendency of seborrheic dermatitis to spread from the top of the head downward, extending way beyond the hairline on the neck and face and invading with a remarkable constancy the sternal and interscapular regions, and in women the regions between and under the breasts.

From eczema it differs by inducing little or no itching, by a slighter inflammatory reaction, by the absence of papules, vesicles, or pustules, and by the lack of tendency to exudation or infiltration.

From ringworm, besides a characteristic distribution and yellowish, heavy scales, it can be differentiated by the absence of a tendency to clear up in the central part and to be active on the edges, by the absence of hair stumps and patchy alopecia, and by the microscopic test for fungus.

From psoriasis seborrheic dermatitis is differentiated by the absence of the silvery white scales, of sharply defined borders, of intensely inflamed base, and by the difference in sites of predilection. It must be admitted, however, that in some cases it is well nigh impossible to differentiate between psoriasis and seborrheic dermatitis. The fact, that these two affections so often resemble each other and yield to the same group of local applications, is highly significant and points to a closer relationship between them, than it is realized at present.

The treatment of seborrhea is promising only so far as the clearing up of active lesions. We do not know at present of anything that can prevent the recurrences. A permanent cure will, probably, be found along serological lines. The symptomatic treatment consists in washing and cleansing with water and green soap, after a preliminary softening with oil containing 2 per cent. of salicylic acid. Sulphur precipitate, resorcin, betanaphthol 2 to 5 per cent., in watery or alcoholic solutions and oily suspensions are most serviceable. A 5 per cent. ointment of mercury ammoniate is also good. Very efficient is a lotion containing resorcin 1 to 2 per cent., chloral hydrates 5 to 10 per cent., in 10 to 25 per cent. alcoholic solution. It should be kept in mind that resorcin occasionally discolors blond hair green. The acute stage of seborrheic dermatitis is to be tided over with a saturated solution of alum acetate—one tablespoonful in a glass of water or equal parts of lime water and liquid albolene.

Psoriasis.—Psoriasis of the scalp is usually secondary to eruptions on other parts of the body. The diagnosis is made on the presence of the clinical characteristics of psoriasis, which are sharply defined borders, infiltrated, dry, acutely inflamed base, papillary hemorrhages on scratching, silvery white scales (which are pathognomonic, if present), absence of itching, and the history of a chronic course with recurrences. It is to be differentiated from eczema, ringworm, impetigo, syphilis, and seborrheic dermatitis. Differential points have been cited above in the discussion of individual dermatoses. In the treatment of psoriasis, it is well to keep in mind that chrysarobin, our best local remedy in psoriasis, should not be used on the scalp, first, because it may discolor light hair, and, second, because it is very irritating and is apt to set up a violent conjunctivitis. Chrysarobin is usually substituted by mercury ammoniate, salicylic acid, or beta-naphthol.

Syphilis.—Syphilis of the scalp, as a clinical prob-

lem, does not present many difficulties. Syphilides of the scalp are either of secondary nature, as a part of the general eruption in the early stage of the secondary period, in which case the macular and papular types prevail, or it is of primary character, and then it may be limited to the scalp only. A primary syphilide of the scalp is, ordinarily, of the late secondary or tertiary period, and shows a great predilection to assume the pustular, follicular, and gummatous type.

The diagnosis, besides the specific history and possible lesions elsewhere on the body, is made on the presence of general specific cutaneous stigmata, which are a dusky red color, infiltrated base, tendency to form serpiginous or circinate lesions and to ulcerate, producing punched-out ulcers, with scant, gummy secretion drying into greenish crusts, with subsequent formation of soft, thin scars. The differentiation is to be made from impetigo, ringworm, psoriasis, and epithelioma.

Warts.—Some clinical attention should be given to warts on the scalp, not only because, if numerous, they are annoying in the extreme, but also because, due to the constant mechanical irritation, while combing, there is always a latent danger of malignant degeneration. The best method of removing them is by fulguration with the high-frequency current.

Among dermatoses that occur on the scalp, mostly by extension from the face and neck, and only rarely primarily, can be mentioned: Erysipelas, lupus erythematosus, scleroderma, dermatitis exfoliativa, and lichen planus. But because of their comparative rarity they are only of minor interest to a general practitioner, and their consideration will be here omitted.

This completes the review of scalp dermatoses limited to the skin proper. Now we can turn to diseases of the appendages of the skin, viz., the hair follicles and sebaceous glands. There are many, but we will consider only the clinical forms most likely to occur in general practice.

Among diseases of the hair, parasitic forms are most common, and are of great clinical interest. Here belong pediculosis, ringworm, favus, and syco-
sis.

Pediculosis capitis.—Pediculosis of the scalp is so common as to be almost regarded an endemic disease. In the average case it is recognized and successfully treated even by an intelligent layman, who uses crude petroleum mixed with oil as a home remedy. But in the cases, where living parasites or their nits are not in evidence, and in those masked by secondary eczema or impetigo, the diagnosis may be missed even by the physician, if the points of differential diagnosis are not kept in mind. Should the case prove resistant to ordinary treatment, there are a number of other efficient applications available, such as tincture of delphinium, 5 per cent. naphthol in oil, tincture of cocculus indica, equal parts of ether and xylol, bichloride solution, 1/1000, etc. The important detail is to remove all the nits by painstaking combing after a preliminary dissolving of their attachments with diluted acetoic acid. It is essential also that all hats, collars, pillows, brushes, and combs used by the patient should be thoroughly disinfected to prevent a recurrence.

Ringworm of the Scalp.—Ringworm is unquestionably the most often unrecognized and mistreated dermatosis of the scalp and the most frequent cause of alopecia in children. Bacteriologically, ringworm is due to several varieties of trichophyton fungus—small-spored, large spored, etc. Clinically, it is sufficient to recognize four main types: (1) Large discrete patches; (2) small multiple disseminated patches; (3) kerion, the pyogenic type; (4) the alopecia type.

All these clinical forms, however, present certain constant features, pathognomonic of ringworm, which render the diagnosis positive and definite. Ringworm patches are always sharply defined, and always show a tendency to spread at the periphery, so that the central part of the patch, being the oldest in time of development, reaches first the stage of involution and begins to clear up while the edges are the seat of younger and more active lesions. Broken hair stumps are another constant clinical feature of the ringworm. Alopecia, usually, is of the patchy variety, and is only exceptionally complete. The hair becomes dry, lusterless, opaque, brittle, and easily breaks off. Scaling is not excessive, and presents nothing characteristic. An inflammatory reaction is seldom present, and the skin is usually unaltered in color. The prevalent form of ringworm may be due to a certain strain of fungus, and is commonly of pustular type. It reaches its extreme development in the kerion, which simulates perfectly an abscess.

Ringworm of the scalp is to be differentiated from seborrheic dermatitis, psoriasis, favus, squamous eczema, and alopecia areata. The differentiation is made on the points stated above in the discussion of individual dermatoses. The final positive test is the microscopic finding of the trichophyton fungus, after maceration of the hair in 10-30 solution of potassium hydrate, either unstained, or stained with methylene blue.

The treatment of ringworm has been revolutionized with the introduction of x-ray. Epilation by massive measured doses of x-ray is the only radical cure known at present in the chronic stubborn forms. The hair falling after epilation does not return under 2 or 3 months. The treatment should be entrusted only to an expert radiologist. If the x-ray is inaccessible, cleansing with a 2 per cent. salicylic acid in oil, and antiseptic ointments like sulphur 5-10 per cent., or mercury, are serviceable. Also useful are alcoholic solutions of bichloride, 1000; tincture of iodine 10-25 per cent., chrysarobin 2-10 per cent. in ether, benzine or terpentine, betanaphthol 1-3 per cent. in alcohol, and salicylic acid 2-6 per cent. in alcohol.

Favus.—Favus is a rather rare disease in this country, and is mostly imported from abroad. It is extremely characteristic in appearance. It presents discrete or confluent dry patches covered by sulphur-yellow, cuplike crusts, which are perforated by a hair; other characteristic features are asbestos-like dry, grayish masses, a peculiar mousy smell, dry, lusterless hair, and resultant permanent alopecia. Microscopical finding of the fungus is necessary in doubtful cases. Treatment is similar to that of ringworm.

Folliculitis decalvans.—It is rather surprising that syco-
sis—i.e. pus infection of hair follicles, a

condition fairly common on the hairy parts of the face—hardly ever occurs on the scalp in its usual form. It assumes here a modified clinical appearance, and is described under a name of folliculitis decalvans. It differs in clinical appearance from ordinary sycosis mainly by the absence of marked inflammatory reaction and by a predominance of atrophic features—follicular scars slowly leading to patchy alopecia. The disease is very slow in development, and is more resistant to treatment than sycosis.

Alopecia.—Alopecia—i.e., loss of hair—is obviously not a disease by itself, but a mere symptom; yet it is conveniently described as a separate clinical unit because of its great practical importance.

Alopecia can be *congenital*, partial or complete. *Acquired* alopecia presents many clinical types of varying etiology. Their careful differentiation, therefore, is very important, in regard to both prognosis and treatment.

The first type of alopecia, which can be considered physiological, is *senile*, which is commonly associated with other symptoms of partial or general physiological decline, such as hair turning gray, lusterless, and weak. The age of its onset varies in different individuals.

Alopecia prematura idiopathica is due to the defective heredity in this particular line, or to some local affection of the scalp. In many cases this hereditary weakness of the hair is enhanced by other unfavorable factors, such as defective care of the hair, excessive washing, wearing of tight hat bands, continual mental strain, bad air, etc.

Alopecia prematura symptomatica may be due to a number of pathological conditions, the most important of which are of parasitic character, and which present the following clinical types:

Alopecia seborrheica.—It has been mentioned before that seborrhea produces more cases of alopecia than any other disease of the scalp. Alopecia seborrheica is recognized by the presence of yellow, greasy, heavy scales, and by a typical distribution, first on the vertex and then gradually descending, as an ill-defined diffuse area; also by an extremely slow development, with many remissions, and no pathological gross changes in the scalp or the hair.

Parasitic alopecia, due to the fungus of ringworm or favus, will show the above-mentioned clinical characteristics: sharply defined patches with clearing central part and active scaly borders; dull, lusterless, brittle hair; numerous hair stumps in the case of ringworm, and sulphur-yellow, cuplike, mousy-smelling masses in favus.

Syphilitic alopecia in the secondary stage is diffuse, and shows the thinning of the hair all over the scalp, with many small bald patches; so-called *moth-eaten* type of alopecia. Syphilitic alopecia of the tertiary period is of a different character; it presents single or multiple discrete patches of typical specific, scarry tissue—the sequelæ of broken-down and healed-over gummata.

Alopecia due to sycosis or folliculitis decalvans is also of a patchy variety, showing numerous follicular scars.

The last, but not the least, is *alopecia areata*, a fairly common condition in both adults and children. The clinical picture is so characteristic that it should permit no difficulties of recognition. Sin-

gle or multiple patches of oval, round, or variously shaped outline, sharply standing out on the dark background of the surrounding hairy covering, areas of complete and absolute baldness, with perfectly normal skin, unaltered in color or consistence; with no evidence whatever of pathological changes in or around the hair follicles and sebaceous glands; with no scaling, exudation, or crusting of any kind; without itching or any other subjective symptom; with a history of a sudden onset and rapid falling out of the hair in bunches and strands, this symptomocomplex can hardly give rise to a confusion with anything else. In atypical cases, a differentiation is to be made from other types of alopecia on the differential points considered above.

The pathology of alopecia areata is unknown. It is considered by some to be of toxic or trophoneurotic, by others of infectious nature, or a reflex neurosis.

The treatment of alopecia areata consists in the removal and control of the etiological factor, if discoverable. Symptomatically, general tonics and local irritant and stimulating applications, all of which work on the same principle, by producing an active hyperemia of the scalp, increasing the blood supply and thus stimulating the nutrition of the hair. Among numerous applications of this character can be mentioned lotion of tincture of cantharides, tincture of capsicum, tricrosol in 25-50 per cent. solution, chrysarobin in collodion, formalin 20 per cent., lactic acid 30-50 per cent., etc. The best results are obtained by daily stimulation with the high frequency current and massage of the scalp. The prognosis in alopecia generally is good, as the hair returns in most of the cases, though it may take many months for a complete recovery.

Conclusion.—This completes our clinical review of scalp dermatoses. Brief and incomplete as it may be, it clearly shows what a large and important clinical group they form, particularly in children. A differential diagnosis of these dermatoses can be made on definite clinical characteristics and by careful analysis of clinical lesions. The prognosis in this group of diseases is in general favorable, as most of them are very responsive and readily yield to chemical and physiotherapeutic agents.

34 WEST SEVENTH STREET.

STATUS LYMPHATICUS; DEATH FOLLOWING TONSILLECTOMY; AUTOPSY.*

BY WILLIAM WESLEY CARTER, A.M., M.D., F.A.C.S.

NEW YORK.

ON October 4 there was, among the fourteen cases of adenoids and tonsils to be operated upon that afternoon in my service at Gouverneur Hospital, a little girl five years of age. The child was of a nervous and excitable temperament, and was terribly frightened on being admitted to the hospital. She was poorly nourished, but there was no evidence of any definite organic or constitutional abnormality. No family or previous personal history could be elicited bearing upon the condition from which she succumbed. The tonsils were enlarged and were of the submerged variety. The adenoids were in moderate amount.

At 2.55 P.M. this child was etherized by an expert anesthetist. The tonsils were enucleated by the Sluder method, and the adenoids were removed with the Gott-

*Read before the Society of Alumni of Bellevue Hospital, Nov. 7, 1917.

stein curette. The actual operating time was not over two minutes. There was only moderate bleeding and the patient was removed to the ward in good condition. At 5.55 P.M., three hours after the operation and after the child had recovered from the anesthetic, the nurse noticed that she suddenly became cyanosed. Death ensued before the house surgeon could be summoned. The usual means were employed to revive the patient.

The autopsy was performed by Dr. Schwartz three hours after death. The following were the salient features noted in the report. Thymus gland enlarged, reaching over base of heart and blood vessels; weight 21½ grams. No constriction of the trachea was noted. Heart: foramen ovals open; valves normal. Larynx, trachea, and bronchi normal. No evidences of post-operative hemorrhage. Spleen normal in size. Malpighian corpuscles unusually prominent. Mesenteric glands and solitary lymph follicles of the intestine enlarged. Retroperitoneal glands enormously enlarged, these being the size of hazel nuts. Kidneys normal.

Pathological Diagnosis: Status Lymphaticus.

I am prompted to report this case because of the rarity of the disease, because of the uncertainty which surrounds its pathology, because of its grave significance in operative cases, and because the profession should be constantly reminded that there is such a condition as status lymphaticus, and that it is a menace which must be reckoned with by every operator. It is a danger, too, which, in the present state of our knowledge, cannot be forestalled and guarded against.

These cases are not common. In my own experience, which includes many thousands of adenoid and tonsil operations and a large number of other conditions requiring operation under a general anæsthetic, I have met with only two cases of status lymphaticus, both of which were first identified at autopsy.

According to Bovaird and Nicoll, who weighed and measured the thymus in 495 consecutive autopsies, this gland is 3 cm. wide and weighs 7 gm. in a child one year old. It increases in size for three or four years, and then gradually decreases until puberty is reached, when it either disappears or remains throughout life in a much atrophied condition.

The anatomical relations of the thymus are important. A study of these will indicate at once how an enlarged gland may press upon adjacent vital structures; this is especially true since the thymus lies between two unyielding bony structures, the vertebral column and sternum, the difference between these up to the second year being only 2 cm. The phrenic nerves and the pericardio-phrenic artery are in relation with the thymus on both sides. The lower pole of the gland rests upon the pericardium, reaching usually to the fifth costal cartilage; the posterior surface lying upon the right auricle and ascending aorta and sometimes reaching as far as the bifurcation of the trachea. On the right side it is in contact with the superior vena cava and right innominate vein. The gland has a rich arterial supply, but the veins emerging from it constitute only a single small plexus. This disproportion between the afferent and efferent blood-vessels would seem to favor rapid engorgement of the gland. This has been claimed by some writers to be the cause of sudden death following fits of anger or prolonged crying spells.

The various conditions caused by enlargement of the gland have been stated by Pfaundler to be: (1) Tracheal stenosis; (2) conditions caused by

pressure by the gland upon the circulatory system and nerves; (3) status lymphaticus; (4) laryngo-spasm; (5) discrasies caused by functional disturbances of the gland itself.

Only two views have received wide acceptance: (1) That there is a neurosis of some sort, toxic or otherwise, and that death is a cardiac death; (2) that there is compression of the trachea and that death is due to strangulation.

Apparently the case which I report to-night was a cardiac death. These are the cases that give no warning, and the only evidence is revealed at the autopsy.

In operative cases death may occur during the administration of the anesthetic, two or three hours, or as long as twenty-four hours after the operation. In my opinion the anesthetic and not the operation is usually the important factor in determining the fatal issue in thymus cases.

In regard to compression of the trachea and death by strangulation: These cases, as a rule, give a history of gradually increasing dyspnea extending over a period of weeks or months. In 1904, Jackson reported the case of a child 4 years of age in which the compression was demonstrated by the aid of the bronchoscope. The dyspnea was relieved by using a long tracheotomy tube and cure was later effected by removing the thymus.

There have also been reported a number of cases of impending strangulation that have been relieved by the surgical removal of a portion of the gland, or by pulling the gland forward and stitching it to the sternum.

One case is reported as having been relieved by x-ray treatment.

In 1904 I reported before this society a case of thymic tracheostenosis. The patient, a baby five weeks old, was brought to the hospital suffering from extreme dyspnea. This condition had existed from birth and had been getting much worse. Tracheotomy and the introduction of a long tube relieved the dyspnea, but the child died later from bronchopneumonia.

There is at present, so far as I know, no certain means for diagnosing this condition in children. Probably the x-ray is best, but its evidence is fallacious, and at best can scarcely be considered more than corroborative.

A closer study and a more intimate knowledge of the internal secretion of the thymus gland may suggest some test either of the blood or the secretions which will enable us to unravel the mystery which now surrounds the pathology of this gland.

69 WEST FIFTIETH STREET.

Therapeutics of Epidemic Icterus.—Foà in the belief that this affection is due to a protozoan has used quinine, methylene blue, arsenicals and mercurials without the slightest effect on the course of the disease with the possible exception of calomel.—*Giornale della R. Accademia di Torino*.

Acute Dropsical Fatal Beriberi.—Fiessinger and Leroy saw a case of dropsical beriberi in a negro end fatally in 10 days, with cardiac arrhythmia and acute suprarenal syndrome (lumbar and epigastric pains, hypotension, etc.). The postmortem examination showed degeneration of the heart, liver kidneys, and adrenals.—*La Presse Médicale*.

Military Medicine.

THE NECESSITY FOR SURGICAL INTERFERENCE IN WOUNDS OF THE HEAD FROM PROJECTILES.

DURING the first year of the war, in which cranial surgery underwent a sudden evolution, a number of statistics were published showing that the immediate results of craniocerebral surgery in serious cases are very encouraging, while the remote results are better than some pessimistic statistics might lead one to believe. So far as cerebral lesions are concerned, a mean figure of 60 per cent. of successful outcomes from trephining may be at present admitted. Lapointe concludes that if these cases were not operated on, given the complications which inevitably occur and which can be avoided only by trephining, the mortality would reach 90 per cent. In these cases of extensive cranial lesions with large perforations, it is unquestionably the proper practice to operate at the ambulances at the front, because early operation offers the only hope of saving the patient. The evacuation of these patients should be delayed as long as possible, because the trip to a base hospital is always badly borne by them.

Considering now trephining for cranial traumatism without cerebral lesions, the mortality given by Lapointe is 7 per cent. Tixier's statistics give about 6 per cent. mortality (35 operations with 2 deaths). Even should these figures be above the actual percentage, on account of remote complications which may arise, it is quite certain that 10 per cent. would be the utmost limit. Therefore, it is the surgeon's duty to trephine in these cases, because when left untreated the mortality at once reaches from 35 to 40 per cent.

In minor cranial wounds, those that must be sought for in order to be detected, the urgency for operating is less absolute perhaps, and it will probably be better practice, when the number of wounded coming in is very great, to evacuate such head cases to the rear, but only on the condition that they can be properly operated on if necessary and followed for a long time.

The evacuation of cases of head injury must not be done lightheartedly, because the occurrence of infectious phenomena not infrequently follows the change to another ambulance or base hospital. The ideal would be for the surgeon who trephined to be able to follow the case for at least some weeks. At all events wounds of the skull should be operated on in a front ambulance; the recovery of these patients is a question of hours and miles and great attention must be given to very small wounds of the scalp which often conceal serious lesions of the skull or brain.

In a very interesting work (Thesis, Lyons, Nov., 1915), Fromant comes to the following, and we think, logical conclusions in the case of head injuries: Every head wound from projectiles should be treated by incision of the scalp under local or general anesthesia, as incision alone can give a clue to a lesion of the skull, and when this is found, even if it is minute, trephining should be systematically practised. The operation should also be done in cases where the general symptoms denote

a cerebral lesion although no lesion of the skull may have been discovered. Trephining is necessary to avoid immediate disaster and to avoid the development of secondary accidents, particularly infection with its high mortality, and the possible occurrence of epilepsy some months after receipt of the injury. From the military viewpoint, trephining should be resorted to because the men who have been trephined can return to the front sooner than those who have not, and if the operation is not done immediately after the receipt of the injury the patients remain inapt to return to duty for a long time.

The First Symptoms of Poisoning by the New "Mustard" Gas.—The subject of gas poisoning is still very complex and poorly analyzed. Within a few months a new shell gas has been used by the Teutons, and, owing to imperfect ideas of its chemical characters, it is known as mustard gas. Giraud has written an account of this substance for the *Journal de Médecine et de chirurgie pratiques* for November 25. Recently he has had the opportunity of rendering first aid to numerous victims of this weapon. The bombardment with these shells occurred at night. Exceptionally the shells were seen to explode by daylight, and send up a narrow column of smoke. Attempts were made to gas the reserve troops, the first lines being intentionally spared. The shells whistle in their passage, and the noise of explosion is feeble. The mustard odor is rather faint, and if a soldier's attention is absorbed he may not get it.

The symptoms produced by the gas are delayed; there are no immediate effects. They are of three types: ocular, respiratory, and cutaneous. The first named are the first to appear; they are perceptible in from 6 to 12 hours, and fully established at the end of 24 to 48 hours. While some severe burns are apparent very early—even almost immediately—as a rule they do not become evident until from 4 to 15 days. These late burns are always mild. Finally, respiratory symptoms appear in from 2 to 4 days. The ocular symptoms occur most and the burns least frequently. The ocular symptoms of mustard gas were described in the *MEDICAL RECORD* of December 22. The respiratory symptoms are most pronounced in the larynx, and next in the trachea and large bronchi. Aphonia first results, is total, and lasts 3 or 4 days. It is at this juncture that the trachea and large bronchi become involved. A pseudo whooping cough sets in, followed after 2 or 3 days by abundant expectoration. Dyspnea becomes marked, and the victim cannot lie down; no matter how fatigued, he must sit or stand in order to breathe. The respiratory disorders are tenacious. After a week there is a tendency to improve, but any unfavorable circumstance may cause a relapse. Two or three relapses are not uncommon.

The burns were mentioned at some length in the earlier notice, especially in reference to moisture. The early burn consists of a large plaque of erythema upon which may appear blisters or only vesicles. Upon a hairy surface pus forms. These lesions may so resemble ordinary sunburn as to deceive completely the victim; naturally this is seen only on exposed localities. But the burns occur by locality in the most arbitrary fashion, the penis and

scrotum, about the joints (knee, ankle), the thighs, buttocks, neck, and back in the order named. The exposed parts are rarely affected, hence the confusion with sunbeam.

The treatment is very simple—sodium carbonate in 3 per cent. solution for ocular lesions and burns. Nothing avails much for the respiratory symptoms, although symptomatic treatment should be given.

Provision for the Care of War Neuroses and Psychoses in France.—Professor Boschi, director of a neurological military hospital in Italy, gives a brief account of a trip to France undertaken in the interest of his special work (*Giornale de Medicina Militare*, November 30). Paris, because of both its resources and its proximity to the fighting line, was naturally the place of destination. The services at both the Salpêtrière and the Pitié are largely devoted to military activities and there are military divisions in the insane asylums or rather connected with them. Near the Villejuif is a neurological center rich in appliances for physiotherapy which was organized by Souques and is directed by Thomas. At the Grand Palais in Paris is a great service for reeducation. In the Hôtel des Invalides a similar service is under way with the especial aim of reeducating maimed soldiers for agriculture, and there is also a service for teaching certain trades.

The author, however, was chiefly interested in the psychoneuroses, and learned that small neurological services are scattered throughout France and that specialism is the rule. Thus Professor Roussy has a service in the provinces limited to traumatic hysteria, the treatment consisting chiefly of psychotherapy, suggestion being conveyed under many forms. In three months' time over 200 subjects have been discharged cured. This institution (at Salino) will doubtless serve as a model for others. Another well-known service is that of Vincent at Tours. Naturally the great cities have their services for psychoneuroses. There is one at Val de Grace, while Laignel-Lavastine conducts another at the Maison Blanche. At Lyons Sollier conducts a neurological center in which psychotherapy is carried out incidentally, in connection with reeducation. The latter term is of course applicable to disordered mental functions. Physiotherapy, education, and psychotherapy represent three methods for attaining a common result. A striking feature at Lyons is the special service for surgery of the nervous system under Villandre. Much work is done in cranioplasty, especially for the closure of fistulæ, with the best results; doubtless many cases of late sepsis are prevented.

The author attended the conference for Professional Reeducation in May last, which was international in origin and membership. Neuropsychic victims were placed under "blind, deaf, etc.," which did not impress the author as very flattering. However, he found under one section provision for those incapacitated by severe nervous injuries. He was the only Italian present. So-called reflex disorders played a great rôle in this material, although at first sight the chief motivation would seem to be psychogenic. Both factors are well represented and both have to be considered

in treatment which includes reeducation and physiotherapy with their added psychotherapeutic possibilities. Apparently indirect suggestion is chiefly practised in all services. Nowhere do we find any special reference to hypnotism or psychoanalysis. Moral reeducation is perhaps the nearest approach to pure psychotherapy, and this does not seem to be carried out alone. The author makes no special allusion to victims of pure psychic shock or commotion and such affections as he mentions have a material organic sub-stratum.

Gunshot Wounds of the Kidney and Ureter.—Colonel Andrew Fullerton, writing in the *British Journal of Surgery* for October, 1917, says that the signs and symptoms of injured kidney are as follows: Hematuria, which may be microscopic, moderate, or profuse. It is well in a doubtful case to ascertain that the blood is not coming from the bladder, as is so frequent in associated injuries to the spine with hemorrhagic cystitis. Fullerton has seen splashes of hemorrhage scattered over the bladder wall in a case in which a piece of shell had injured one of the lumbar vertebrae without involving the cord; until eptoscopy had revealed hemorrhage in the mucous membrane of the bladder, the case was thought to be one of injury to the kidney or ureter. It is also well to bear in mind the possibility of hemorrhagic cystitis unassociated with spinal injury, as he has seen several examples in unwounded men coming down from the front. Other causes of hematuria independent of injury, will suggest themselves to the surgeon.

In addition to these special signs indicating renal or ureteric injury, the following are often present: Shock is frequently met with, and may be due to accompanying injury of the abdominal viscera, thorax, or spine. Anemia after profuse loss of blood, is often very marked in a patient when he reaches the clearing station or the base. Vomiting was reported in about 25 per cent. of the cases. It may have been more frequent. It occurs in uncomplicated cases, but is much more likely to be present when the abdominal viscera have also been injured. Tenderness and rigidity of the abdominal wall are present in most but not all of the cases. These symptoms may be due to injury of the peritoneum, injury to the abdominal viscera, injury to the pleura and diaphragm, blood in the peritoneal cavity, or retroperitoneal hematoma. In some of the reports sent down with the patients from the clearing stations, the definite statement has been made that on arrival there tenderness and rigidity have been absent. Abdominal distension is frequently met with, as might be expected. In those cases associated with spinal injury it is very likely to be present. Dullness in the flanks has occasionally been seen. A tumor in the flank, due to the perineal extravasation of blood, is sometimes palpable. This may be a sign of importance in certain transverse wounds in which it is not easy to locate the kidney affected. Fever may be present, and is due to the fact that many of the wounds are septic.

Defense Against Venereal Infection.—In the November issue of *Public Health*, the journal of the Michigan State Board of Health, is published a paper by Dr. Aldred Scott Warthin regarding

venereal diseases in the State of Michigan, in which he says that of all the weapons of defense against venereal infection the most important is education. At a recent meeting in Washington this idea was emphasized over and over again; but we were told by the Subcommittee on Venereal Prophylaxis of the Council of National Defense that the Government had no money for educational work of this kind in the cantonments. The plan outlined for the Michigan Board of Health is already proving a practical one in the Western Department of the Army. During the five weeks ending September 22, 1917, there were 290 cases of venereal infection reported, and the source of the infection was ascertained in 134 cases. In one city alone 30 clandestine prostitutes are now securely confined in a hospital ward, under treatment, and are no longer a source of infection. Through army regulations the infected soldier is automatically quarantined for treatment, and he should be kept in quarantine until he is no longer regarded as dangerous. The man or woman infected with venereal disease is a menace to the community; if he or she transmit it in the usual way that individual is guilty of a crime against the health of the public and against future generations. An infected prostitute who pursues her calling and communicates disease to her patrons is guilty of a still greater crime, and if her patrons are soldiers this crime becomes even more serious in that it aids the enemy by reducing the efficiency and numbers of our fighting force. Why, says Dr. Warthin, should this dangerous class be tolerated any longer? In this military emergency we may take a long stride forward by putting the case of venereal disease where it belongs, in the front rank of diseases dangerous to the public health. It affords a wonderful opportunity to advance the cause of civilization and to protect the health of the nation. In this attempt it is the duty of every intelligent citizen of the State to stand behind the health authorities and give earnest support to their efforts to overcome these plagues.

Orthopedic Surgery in War Hospitals.—Of course, orthopedic surgery has made great strides since the beginning of the war. Recruits have been treated for deformities, congenital and acquired, and wounded soldiers for deformities and disabilities of the locomotor apparatus. In Pott's disease, as Vincent Moxey points out in the *Practitioner* for November, 1917, attempts are being made to shorten the period of recumbency by means of the autogenous bone-grafting operation of Albee and the local osteoplastic procedure of Hibb, the object being to set up an osteogenesis about the arches of the affected sequent, and produce a synostosis of the laminæ and spinous processes of the contiguous vertebræ. Albee's method is to transplant a graft from the patient's tibia into a cleft made by splitting the spinous process. Hibb does not use a graft, but sets free osteoblasts by splitting the spines transversely, fracturing them up and down and interlocking them with the spines, similarly treated, of the adjacent vertebræ. Autopsy has shown that the object aimed at may be attained. The period of recumbency can be very much shortened, possibly this may be overdone.

As to the risks, it is obvious that such a procedure as Albee's calls for a very high surgical technique. Apart from the risk incidental to any such operation, Moxey draws attention to the fact that there is a special danger in handling cases of fractured spine under an anesthetic. Further, there is considerable danger of dissemination of tubercle; children under five, in Moxey's opinion, should certainly not be operated upon. Whether the ultimate results are better than those obtained by older and safer methods is doubtful. In fracture of the spine in workmen, Brackett holds that splinting by means of bone-graft, after the immediate symptoms are over, is the rational procedure. Finally, Finkelstein relieved a case of spondylitis deformans by means of Albee's operation.

Public Health Service Remedies Physical Defects.—Secretary McAdoo recently approved an order directing the officers of the public health service to communicate with the chairmen of examining boards for the purpose of furnishing advice to all men rejected on account of curable conditions, and to request them to direct such persons to apply to the officer of the Public Health Service in order that he may assist them to improve their physical condition so as to be fitted for military service. A report recently received from the medical officer in charge of the Marine Hospital at Detroit, Mich., shows that this order is having results and that already a number of men in that vicinity who were at first rejected on account of physical defects have had such defects remedied and have been accepted for military service.

The Army Mortality.—A summary of health conditions in the National Army for the week ended December 21 shows that deaths from disease number 118, against 97 the week before. In the National Guard the deaths numbered 120, against 165 for the week before. In the National Guard the deaths from pneumonia numbered 77, in the National Army 87. The non-effective rate for the entire National Guard for the week was 47.8 per thousand, against 48.6 for the preceding week. The admission rate for disease was 31.1 per thousand, against 32.6 for the preceding week. The non-effective rate for the National Army was 41.8 per thousand, against 40.4; the admission rate for disease was 34.3 against 34.7. Between September 21 and December 14 there have been 1391 deaths in the armies now in the continental United States. This includes men in the Regular Army, the National Army, and the National Guard Army, but does not include deaths in the Expeditionary Forces. During this period there were 144 deaths in the Regular Army, which had an average strength of 202,009 men in the United States; 494 deaths in the National Army, which had an average strength of 387,233 men, and 753 deaths in the National Guard Army, which had an average strength of 327,480 men in the United States.

Red Cross to Act for Army.—Army orders issued from Headquarters in Washington have designated the American Red Cross as the distributing agency of the Quartermaster's supplies

sent "to American soldiers and others who may be prisoners in the hands of any power with which the United States may at any time be at war." The Red Cross has already established at Berne, Switzerland, machinery through which food and clothing have been forwarded to Americans held prisoner in Germany and so is prepared to carry on this work for the War Department. No announcement has been made from the navy, but it assumed that the order includes naval prisoners. The order provides that no money may be sent to prisoners for the purchase of food.

Red Cross Bandages Poisoned.—A report has leaked out that 3400 surgical bandages rolled by the women of Toledo have been poisoned while in transit from Toledo to Cleveland. The bandages were destroyed at the headquarters of the Lake Division of the Red Cross. Agents of the Department of Justice are hunting the conspirators.

American Medical Officers and Nurses Commended.—Field Marshal Haig has submitted a list of persons serving on the western front as deserving special mention. The list has been published in the London Gazette and includes the following: United States Hospital Units—Lieut.-Col. H. Cabot, Harvard; Lieut.-Col. C. C. Collins, Chicago; Major G. W. Oride, Lakeside; Major H. Cushing, Harvard; Lieut.-Col. M. Delaney, Philadelphia; Lieut.-Col. J. D. Fife, St. Louis; Lieut.-Col. H. L. Gilchrist, Lakeside; Major L. L. Hopwood, Presbyterian; Major V. H. Kazanjian, Harvard; Lieut.-Col. R. U. Patterson, Harvard. United States Medical Reserve Corps—Private A. Mason, Harvard.

Nurses—Miss B. M. Alexander, Chicago unit; Miss S. Briggs, Lakeside unit, Cleveland; Mrs. J. Christie, Presbyterian Hospital unit, New York; Miss C. Cuppidge, St. Louis unit; Miss M. Dunlop, University of Pennsylvania unit, Philadelphia; Miss G. M. Gerrard, Harvard University unit; Miss C. Hall, Harvard unit; Miss H. G. McClelland, Philadelphia unit; Miss I. McKee, Lakeside unit; Miss L. Marsh, Presbyterian Hospital unit; Miss J. C. Stenson, St. Louis, and Miss D. Arch of the Chicago unit. American Nursing Service—Sisters V. Allen, Harvard; G. Allison, Lakeside; M. Clinch, Harvard; G. Davidson, Harvard.

Another Appeal for Nurses.—An announcement from the War Department, on December 29, states that the present strength of the Army Nurse Corps is 3800, while 37,500 nurses will be needed on the basis of present estimates for an army of 1,500,000 men. The present rate of enrollment does not meet these demands. The hospitals at National Guard and National Army camps still need 371 nurses to bring their quotas up to the minimum of 65, considered necessary for each. In order to enroll the needed number some requirements are being waived.

Christmas Red Cross Drive a Success.—The Membership Committee of the American Red Cross announced on December 29 that the Christmas drive had resulted in enrollment of 20,000,000 members; of this number 15,000,000 are new members. The Washington Headquarters announces that every one of the thirteen national divisions has exceeded its estimated quota.

Serbia Thanks Red Cross.—The Serbian War

Mission made an official visit to the National Headquarters of the Red Cross recently for the purpose of thanking that organization for the relief work done in Serbia since the beginning of the war. The work of Dr. Edward W. Ryan, who for a year directed the Red Cross Hospital at Belgrade and remained at his post after the invasion of Serbia by the Austro-German troops, and that of Dr. Richard Strong's commission in relieving the typhus fever epidemic of three years ago, were especially commended.

Antivivisection Federation and Red Cross.—The National Antivivisection Federation, which recently announced its intention of bringing proceedings to enjoin the Red Cross from devoting \$100,000 of its funds to vivisection experimentation in army hospitals in France has issued a statement calling upon James Jackson of the New England Red Cross to prove that the proposed vivisection in France was first suggested by medical officers attached to General Pershing's staff and also to prove that this action against the Red Cross is part of a pro-German propaganda. Mrs. Belais, the representative of the anti-vivisectionists, claims that the proposal to devote Red Cross money to vivisection work was first made by American surgeons, and that while all of these men are engaged in hospital work in France none of them is an army officer or under the authority of General Pershing. She also seems to think that her action in opposing measures designed to save the lives of American soldiers is not a practical form of German propaganda.

A Medical Unit for Palestine.—Among the plans of the Zionists for the rehabilitation of the Holy Land is included the sending of a strong and well equipped medical unit to grapple with the medical and sanitary problems in that land in which scarcely any physicians remain.

First Lieut. H. C. Boyle of the U. S. Medical Officers Reserve Corps, attached to the British forces, was severely wounded in action on December 7, according to a report sent to the War Department by General Pershing.

Christian Scientists Accused of Unfriendliness to the Red Cross.—According to a report in the New York Times an unpleasant feature of the Red Cross drive week occurred at Aeolian Hall, where permission had been given for the placing of a booth in the lobby. Wednesday night a Christian Science gathering is held in the hall. When the vanguard of Scientists appeared they tore down the Red Cross posters and destroyed the booth, telling the booth chairman, a woman, that under no circumstances could she solicit membership there, and saying that Christian Scientists were not in sympathy with the Red Cross movement.

Retired Naval Surgeons Recalled to Active Service.—The *Official Bulletin* states that 493 retired naval officers have been recalled to active service, and among them are 27 members of the medical corps—1 surgeon general, 6 medical directors, 3 medical inspectors, 8 surgeons, 5 passed assistant surgeons, and 4 assistant surgeons. One hundred and thirty-eight officers who had resigned from the Navy have returned for the duration of the war and are now officers of the Fleet Naval Reserve. Among these are 3 passed assistant surgeons and 2 assistant surgeons.

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SEPSIS AND ANTISEPSIS.

BEFORE the war, antiseptics had fallen somewhat into disrepute. That is to say, under ordinary conditions, in hospitals, at any rate, asepsis could be attained almost without the aid of antiseptics. Of course, it was quickly found that in war asepsis could not be obtained by methods similar to those practised in times of peace, and antiseptics and other means of combating sepsis were initiated and developed. Even now there is no unanimity of opinion with regard to the most effective mode of rendering wounds free from hurtful germs, although certain antiseptics seem to have proved themselves both potent as germicides and practically harmless to healthy tissue.

In the *Annals of Surgery* for November, 1917, Dr. Frank Fowler contributes a paper on the valuation of asepsis and antiseptics, and summarizes various conflicting opinions as follows: Whiting and Slocum state that alcohol, 40 to 95 per cent., will kill the *Bacillus typhosus* in practically the same time as various coal-tar derivatives in alcoholic solutions of from 60 to 65 per cent. Nevertheless, they consider the phenols to be more efficient germicides. Post and Nicoll learned that mercuric chloride has very little germicidal action in aqueous solutions. Whiting believes that alcoholic solutions of mercuric chloride are much more efficient, especially on dry skin.

Grossich emphasizes the importance of using alcoholic solutions of iodine on dry skin. Whiting says of alcohol: "As a solvent, or vehicle for the various antiseptics used on the skin, it is vastly superior to water, the alcoholic solutions penetrating more deeply and having greater germicidal power than the aqueous. Kelty and Packer conclude that alcohol is practically inactive as a germicide. Post and Nicoll rank alcohol, in solutions of more than 10 per cent., as one of the most active germicides. Fowler himself thinks that some investigators have underestimated the germicidal power of alcohol. Bovee's tests of the skin, leaving the iodine on, gave negative cultures fifteen days after the operation. Robb believes that the action of iodine is merely inhibitory, and he fears peritoneal invasion by unkilld germs during operation. Robb

and Whiting both obtained sterile cultures before neutralization of the antiseptics, but a large percentage of growths occurred after neutralization. Post and Nicoll also consider tests of doubtful value unless the action of the antiseptic is stopped forthwith. Fowler, commenting on iodine as a skin disinfectant, says that if iodine is allowed to remain upon the skin it penetrates into the deeper layers, and there are no means of determining how long its activity may continue. The consensus of opinion classes iodine as an effective germicide. Granting that its action may be delayed, or that perfect asepsis of the skin is unattainable, or assuming, with Robb, that iodine merely inhibits germ life, nevertheless the tissues, including the peritoneum, can defend themselves against limited numbers of bacteria.

Morris has enumerated the disadvantages of rubber gloves, but Fowler holds that the fact that hand sterilization is so difficult and glove sterilization so easy would seem to outweigh the objections to the use of the latter. Seeling and Gould are convinced that laboratory tests which do not simulate clinical conditions are of little value; that alcohol in solutions of 50 per cent. or more is strongly germicidal, but less so than iodine; that a solution of alcohol and iodine together is stronger than either alone; that alcohol, carbolic acid, and iodine can penetrate animal membranes, and that penetration is facilitated by the presence of oil in the skin. Lambert has shown that iodine alone of various tested antiseptics will kill bacteria rather than tissue cells.

The salient facts of Fowler's analysis of the opinions of various surgeons regarding the value of antiseptics are as follows: (1) Abundant clinical evidence of the efficacy of iodine in skin sterilization has been corroborated by laboratory findings. (2) The germicidal action of mercuric chloride is too slow to be of value in sterilization of the skin. (3) Eternal vigilance is the price of asepsis.

THE PROGNOSIS OF POST-ECLAMPTIC PSYCHOSES.

IN the opinion of the majority of writers, the prognosis of post-eclamptic psychoses is very favorable, although there are a few of the contrary opinion. This would naturally be so, given the importance of the question. Jaisson is even of the opinion that the mental disturbances following eclampsia may terminate in dementia. In certain patients who are weakened by some former affection presenting an excessive debility, this may occasionally occur, but with this exception the psychosis tends toward a rapid recovery. The mental disturbance remains stationary for some days and then periods of calm appear, during which the patient renews contact with the outer world, consciousness returns, and the family and surroundings are recognized. These lapses into a normal mental state become more and more frequent until complete recovery results.

In other still more fortunate instances the psychic changes last hardly more than a few hours, and either instantaneously or upon awakening from a natural sleep or deep coma, a complete return to reason takes place. Such instances are not common, though, generally speaking, the disturbances of the intelligence do not last more than some days or weeks. Some cases may be prolonged for several months although the affection is recovered from in less than a year, this occurring either suddenly or progressively.

As has been pointed out, recovery takes place in most cases within one or several weeks, but in some series of cases, particularly those published by Olshausen and Lallier, the pathological periods were much longer, covering as much as seven or eight months, or else the subject died during the early weeks of the mental process. Such facts render the prognosis less good, but in the prolonged cases the mental disturbances partially disappeared and at length a cure was obtained. When death occurs it is due to some intercurrent process, such as bronchopneumonia or dysentery, or to an abnormal duration or an extraordinary intensity of the eclamptic paroxysms. If still further proof of rapid recovery from post-eclamptic psychoses is demanded, it is sufficient to consult the records of various insane hospitals. The figures offered by these institutions show that there are very few cases of commitment following puerperal eclampsia. Those patients who are admitted under this heading remain for only a short time and leave in an absolutely normal moral and psychic state.

It cannot be denied, since cases are there to prove it, that the mental process may become incurable and end in dementia, but they are few in number and furnish the exceptions that prove the rule.

A WINTER EPIDEMIC OF POLIOMYELITIS.

POLIOMYELITIS in epidemic form is popularly supposed to be essentially a hot-weather disease. This, however, is by no means borne out by facts. A recent winter outbreak of the disease in Elkins has drawn particular attention to the relation between weather conditions and infection.

In *Public Health Reports* for November 30, 1917, Dr. J. P. Leake discusses the question of winter epidemics, and shows from a study of the official meteorological records—Norwegian, Swedish, Austrian, Prussian, Hessian, and American, that several of the outbreaks occurred when the thermometer was nearly constantly below the freezing point, in some cases even below zero Fahrenheit. Many of the conditions at Elkins and in other localities in which winter epidemics have occurred were such as to discredit most of the theories regarding the etiology of the disease. Dust, for example, was absent, there were no unusual prevalence of caryza among the general population, no biting flies were in evidence, the instrumentality of bedbugs and lice could be excluded, and neither domestic animals nor ingested material could be incriminated as causing

the poliomyelitis at Elkins. On the other hand, evidence of direct contact was lacking in 74 per cent. and the writer's assertion that in such cases the disease must have been communicated by carriers or unrecognized cases is not entirely convincing.

The following are Dr. Leake's conclusions, based upon the results of his study of this epidemic: "(1) Modes of spread other than by human contact are improbable. Persons and not things should receive our attention. (2) Even including all the nonparalytic cases which we could recognize, direct contact with the cases themselves is responsible for only one-quarter of the incidence. (3) As passive carriers adults are probably more important than children. (4) There are probably many unrecognized cases of the disease during an epidemic of poliomyelitis, about as numerous as the paralytic or the recognizable nonparalytic cases, and such cases are likely to have symptoms referable in the first instance to the digestive tract. (5) Quarantine of the case for two or three weeks is long enough; but another member of the family is just as likely to be dangerous as the patient, and general intermingling, particularly contact with children, should be prevented."

EXPERIMENTAL STUDIES ON TYPHOID CARRIERS.

WE have no certain means of freeing germ carriers from their germs. The carrier problem is largely bound up with typhoid fever, and a rational campaign naturally begins with animal experiments in which Eberth's bacillus is used. It has been claimed that when a culture of the latter is injected into animal veins the bacilli may be found in the gall-bladder for about one week in some 70 per cent. of injected animals. After this period, however, they occur so infrequently, or to such a small extent, that there is little likelihood of making animals carriers by this method. Others have succeeded in injecting cultures directly into the gall-bladder, and in this way "six-months carriers" may be established at will among rabbits. But during this period it is impossible to free animals from the bacilli, nor do attempts at prophylactic immunization prevent the animal from becoming a carrier. The experiment conditions are also highly artificial, for before making the injection a ligature is passed around the gall-bladder to isolate the fundus, and this practice naturally damages the viscus.

Venema, in an article in the *Berliner klinische Wochenschrift*, No. 34, 1917, relates some experiments in which ligation of the gall-bladder was omitted. The technique was very difficult, but cultures were successfully introduced with a minimum of injury. A study of the feces showed that but few bacilli escaped by this route. In the majority the stools remained sterile throughout, with the presumption that the microorganisms were colonized in the gall-bladder. The animals were killed at regular intervals, from 7 weeks to 9 months after the injection. In no case did illness of any

kind develop. The gall-bladder seemed normal to the naked eye. From the bile cultures could invariably be prepared. There is considerable evidence that the presence of bacilli in the bile affected the nature of the latter, and in particular favored the formation of concretions.

The author next proposed to inject immune serum into the venous system of the animals before inoculation of the gall-bladder. In three animals thus tested the animals became carriers, even better carriers than before. This perhaps is in accordance with the fact that human carriers are immune to autoinfection, and is evidence that prophylactic immunization will not prevent the individual from becoming a carrier.

FAT EMBOLISM IN FRACTURES.

EMBOLISM of various organs and thrombosis of bloodvessels have long been understood to be among the serious untoward complications of surgical operations, not easily anticipated and often the cause of sudden death. The same serious results may follow fractures, usually of the long bones. The embolism by fat globules after fracture may affect the brain, lungs, kidneys, liver, and other organs. Not all cases of fat embolism give symptoms or are fatal. There are many instances where fat is found in the blood without symptoms or the slightest suspicion of the condition. Indeed, the amount of fat in the blood is no indication of the severity of the attack. In effective cases of fat embolism, shortly after the fracture of a long bone like the femur, there are delirium, sometimes very violent, coma, dyspnea, high and irregular pulse rate, and often collapse symptoms. The mortality of cases with symptoms is very high. Not only is fat embolism a possible occurrence after fractures but it is one of the conditions to be borne in mind in operative bone surgery. The symptoms of fat embolism may not manifest themselves until after surgical interference, and it may be a medicolegal question whether the condition is due to the fracture or to the operation. Because of the delirium, coma, or symptoms referable to the other organs affected, the diagnosis of fat embolism is not often made, but a diagnosis of a pathological condition peculiar to those organs may be made. The presence of delirium and coma, the delirium being at times so violent as to require restraint, has often led to an erroneous diagnosis of delirium tremens, especially when these fractures are received during an alcoholic debauch or in a chronic alcoholic subject. This may figure very largely in the medicolegal controversy following such an injury. A closer observation of fractures, especially of the long bones, with these points in view, with blood examination for fat globules, will probably bring to light a great many more cases of fat embolism, and will serve to differentiate the condition from delirium tremens or other conditions sometimes mistaken for fat embolism.

THE EXPLOSIVE PENCIL.

REPORTS have occasionally appeared in the daily press of the mutilation of Belgian boys to prevent them from taking up arms in future wars against

Germany. These mutilations have been said to consist of amputations of the right hand, but details have usually been lacking. An article in *Le Caducée* for November 15 throws some light on the manner in which such mutilations may be effected, by making the victim contribute to his disaster. A boy of 14 in the conquered area of France was first offered cigarettes by a German soldier. These were longer and firmer than the ordinary cigarette, and the boy declined them. The soldier then offered him a violet pencil the point of which was protected by a copper cap. The boy sharpened the unprotected end and made some marks, but the crayon soon ceased to mark, and he then for the first time used the fingers of his right hand to remove the cap. Instantly there was an explosion, and the index, medius, and thumb were blown off entirely, while the ring finger hung by a shred of flesh. He was taken to the local German hospital, where he remained 8 days. He accused and identified the soldier, who did not deny his guilt. The German clergyman warned the boy, on his discharge, not to mention the explosive pencil. It was learned that the cigarettes offered to the boys were also explosive, and that one lad had had his face burned upon lighting one. A boy of 8 had also picked up an explosive pencil, which cost him four of his fingers. In addition to these three actual victims a man who was offered one of the pencils refused it, and doubtless saved his hand. The supposition was that some laboratory man in a munitions factory had contrived these pencils and cigarettes, for what immediate or remote purpose can only be surmised. Whether the child was to be the special sacrifice does not appear, while the circumstances would make it certain that no considerable number of victims could be expected, because the public would soon be on its guard. We can only suppose that such a form of activity was exhibited for advertising purposes—for the publicity of one of the myriad expressions of German frightfulness which must be dangled before the enemy constantly lest he forget. The German mind calculates on the action, but never realizes that there will be a full reaction to such violence, or, if it does, it thinks that with the assured support of the kaiser's junior partner "dort oben," it can safely ignore it. Some day it will recognize the power of the "blood of the martyrs."

A CASE OF CONGENITAL ANORCHIA.

ACTUAL anorchia as distinguished from cryptorchia is such a rare condition that but six cases are on record and none since 1860. The seventh case has just been reported by Wildbolz (*Correspondenz-Blatt für Schweizer Aerzte*, September 29). The case is of especial interest as the first to be studied since the creation of endocrinology as a science. The teaching at present is that failure of the testicle to develop fully is to be attributed to insufficiency of the thyroid or some other gland of internal secretion, but *a priori* total congenital absence of the organ must have a cause much more deeply seated. The patient in this case was 20 years of age and had never passed through puberty. There were no secondary sexual characteristics. To exclude cryptorchism the patient was etherized and the inguinal canals broadly laid open. The stature

was 5 feet 9 inches and the mentality normal. The hips were broad; there was considerable panniculus and deposit of fat in the mammae. There was slight genu valgus, and while eunuchoids are infantile rather than feminine, the configuration of this patient suggested that of the opposite sex. The head hair, however, was masculine. The penis and empty scrotum were extremely small. The rectal touch showed absence of prostate and vesicles. There had never been libido, erections, or emissions. An x-ray of the skull showed an enlarged sella (compensatory overgrowth of the hypophysis?). The epiphyses were still distinct in the radiograms despite the patient's age. During exploration of the inguinal canal a well developed cord and vas deferens were discovered. At the extremity a minute nodule suggested the residue of a testis, but proved to be that of the epididymis. If the case was not one of true congenital aplasia the testes must have been completely destroyed by disease, but neither mumps nor other infection had ever existed. The patient had in fact enjoyed uninterrupted good health. There was not the least reason to accuse a partial hermaphroditism. The case was regarded as one of primary aplasia without any endocrinic component. The habitus was regarded as asexual and not feminine and patient was technically not a eunuchoid.

THE SAFE HANDLING OF TRINITROTOLUOL.

THE manufacture of munitions on a large scale has greatly increased the prevalence of poisoning by the nitro and amido compounds of benzol and toluol. It is therefore in the interests of health that employers using such poisons should endeavor by every means in their power to safeguard their workers from chronic poisoning. Dr. J. W. Schereschewsky, writing in *Public Health Reports* of November 16, 1917, indicates that the following precautions should be observed in order to reduce the risk of poisoning with trinitrotoluol to a minimum: (1) Planning and construction of workrooms: (a) Separation of processes; (b) conveyor systems. (2) Methods and processes employed. (3) Sanitary precautions on the part of the workers. (4) Hours of labor. (5) Medical supervision. With regard to the sanitary precautions to be observed, it is pointed out that the workers should be especially instructed concerning the value of scrupulous bodily and oral cleanliness. Men's hair should be kept short and their faces clean shaven. The hands and face should be thoroughly washed and the mouth rinsed out before eating, and a full shower bath should be taken at the close of the day's work. Proper facilities for this should be furnished. The teeth should be brushed twice daily with a soft toothbrush and a good dentrifice. Except in an emergency, no person engaged in an occupation in which trinitrotoluol is handled should work longer than eight hours a day. Workers engaged in hazardous processes should be changed to less hazardous work at least once in every two weeks, and oftener if necessary. An efficient system of medical supervision under the direction of a competent physician must necessarily be provided in all plants engaged in the manufacture and handling of trinitrotoluol.

News of the Week.

Smallpox in Florence.—A delayed dispatch to the press states that there has been an outbreak of smallpox in Florence, Italy, which seemed to be abating at the time the despatch was sent. Vaccine has been rushed to Florence from Rome by the American Red Cross, which fortunately had a sufficient amount on hand to respond to the appeal. The outbreak is said to have originated among the fugitives from the invaded region. According to the report all the schools of Florence have been closed.

Commissioner Emerson's Ruling Reversed by the Public Health Committee of the Academy of Medicine.—The Public Health Committee of the New York Academy of Medicine reports that while it has always been in favor of some method of regulation which would weed out inefficient private laboratories and would raise the standard of laboratory work throughout the city, it has opposed the ruling of the Health Department that the records of laboratories be open to inspection by the officers of the Health Department, with a view of ascertaining the number of cases of infectious diseases under the care of individual physicians. The committee has felt that this procedure is unwarranted at the present time and that no special gain would accrue from it.

Report on Food and Drug Act.—The annual report of the Bureau of Chemistry of the Department of Agriculture, recently published, shows the effect of this act in checking the spread of drug habits through the presence of habit-forming drugs in patent medicines. The report calls attention to the fact that in 1907 thirty soft drinks contained small amounts of cocaine. Practically all of these have been suppressed. Much has been done to control the indiscriminate use of so-called headache remedies, and of dangerous cosmetics laying claim to healing values. The act has made it possible to raise the quality of crude drugs through the examination of imports. As a result of cooperative work with the Post Office Department, a number of fraud orders were issued by that department preventing the use of the mails in promoting the sale of fraudulent medicines.

Infant Mortality Among Negroes in New York.—Since the summer of 1916 intensive efforts have been made to reduce the infant mortality in the Columbus Hill District of New York, which has a large negro population. The records of this district show that for the year 1915 the death rate among negro infants was at the rate of 314 per 1,000 births. Intensive efforts were then made for the control of this high death rate, with the result that for the year 1916 the rate was 168.50. For the year 1915 the infant mortality rate for the city as a whole was 202; for 1916, 193.3, and for 1917, 175.6 per 1,000 births, for the first nine months of the year. The infant mortality rate for the white population for 1915 was 96.2; for 1916, 90.7, and for 1917, 89.71.

Trudeau Tuberculosis Sanatorium in Paris.—The Red Cross formally opened the Edward L. Trudeau Tuberculosis Sanatorium in Paris, on December 25. The hospital has only eight beds at the present time, but it is hoped to increase the number to 1,200 within the next year. This is the first

tuberculosis hospital in France created wholly by the American Red Cross. Dr. James I. Gamble of Baltimore is at the head of the hospital and is assisted by American Red Cross nurses.

Illegitimacy in Prussia.—A cablegram to the *Associated Press* declares that, according to a statement made in the Prussian House of Representatives in the debate on vital statistics, 10 per cent. of the children born in wartime are born out of wedlock. The statistics show, however, that only 136 out of every 1,000 illegitimate children reach their nineteenth year, as compared with 512 in the case of legitimate children. Dr. Engel is authority for the statement that the unmarried mothers in Prussia now reach a total of nearly 200,000 yearly. By the devious processes of Teutonic reasoning this is interpreted as "Evidence of Moral Healthiness of the German Race." Dr. Engel is quoted as saying, "Paradoxical as it may seem, this great number of illegitimate children represents a measure of the morality of our people. They afford evidence that after all the idea of restriction of families, an idea which the war with special emphasis bids us combat, has not yet penetrated the masses."

Instruct Mothers in Milk Formulas.—The Infants' Nutrition Clinic of Vanderbilt Clinic organized some six months ago as one of the 130 babies' welfare units announces that it is prepared to establish classes for the instruction of mothers in the preparation of milk formulas. The clinic has enrolled 157 babies since its organization.

High Death Rate from Pneumonia Continues in New York.—For the week ending December 29 there were reported for the Greater City 2,521 deaths, of which 314 were caused by pneumonia. This is an increase of 56 over the preceding week.

Meeting to Discuss Charity Deficits.—The Federation for the Support of Jewish Philanthropic Societies has called a meeting of prominent Jews in New York to discuss means of raising additional revenue for the continued operation of Jewish charitable institutions. Reports from all the hospitals of the city as they come in show large deficits. Within a few days the Hospital for the Ruptured and Crippled reported a deficit of \$20,000, and made an appeal for funds. The Hospital for Deformities reports a like deficit. Felix M. Warburg announces that \$4,500,000 will be needed to insure a continuance of the work of the Jewish Philanthropic Society for the coming year.

The National Jewish Hospital for Consumptives, which is located at Denver, Col., will hold its annual meeting at the Savoy Hotel, New York, on January 13. Following the meeting, at three o'clock in the afternoon, a conference will be called to discuss "Tuberculosis and the War," at which addresses will be made by Miss Jane Addams, Dr. Herman Biggs, and Dr. Hatfield, secretary of the National Association for the Prevention of Tuberculosis.

Dr. Samuel W. Boorstein has been appointed adjunct assistant visiting surgeon to Fordham Hospital, New York.

The Salt Lake County Medical Association, Utah, at its monthly meeting, on December 10, elected the following officers: *President*, Dr. S. G. Kahn; *Vice-President*, Dr. J. O. Evans; *Secretary*, Dr. F. H. Raley; *Treasurer*, Dr. W. L. Rich.

The Kent County Medical Society, Rhode Island, at its annual meeting on December 13, elected the

following officers: *President*, Dr. H. Barton Bryer of Natick; *Vice-President*, Dr. Louis Legris of Phenix; *Secretary*, Dr. James M. Bodwell of Phenix; *Treasurer*, Dr. Frank B. Smith of Washington.

The Pacific Medical Journal, the oldest journal on the Pacific coast, which has just completed its sixtieth volume, will be consolidated with the *American Journal of Urology and Sexology*. The combined journal will be published from 12 Mt. Morris Park West, New York City.

Herter Lectures.—The faculty of the University and Bellevue Hospital Medical College announce that five lectures will be given under the Herter Foundation on "Principles Underlying the Treatment of Infected Wounds," by Edward K. Dunham, M.D., emeritus professor of pathology, University and Bellevue Hospital Medical College and Major Medical Reserve Corps, beginning on Monday, January 7, at four o'clock, and continuing daily at the same hour, at the Carnegie Laboratory, 338 East Twenty-sixth Street.

Dr. Guiteras Gives Bulk of Estate to Philanthropies.—The will of the late Dr. Ramon Guiteras disposes of an estate of more than \$100,000, the most of it going outside of his immediate family. The Columbus Hospital is to receive \$10,000 for a room to be known as the "Guiteras Operating Room." The New York Academy of Medicine receives \$5,000 for any purpose that may be desired and the Post-Graduate Hospital receives a like sum which is to go to the clinic with which he was connected at the time of his death. Dr. Guiteras left \$10,000 to Lenoncio Campuzano, a young man in whom he was much interested, on condition that he assumes the name Ramon C. Guiteras, half of the sum to be used in completing his medical education and one-half for his support when beginning the practice of medicine. The residue of the estate is bequeathed to the town of Bristol, R. I., for the erection of a school in memory of his mother, to be known as the "Guiteras School of Bristol."

St. Luke's Hospital, New York, is made the residuary legatee under the will of William H. White. The amount of this legacy is as yet unknown. Other bequests under the will include the following: St. John's Hospital, Brooklyn, \$20,000; Huntington Hospital, Huntington, L. I., \$25,000; Staten Island Hospital, New Brighton, \$40,000; Nassau Hospital, Mineola, L. I., \$10,000; St. Luke's Hospital, San Francisco, \$20,000.

Obituary Notes.—Dr. EVERETT JAMES MCKNIGHT of Hartford, Conn., died suddenly of heart disease, on December 25, at the age of 62 years. Dr. McKnight was a graduate of Yale and of the College of Physicians and Surgeons, New York, in 1879. While in college he was instrumental in arranging the first Yale-Harvard football game. He was a former president of the Connecticut Medical Association, and, in 1893, represented East Hartford in the Legislature. He was given the honorary degree of master of arts by Yale University, in 1907. It is thought that overwork in connection with the draft registration hastened his death.

Dr. ANDREW W. TRACY died at his home in Meriden, Conn., after a long illness, on December 10, at the age of 71 years. He was a graduate of McGill University Medical Faculty in 1872, and a former mayor of Meriden.

Dr. ERNEST ALBERT CRANSTON died at his home in Calais, Me., on December 14, aged 57 years. He was graduated from the College of Physicians and Surgeons in Boston, in 1905. He was health officer of Calais and coroner of Washington County, Me.

Dr. EDWARD M. HANSON, a graduate of the College of Physicians and Surgeons of Keokuk, Ia., in 1892, and a practitioner of Keokuk, died suddenly at the home of relatives in St. Louis, Mo., on December 11, aged 51 years.

Dr. A. D. MELVIN, chief of the Bureau of Animal Industry, died at his home in Washington, D. C., of pulmonary hemorrhage after a long illness, on December 7. Dr. Melvin was well known throughout the country because of his work in stamping out foot and mouth disease and pleuropneumonia plague among cattle. He also did much to promote the passage of our present meat inspection laws.

Dr. MARTIN A. MCGOVERN died of paralysis at his home in New York on December 16, aged 67 years. He was a graduate of Bellevue Hospital Medical College, in 1877, and a police surgeon of the New York Police Department until his retirement in 1916. Prior to his appointment to the police department he was attached to the New York City Department of Health.

Dr. HENRY A. DUNN, a medical inspector in the United States Navy and attached to the hospital ship *Havana*, which is now at the Brooklyn Navy Yard, died at his apartment in Brooklyn, N. Y., aged 43 years. He was a graduate of the George Washington University Department of Medicine, in 1897.

Dr. ENSIGN BENNETT PARDEE died of pneumonia at his home in New York, on December 28, aged 65 years. He was graduated from the New York University Medical Department, in 1875, and was a member of the American Institute of Homeopathy. He was visiting physician to the Homeopathic Hospital, Ward's Island, from 1890 to 1893, and to the Metropolitan Hospital, Blackwell's Island, from 1893 to 1897.

Obituary.

THEODORE CALDWELL JANEWAY, M.D.

BALTIMORE, MD.

Dr. THEODORE C. JANEWAY, formerly of New York City, died at his home in Baltimore on December 27, of pneumonia, after an illness of six days. He was born in this city on November 2, 1872, and was the son of Dr. Edward G. Janeway, who died in 1911. He was graduated from the Sheffield Scientific School of Yale University in 1892, and from the Medical Department of Columbia University in 1895. In 1898 he was appointed instructor, and later lecturer on medical diagnosis at the New York University Medical School. In 1907 he was appointed associate in medicine, and in 1909 professor of the practice of medicine at Columbia University. He was an attending physician at St. Luke's and the Presbyterian Hospitals. In 1914 he was called to the Johns Hopkins University to take the chair of medicine and to accept the appointment as physician-in-chief at Johns Hopkins Hospital on the full-time basis. Since our declaration of war he had been doing special research work for the Government,

having been commissioned major in the Medical Officers' Reserve Corps.

Dr. Janeway was secretary of the Russell Sage Institute of Pathology and a member of the board of scientific directors of the Rockefeller Institute for Medical Research. He was a member of the Association of American Physicians, of the Society of Experimental Biology and medicine, of the American society for the Advancement of Clinical Medicine, of the American Medical Association, and of other local and State medical societies. He was a diagnostician and clinician of the first rank, but was not a voluminous writer, his chief work being "The Clinical Study of Blood Pressure," published in 1904.

Correspondence.

PRACTICAL POINTS IN THE TREATMENT OF PNEUMONIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—At the present time, when pneumonia is increasingly prevalent, contagious, and deadly, it is right to express one's convictions where they may be most useful. For the contagion of pneumonia and for the relief of many patients, nothing equals beechwood creosote, properly and more or less constantly inhaled. In the way of heart stimulants there is none which equals tincture of strophanthus, old brandy, and coffee. It is not proven as yet that any other remedies can take their place satisfactorily. Science is one thing; art another. Science is constantly changing; art is not. One is based upon accepted, ephemeral conviction of the time; the other upon wise empiricism during many years and bedside observation and treatment of a large number of patients. The statements made by me are what I have affirmed more than once and with increasing conviction as to their great value when put into actual, daily practice.

BEVERLEY ROBINSON, M.D.

42 WEST THIRTY-SEVENTH STREET.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 20, 1917.

1. The Value of Diagnosis in Back Lesions. James Warren Sever.
2. Studies of Infant Feeding. H. I. Bowditch and A. W. Bosworth.
3. Anthrax as an Occupational Disease in Massachusetts. Thomas F. Harrington.
4. A Series of Fractured Skulls from the Surgical Records of the Boston City Hospital, 1902-1917. Carl Thorburn Harris and Harry Archibald Nissen.
5. Report on the Treatment of Myelogenous Leukemia with Radium. Francis W. Peabody.
6. Observations at the Peter Bent Brigham Hospital on Cases of Pneumonia in Relation to Types of Pneumococci and the Serum Treatment of Type I. Cases. H. L. Alexander.

2. Studies of Infant Feeding.—H. I. Bowditch and A. W. Bosworth, carrying out their investigations in the Boston Floating Hospital Laboratories, found that one of the striking differences brought out by the comparison of the analyses of the feces of breast and bottle-fed babies is in the amounts of insoluble inorganic phosphorus found—feces from breast-fed babies having from 0. to 0.06 grams of P_2O_5 per twenty-four hours, while the feces from bottle-fed babies will show amounts depending upon the quantity of cow's milk fed; sometimes being as high as 1.0 gram P_2O_5 per twenty-four hours. They have determined that this insoluble

inorganic phosphorus is present in the form of calcium phosphate. Since it has been shown that insoluble dicalcium phosphate is present in suspension as a normal constituent of cow's milk, and is not a constituent of breast milk, the question came up as to whether the large amounts of phosphates present in the feces in bottle-fed babies are due directly to the insoluble phosphates present in the cow's milk used, or to other causes. The investigation of which this is the resulting report was undertaken to ascertain if dicalcium phosphate is available as a food when present as a constituent of infant's food. It has been previously shown by Van Slyke and Bosworth that cow's milk contains 0.175 per cent. of dicalcium phosphate (CaHPO_4), and in this paper it has been shown that this phosphate was not available as a food to children under four months of age, and only partly available phosphate by the older children is probably dependent upon the more abundant secretion of hydrochloric acid. In connection with the results reported here, it is of interest to consider the fact shown by Bosworth—that human milk, unlike cow's milk, contains no dicalcium phosphate, the mineral elements in human milk therefore being completely available as food for infants. In calculating the amount of mineral elements present in modified cow's milk for use in infant feeding, the dicalcium phosphate should be considered as unavailable, and a corresponding deduction made from the total mineral elements in milk. They have shown that during the process of digestion of calcium caseinate the calcium and phosphorus contained within the calcium caseinate may unite to form insoluble calcium phosphate and appear in the feces as such, the calcium and phosphorus balances under these conditions becoming negative. They have also shown that by feeding a large amount of soluble calcium it is possible to precipitate practically all the phosphorus in the food as insoluble calcium phosphate, this substance being eliminated in the feces, and as a result of this the metabolism of phosphorus is reduced to such a low level that the urine becomes phosphorus-free.

New York Medical Journal.

December 22, 1917.

1. Fractures. Charles Ogilvy.
2. Care of the Ears. Wendell C. Phillips.
3. Quinine and Urea Hydrochloride. Joseph P. Saphir.
4. Report of Experimental Work in the Production of an Anti-tuberculous Serum. Max Staller.
5. Highway Accidents in the City of New York. Shirley W. Wynne.
6. Sporadic Pellagra. M. E. Alexander.

5. Highway Accidents in New York City.—Shirley W. Wynne has investigated conditions relating to mortality results from highway accidents in New York, and says that the number of accidents in this city caused by horse-drawn vehicles has decreased since 1907. The decrease has been accompanied by an increase in the number of accidents caused by automobiles. The number of accidents caused by automobiles has increased, but the ratio of automobile accidents to automobiles operated has very markedly and very steadily decreased since 1908. The increase in pedestrian traffic in certain districts of the city, business, theatre and shopping, has been a most important factor in causing the increase in highway accidents. It is quite clear that as the congestion in these districts increases, additional measures for the prevention of accidents must be instituted, because, while the present traffic regulations are the best that can be devised under present conditions, they increase to a very great extent the conditions they seek to overcome; in other words, the necessity of shutting off north and south bound traffic to permit east and west bound traffic to pass increases congestion on the avenue, which is still further augmented because traffic is not stopped and started at all the streets crossing the avenue at the same time. His recommendations for the improvement of such conditions are as follows: (1) More stringent enforcement of the traffic regulation and the vigorous prosecution of reckless drivers. (2) Amendment to the present traffic regulations forbidding pedestrians to cross streets elsewhere than at the crossings and to cross streets except in accordance with the signals of the

traffic officers stationed at the crossings. (3) Provision of more public parks in the congested areas of the city. (4) The above recommendations are but palliative, and in order to permanently improve traffic conditions, to prevent the immense yearly toll of traffic accidents in injury and death, to increase efficiency and comfort of travel in the city streets, more radical measures must be adopted, such as the old suggestion of sinking the cross streets below the level of the avenues in congested districts; the building of at least one subway in Manhattan for north and south bound traffic, this subway to be reserved for traffic between distant points by having entrances and exits not less than ten blocks apart. Some time ago the Police Commissioner suggested a viaduct or elevated roadway for north and south bound traffic. While it would be less expensive than a subway, it would create greater opposition upon the part of owners of property fronting on the avenue upon which such a viaduct might be built, as it is generally conceded that elevated structures have depreciated property values on every avenue or street on which they have been built. Until some such radical methods of handling traffic in congested districts are adopted, traffic accidents, other than those due to speeding and reckless driving, cannot be eliminated.

Journal of the American Medical Association.

December 22, 1917.

1. Exstrophy of the Bladder and Its Treatment. Charles H. Mayo.
2. Neurotization of Paralyzed Muscle by Muscle Grafting: A Laboratory and Clinical Study. John Joseph Nutt.
3. The Use of Relaxation Incisions in Dealing with Extensive Unstable Scars. John Staige Davis.
4. Prophylaxis in Cerebrospinal Syphilis. B. C. Corbus.
5. An Experimental Study of Surgical Shock. Joseph Erlanger, Robert Gesell, Herbert S. Gasser, and B. Landis Elliott.
6. Intraspinal Treatment of Syphilis of the Central Nervous System: Another View. Homer F. Swift.
7. Physically Handicapped Children: Recommendations for Outdoor, Fresh-air, and Open-window Classes. Adela J. Smith, Frances Cohen, and I. H. Goldberger.
8. The Mortality from Pellagra in the United States. William F. Petersen.
9. Etiological Factors in Gross Lesions of the Large Joints: Observations from One Thousand One Hundred Consecutive Necropsies. Herbert C. Clark.
10. Myositis Purulenta Acuta Caused by Bacillus Typhosus: Report of a Case. Masanaka Terada.

7. Physically Handicapped Children: Recommendations for Outdoor, Fresh-air and Open-window Classes.—Adela J. Smith, Frances Cohen and I. H. Goldberger, having deduced their results from their work in connection with the Department of Physical Training and Educational Hygiene, Department of Education of New York City, state that among the 800,000 children attending the public schools of this city, there are hundreds of physically handicapped children, including those affected with active pulmonary tuberculosis, and with bone, skin, and glandular tuberculosis. There are also many pretuberculous, anemic, and crippled children, and cardiac cases. As these children cannot attend the regular classes, provision must be made for their comfort, health, and progress by some process of segregation into special classes, of provision of special classroom and personal equipment, and a relaxed curriculum. Because of the varied types of physical defects, and of the different kinds of treatment necessary, these children cannot be grouped in any one type of classroom, but are divided into groups according to their physical or mental handicap. Thus outdoor classes, fresh-air classes, and open-window classes are formed. Crippled children are provided with transportation by stage to school and to their homes. The furniture now in use for classes of crippled children in the New York City public schools has solved the problem with reference to the braces and supports used on these cases. Both desk and seat have a central floor support, instead of the side supports of regular furniture, and are fastened to the floor. This provision leaves ample floor space, both for the locomotion of crutch patients, and for full extension of rigid limbs of brace patients, when the latter are seated. Aisle spaces should not be less than twenty-four inches wide. The desk top is so constructed that a variable plus or minus distance of great range may be instantly obtained to meet the

special seating needs arising from the mechanical appliances worn by the crippled child. The seat is provided with an adjustable back, similar to that of a Morris chair, with a cane center to prevent undue pressure. This cane back is removable, so that all pressure on sensitive spines may be prevented. When greater warmth is necessary, children in all open-window classes should be provided with sweaters, coats, leggings, mittens, caps and bloomers for the girls, in addition to their skirts. As these are articles of clothing in common use, no additional expense for personal equipment is needed. The personal equipment of the teacher should be similar in character to that worn by the children in the special class to which she has been assigned. These and many other improvements for the benefit of handicapped children are being carried out in the New York schools, and these writers group their recommendations for this beneficial work as follows: (1) The type of physical defect should be the basis for the segregation of groups of physically handicapped children in special types of classrooms, that is to say, outdoor, fresh-air and open-window classrooms. (2) The range of temperature is governed by the type of physical defect in each special group. (3) Glass wind and storm shields are recommended to admit light and regulate heat, replacing the canvas or wood protectors now in use. Specially constructed window ventilators should be installed in all open-window classes, to prevent drafts and to protect children seated near the open windows. (4) No classroom for physically handicapped children, with the exception of the kind mentioned in Groups 1 and 2, of the third section in the accompanying table, should be located higher than the second floor unless an elevator is available. (5) In outdoor and fresh-air classes, movable, adjustable chairs are recommended instead of fixed desks and seats. This equipment could then be used for sleeping, rendering but one set of classroom furnishings necessary. A movable equipment in outdoor and fresh-air classrooms has the following additional advantages: (a) Direct drafts on children are easily avoided. (b) Greater space for classroom activities and physical training is provided. (c) The children are permitted greater freedom. In classes for cripples, additional mobility is made possible through specially constructed desks and pivotal chairs. (6) The type of personal equipment should allow the greatest possible freedom for schoolroom activities and physical exercises, and should eliminate the danger arising from fire drills and other emergencies. It should also be sanitary, so as to be easily cleaned. The type of equipment commonly in use fulfills none of these requirements. Before a child is placed in a special classroom with lowered temperature, he should be provided with sufficient underwear and appropriate outer clothing, as well as storm equipment, so that he may not feel the effects of exposure when he leaves the classroom at the end of a school session.

The Lancet.

December 1, 1917.

1. Hunterian Lecture on the Surgical Complications of Typhoid and Paratyphoid Fevers. A. E. Webb-Johnson.
2. Serum Disease after Intrathecal Injections of Serum. H. D. Rolleston.
3. A Note on Serum Sickness in Cerebrospinal Meningitis. Claude B. Ker.
4. Examination of the Urine in Cases of Relapsing Fever Occurring in Macedonia. Leonard S. Sudgeon.
5. "Collosol" Cocaine. G. Barger, H. H. Hale, and Florence M. Durham.

2. Serum Disease after Intrathecal Injections of Serum.—H. D. Rolleston states that during the third year of the war out of ninety-six bacteriologically proved cases of cerebrospinal fever treated by serums and surviving for ten days or more, fifty-eight, or 60 per cent, had a serum reaction, as judged by the appearance of a rash. Among these fifty-eight cases there were nine, or 15.5 per cent in which the rash was preceded or accompanied by a more or less definite recrudescence of meningitic manifestations, thus, especially when preceding the rash, suggesting a relapse of the disease. These symptoms are relieved by lumbar puncture, and under the assumption that they point to a relapse a fresh injection of serum may be

given, as was done in six out of the nine cases. The three cases not so injected recovered, and of the six cases injected intrathecally with serum, five were probably made worse, four eventually proving fatal, though it is not suggested that death was thus induced. The effect of intrathecal injection of serum presents some peculiar features. Whereas, as is well known, injection into a healthy intrathecal space sets up an aseptic chemical meningitis, injection of anti-meningococcal serum in cerebrospinal fever—as is shown by the clearing of the cerebrospinal fluid—reduces the inflammatory process, presumably by destroying the meningococci. Injection of immune serum into slightly inflamed meninges sets up in most cases an acute aseptic meningitis shown clinically by fever, rigidity of the neck, and other signs of meningeal irritation. It is, therefore, desirable to have some means of determining whether there is a genuine relapse which will be benefited by serum or whether the condition is one of meningeal irritation or meningism and a manifestation of serum disease which may be intensified by a further injection of serum. He has decided that (1) Symptoms of meningeal irritation may precede or accompany the appearance of the serum rash. (2) Though serum disease is frequent after intrathecal injection of serum, especially after Flexner's antimeningitis serum, it is not clear that it is more frequent than after hypodermic injection of serum. (3) Intrathecal injection of serum necessarily involves risk of inducing increased intracranial pressure and may introduce a secondary infection; but it is not proved that the volume of serum injection favors a secondary infection of the meninges from the blood-stream.

British Medical Journal.

December 1, 1917.

1. Lectures on the Anatomical and Physiological Principles Underlying the Treatment of Injuries to Muscle, Bones, and Joints. Arthur Keith.
2. The Treatment of Neurasthenia and Psychasthenia Following Shell Shock. R. T. Williamson.
3. The Red Blood Cell Count and Hemoglobin Content of the Blood in Disordered Action of the Heart. A. Goodman Levy.
4. Acute Tuberculous Bronchopneumonia with Pneumothorax, Secondary to Tuberculosis of the Peribronchial Lymph Nodes. Archibald Malloch.
5. Notes on Trench Feet. R. T. Dobson.
6. Treatment of Secondary Hemorrhage from the Buttock by Ligation of the Internal Iliac Artery. W. M. Shepherd.
7. Fragment of Shell in the Arterial Circulation. C. S. O'Neill.
8. The Story of a Tooth-plate: An Unusual War Injury. Gordon Taylor.
9. Absence of the Right Pinna and Right Tonsil, with Right Facial Paralysis. James J. Healy.
10. The Fitzpatrick Lectures on Medicine in England During the Reign of George III. Arnold Chaplin.

2. The Treatment of Neurasthenia and Psychasthenia Following Shell Shock.—R. T. Williamson tells that a very large number of cases of persistent neurasthenia, psychasthenia, and allied conditions, following shell shock are now under treatment in England. Similar affections are also caused by the shock or continued anxiety of Zeppelin raids, and also the continued anxiety from other risks of injury. The symptoms may commence suddenly after one severe shock, or gradually after repeated shocks. In many of the severer cases the patient is unable to carry out either military or civil duties for a long period and so keeps up an extended pension. It is thus important both for the patient and the country that a cure be effected as soon as possible, and the cure should be psychological as well as medical. Williamson offers a method of treatment which briefly outlined is as follows: (1) All anxiety and fear of further exposure to similar risks to life, and anxiety from other causes, should be removed if possible, and the patient should be definitely told that he will certainly recover. (2) The sleep treatment is very useful. At first hypnotic drugs may be given both at night and during the day for a short time; so that the patient may sleep all night and, for a few days, also during part of the daytime. (3) He should cease thinking of the war and his experiences. This may be brought about (a) at first by the sleep during part of the daytime as well as during the night as just described, and by occupation whenever he is awake;

(b) afterwards he should be kept asleep all night (by drugs); but during the day the drugs should be discontinued and he should be kept fully occupied in a suitable way. (4) As regards the kind of occupation: (a) A new subject or one not associated with his war experience is desirable. (b) *Very close application* to the work in hand is important. (c) The occupation should be one requiring thought, and if the patient finds, after continuing it for some time, that it can be done mechanically, the occupation should be changed or altered so that thought is required. (d) It should be one very interesting to the patient, and one which will become more interesting.

La Presse Médicale.

November 8, 1917.

Prognosis in Chronic Renal Tuberculosis.—Hallé concludes his article with the following paragraph: One may not dogmatize in therapeutics. Medical history for the past thirty years has taught that the verity of today is the heresy of tomorrow. It is a condition essential to progress that applied science never reaches its mark. A univocal therapy is neither scientific nor empirically successful. Chronic tuberculosis is not incurable. The closed inaccessible types become isolated and harmless; the open types may be evacuated when accessible. Incurability is a false theory. The general truths concerning pulmonary tuberculosis may be so construed as to apply to the kidney. The polymorphism in both localities is comparable. Our treatment of renal tuberculosis today is surgical but there is no reason why we shall not some day have a medical treatment as well. The shelved distinction between medical and surgical tuberculosis will come back. The former, like pulmonary tuberculosis, may be able to recover spontaneously or be curable by medical measures. This form represents either the closed focus or a hematogenous infection. Surgical tuberculosis cannot recover without surgical intervention by nephrectomy. It is either an open pelvic tuberculosis or a lymphogenous lesion.

Malignant Endocarditis of Slow Evolution.—Debré states that this affection is still but little known and is missing in classic reference works. It may be completely overlooked in diagnosis; or when recognized it may be regarded erroneously as something interesting in its rarity, something atypical. Yet according to an American writer, no affection is more stereotyped. The author is writing a separate paper on the disease picture and his present effort is rather to call attention to a neglected subject. Protracted malignant endocarditis, requiring several months for its evolution, was described by Jaccoud in 1882. For the next twenty years no serious heed was paid to this disease entity in France. There was then a renaissance among French clinicians, and in 1903 Gouget's monograph on the subject appeared, since which event the profession in France have made many contributions. Among English writing authors, Osler is easily the first to make known this affection, both in point of chronology and sustained interest, and a long series of Americans have aided in the development of our knowledge. The Germans, represented by von Leyden and Litten, had an inkling of the nature of the malady at the same period as Jaccoud, and Litten's publication in 1881 is apparently the oldest. For the full development of the subject, Lenhartz (1901) is given the priority in his country, while the classical work of Schottmüller is as recent as 1910. Some of the data of maximum interest are as follows. The disease as a rule attacks subjects with traces of rheumatic endocarditis. It usually has a determining focal infection—in France—apparently an angina, laryngitis or bronchitis (dental and sinus infections do not seem to have been recorded outside of America). It is a general or systemic failure which causes the patient to seek treatment and the prostration and cardiac implication have only too often caused a diagnosis of grippe. When slight joint troubles coexist this error is much less likely to happen. Osler was the first to describe the cutaneous symptoms (purpura, erythema nodosum). Pseudo-felon is an interesting digital manifestation. There will constantly be found an enlargement of the spleen in some degree which if

misunderstood may cause a diagnosis of pernicious anemia owing to the coexistence of pallor and purpura. The endocarditis, with possibility of embolism, etc., does not differ essentially from that seen in less chronic septic conditions and to a certain extent the two processes show parallelism, for example, in the production of infants in the spleen and kidneys.

La Presse Médicale.

November 15, 1917.

Omnibus Treatment of Stomach Affections.—Meunier isolates an all important symptom in gastric pathology, to wit, *delayed pain*, i.e. distress which supervenes some time after eating. It may consist of a burning sensation, a heaviness or a mere malaise and is present in most gastric affections whether neoplasm, ulcer, ptosis, Reichmann syndrome, pyloric stenosis, etc. (he does not specify duodenal ulcer). It is this *delayed distress which brings the patient to consultation*. The author seeks a *rationale* for this subjective symptom—which is present alike in structural and functional maladies—in order to institute some general plan of relief. The first resource applied was cryoscopy of the gastric juice and normal stomach contents were first investigated. According to Raoult's law the freezing point depression of a solution is proportioned to the number of molecules in that solution. The author studied the cryoscopic curve of the stomach contents after repasts of carbohydrate food (bread) and protein (meat) respectively. Twenty normal men were placed on an exclusive regimen of bread and the stomach contents tested at intervals. At the end of 10 minutes the cryoscopic point was 0.70, a maximum, after which it declined progressively until at 1½ hours it was 0.38. In other words, as digestion progresses this point declines until a theoretical minimum of 0.35 is reached (in fact it never is quite attained). If now normal subjects are placed on a meat diet conditions are reversed. At the end of 10 minutes the cryoscopic point is 0.12 and at the close of 1½ hours it is 0.34. The theoretical maximum of 35 is never quite attained. Hence under both plans of diet the act of digestion brings about the same result. In making a comparison between sound and sick subjects, we take the cryoscopic point at about 1½ hours after a meal. The author's view is that at this period the normal stomach is evacuated irrespective of the character of the diet. Studies of cases of cancer, stricture of the pylorus, ptosis and Reichmann's syndrome show from this mode of research that the stomach is not evacuated on time, which fact explains the painful sensations; these resulting from persistence and abnormal concentration of stomach contents. Upon this theory the remedy is self-evident—the contents should be diluted to the proper concentration by the ingestion of solutions which have a cryoscopic point of 0.35. Sodium chloride solutions should be of 5.5 parts per 1000, sodium citrate 20 parts per 1000, phosphoric acid 26.80, peptone 40, etc., etc. The patient drinks a claret glass of any of these solutions every 10 minutes. The choice of solution may depend somewhat on the nature of the malady. The author claims that pain must often be relieved before a diagnosis can be made and admits that in certain cases the routine use of alkalies gives better results. Nevertheless the plan has much value as a routine resource and will give positive results in a great variety of cases.

Le Progrès Médical.

November 17, 1917.

Enterococcus Infections.—Tricoire refers to a pseudotypoid infection not due to paratyphus bacilli or other familiar bacterium. The cause is the enterococcus of Thiercelin, a germ which stands midway between the pneumococcus and streptococcus. In *vivo* it is a diplococcus, and in *vitro* a diplostreptococcus, while in very old cultures it appears to be a diplobacillus. In other words it is essentially a bacillus which in its youth appears as a coccus (for the bacillus can hardly be looked upon as a degenerate formation). Its discoverer, Thiercelin, has written at much length on its cultural

qualities and pathogenicity to animals. It supplies a heat-fast toxin and shows high resistance to ordinary antiseptics. It causes local suppurative and septicemia. It is a saprophyte in the intestine of man and is found in the soil—in fact, with the colon bacillus it is one of the fundamental denizens of the intestine. It is even believed to be one of the animal defences and to play some physiological rôle in the intestinal equilibrium. Just when and how it becomes virulent we can only surmise; but we know it does become so, causing local or general mischief. It is found in great numbers in certain cases of acute gastroenteritis in nurslings. Years ago Lesage described a diplococcus enteritis evidently due to the enterococcus. The latter is also able to cause mucorhemorrhagic enteritis and acute colitis, and has been known to set up cholungitis, infectious icterus, peritonitis, etc., and has been accused of causing various chronic conditions in the abdomen, notably cholelithiasis and chronic hepatitis. Choleric syndromes and alimentary intoxications have also been associated with the enterococcus. So-called intestinal grippe has been found to be associated with the latter. The septicemic form may be secondary to local manifestations or may occur *d'emblée*. Its expression may be generalized or localized in a particular organ or system. It is able to cause a metastatic and noninfectious arthritis, the nature of which is not yet determined. Probably the discharge is secondary to a focus in the epididymis or vas deferens. An entire series of acute respiratory lesions may be set up, including abscess of the lung, phlegmonous laryngitis, bronchopneumonia (pseudolobar) of a highly specialized type indicating a severe constitutional infection. The condition tends to become chronic and simulate tuberculosis. The enterococcus can also cause a septic rheumatoid of a more acute type than that due to the *viridans*. Essential sepsis due to the enterococcus tends to occur with and complicate typhoid and paratyphoid fevers.

Correspondenz-Blatt für Schweizer Aerzte.

October 27, 1917.

Does Prolonged Use of Antipyretics Alter the Excitability of the Heat Center?—Lüthy, a dentist, has studied this problem in the Pharmacological Institute of the University of Zürich (Professor Cloetta). The method of research consisted in treating laboratory animals with pyramidon and the results are announced as follows: If animals (rabbits) receive daily injections of large amounts of pyramidon, the heat center develops no change in its excitability as shown by the fact that intravenous injections of *B. tetrahydronaphthylamine* and putrid hay infusion given before and after the daily pyramidon dose cause the same temperature rise. If by daily injection of the first named thermogenic substance fever is regularly produced and then antagonized with doses of pyramidon, a gradual diminution of the action of the fever producing drug is witnessed. If hay infusion is used to produce the fever and if pyramidon is given to antagonize the fever no change is witnessed even after prolonged exhibition in the pyretogenic result of the said infusion. Hence, if the cause of the fever is bacterial drug antipyresis does not disturb the ability of the heat center to react, nor need we fear that use of the drug for this purpose will mask the presence of the fever. The withdrawal of the drug will not affect the fever curve. If, however, a definite drug is used which exerts a selective action in the region of the fourth ventricle an antipyretic drug can depress the excitability of the heat center.

Nitrobenzole as Abortifacient.—Spinner relates 14 cases of severe poisoning from this drug when used with criminal intent. The earliest goes back to 1866 (unreported until 1876) and occurred in a girl of 18 who, when 5 months pregnant, took 10 grains of the drug. Pregnancy was not interrupted but the girl was severely poisoned with cyanosis as a prominent symptom. Lesser reported two cases in which two women took supposed oil of bitter almonds for abortifacient effect. Only one was made ill, dying in 10 hours and it was learned that she had taken pure nitrobenzole. This second woman proved not to have been pregnant. It was a mystery how the two women managed to drink different poisons when they presumably swallowed

the same substance in the same dose; but nitrobenzole alone was found in the stomach of the dead woman, while her friend, whose life may have been saved by prompt vomiting, passed urine containing hippuric acid, as would naturally happen when bitter almond oil is swallowed. Look reported a fatal case which was also attended with obscurity. The gravide had applied to a quack for an emmenagogue but had obtained the poison directly from a druggist. Nearly all of the latter was present in the cadaver at the autopsy. Several other cases show some element of mystery. In one the intent seems to have been suicide, although the woman was gravid. The author is familiar with a case reported in 1913 in which the history is fairly complete. A woman of 42, married, took a small dose of "oil of mirbane" with abortifacient intent. When seen soon afterward she smelled strongly of kernels and was markedly cyanotic and collapsed. Her temperature was subnormal. The mental state was one of apathy with occasional outcries. Epileptiform convulsions succeeded one another at intervals. Treated with saline infusion, oxygen and camphor injections she soon improved. The urine contained abundant urates, urobilin and urobilinogen. Gestation was not disturbed. The drug had been purchased as oil of mirbane (nitrobenzole) and not as oil of bitter almonds. The first named, as is well known, is largely substituted for the latter because of the similarity of the odor. According to the author nitrobenzole is without any abortifacient properties and can destroy fetal life only when the mother is fatally poisoned.

Correspondenz-Blatt für Schweizer Aerzte.

November 10, 1917.

Developmental Cycle of the Dibothriocephalus Lotus.—Janicki and Rosen refer to the interest possessed by this subject in the 80's, when it was shown that this parasite was a normal denizen of certain food fish, whence it passed into the intestines of the dog, cat, and man. The parasitism of the worm in the fish could not be explained, for the embryos could not be made to infect trout, pike, and other fishes. Recently the authors have taken up this problem at the point where it was abandoned. Recent ciliated embryos from human feces were subjected to intensive cultivation and attempts were made to infect directly trout, perch, etc., and it was thought that the absolute immunity shown might be due indirectly to the predatory nature of these fishes, who are natural hosts for the bothriocephalus. In other words, these fishes may become infected in a state of nature because of eating other kinds of fish already infected. The natural prey of lake trout, pike, etc., are certain species known as white fish. Attempts to infect the latter with embryos met with failure. A thorough survey was then made of the bodies of hundreds of river perch and other fishes which naturally harbor the parasites in the hope of finding an intermediate host, and suspicion rested on certain invertebrates. The authors succeeded actually in isolating an undescribed development (larval) stage of the bothriocephalus and were finally able by this find to discover intermediate hosts in the form of certain Copepoda, to wit, a species of Cyclops and a species of Diaptomus. Both these are at times found almost to the exclusion of other food in the stomach contents of perch. In cases in which other food such as the Daphnides was present to the exclusion of the preceding the new larval stage of the tapeworm was never isolated. The nature of this larva makes intelligible the fact that it can readily pass from the alimentary canal into the muscle and liver of the fish and become encysted. In this locality it can readily infect man. It has long been known that Copepoda can act as hosts for certain Cestodes. After numerous species of Cyclops had been investigated in vain the *C. strenuus* was found to contain from one to ten oncospheres, and the problem was in part solved. A second host was found in the *Diaptomus gracilis*. The cycle of the bothriocephalus in these invertebrates could be shown in full, and it now only remained to infect the fishes. Very young trout were placed in a medium containing large numbers of infected intermediate hosts which they rapidly devoured. They could then

be examined at stated intervals. The first trout, taken from the water in 5 to 6 minutes, already showed free larvæ in the stomach. These proceeded to attach themselves to the mucosa. By the second day they were already in the submucosa and in a few days more in the muscular coat and liver. The subsequent stages have long been known, and the crucial find in the research was not so much the infected Cyclops as the unsuspected larval form of the tapeworm.

Münchener medizinische Wochenschrift.

October 9, 1917.

The Treatment of Chronic Gonorrhea and Urethral Stricture by Thermic Sounds.—Rost has obtained excellent results by Kobelt's method (*Münchener medizinische Wochenschrift*, No. 30, 1912). The writer, after varied trials, has adopted the following method: In cases of chronic gonorrhea the largest possible sound is introduced two or three times a week, heated at 120° to 130° F., and retained in the urethra for 20 minutes to one-half hour. When beginning the treatment, flexible sounds are used, and it is only later on that rigid instruments are substituted. The number of treatments necessary varies from ten to thirty, according to the gravity and chronicity of the given case. This treatment does not necessitate giving up the use of the silver salts during its application. Rost attributes the happy effects of this treatment to the hyperemia produced and the detergent action resulting from the profuse secretion which is set up. Rost promises a description of this treatment in gonorrhea in the female in a future paper. The procedure is excellent to provoke an acute outburst and to detect a latent gonorrhea, and in this respect it surpasses the means ordinarily employed for this purpose. The writer declares that, from his researches, he can affirm that 33 per cent. of cases of gonorrhea considered cured clinically still continue to hide the gonococcus in the urethral mucosa and, therefore, are dangerous from the standpoint of contagion. The thermic sound will expose this danger at the same time that it counteracts it.

Serum Disease.—Ewald relates his findings made during serum treatment of dysentery. He insists upon the tumefaction of the spleen and lymph nodes. The classic incubation (8 to 10 days) has been found unreliable, and in reality varies between 5 and 15 days, or even less or sometimes more. The writer reports two cases having a classic symptomatology, respectively with a relative lymphocytosis of 11,200 and 7,900 and normal eosinophilia. From the theoretical viewpoint, Ewald tries to explain serum disease by an extraordinarily intense disintegration of the injected albumins into peptones. The latter products set up the reaction to which the name of serum disease has been given. Finally, Ewald does not believe that the apparent gravity of certain cases is a contraindication to the use of antidyseric serum, although this product cannot be as yet produced in as concentrated a form as antidiphtheric serum.

Berliner klinische Wochenschrift.

October 8, 1917.

The Treatment of Bone Cavities Containing Sequestra.—O. Hilderbrand has endeavored to produce an intensive formation of granulation tissue by opening the wall of the bone cavity which is in close proximity to the soft structures. Thus in the case of a sequestrum on the tibia the writer is not content merely to open the bone in front, but makes one or several small fenestræ on the posterior aspect of the bone. The cavity then fills rapidly by granulation tissue which proliferates through these openings. In order to assure a more solid consistency to the bone, the skin around the opening in the bone is mobilized and the borders are inserted and fixed into the bone cavity.

The Leucocytic Formula and Fever in Malaria.—Hülse has studied the evolution of the temperature, the variations in the leucocytic equilibrium and the elimination of figured bodies during paroxysms of malaria. From these studies it would seem that the initial leucopenia (3700) takes the place of a relative leucocytosis (7200) at the beginning of the rise of

temperature. The leucocytes rapidly diminish in direct relation to the febrile elevation (800 leucocytes when the temperature attains 104° F.). When the temperature has returned to the normal there is likewise a return of the white corpuscles to the initial numbers. Regarding the various leucocytic types, the writer observed that the invasion resulted in a "derivation to the left" of the leucocytic formula, that is to say, the presence of a greater proportion of young polynuclears. He concludes that there is a great destruction of the leucocytes at the time of the febrile paroxysm. This view is confirmed by the enormous elimination of figured bodies which takes place at this time. Finally, Hülse establishes a causal relationship between these figured bodies and the hyperthermy. Quinine seems to prevent the thermic crisis by insensibilizing the thermic centers by the thermogenous action of these bodies.

Deutsche medizinische Wochenschrift.

October 11, 1917.

Weil's Disease, Recurrent Fever, and Bilious Typhoid.—E. Hübener reviews the similarity and dissimilarity of Weil's disease and recurrent fever. They are related by their etiology (spirochetes), their acute aspect, their noncontagiousness, the morbid changes arising in the abdominal viscera, their serological characters (antibodies, both agglutinating and fixing and destructive to the spirochetes). Serotherapeutic treatment and Wassermann's reaction are negative in both processes. Their identical duration of incubation (about one week), their clinical symptomatology so similar, bring them still closer together. Regardless of these points in common, the two affections, however, offer very marked differences. The typical defervescence of Weil's disease is in evident contrast with the crisis of recurrent fever, while the suddenness of the relapses of the latter malady is quite in opposition to the slower invasion of the paroxysms of Weil's disease. Besides, the recurrent type of fever is more precocious in recurrent fever, and icterus may often be absent in this affection, while it is more constant in Weil's disease, and also more intense. On the other hand, in the latter affection there is no edema of the legs, a frequent symptom in recurrent fever. The differences become still more evident by the characters of the spirochetes giving rise to each of these morbid processes. Now, while recurrent fever is favorably influenced by salvarsan, this drug is useless in Weil's disease. The epidemiology and pathological anatomy of the two diseases are quite distinct. On the other hand, Hübener admits the identity of Weil's disease and bilious typhoid. The epidemiological characters make this affection a distinct disease from recurrent fever, but Weil's disease may certainly comprise not only bilious typhoid but various other febrile affections as well, namely, the so-called bilious fevers.

Functional Exploration of the Liver.—H. Gerhartz finds that the ingestion of 80 grams of levulose may give rise to urobilinuria of characteristic type, resulting from a certain degree of hepatic morbid change. It is quite sufficient to analyze the urine voided from two to three hours after ingestion of the drug, in order to detect the changes.

Rarity in Soldiers of Sympathetic Ophthalmia.—Morax in 1,500 examinations of soldiers with eye injuries has found but 1 case of sympathetic ophthalmia. This result must be due largely to the number of enucleations required.—*Annales d'Oculistique*.

Fever as a Curative Factor in Syphilis.—Kyrle restates the long-known discovery that febrile states exert a favorable influence on cutaneous and mucous syphilides, even in the absence of specific treatment. The alleged benefit from fever in metasyphilis may be of the same nature. Biach has used tuberculin in secondary syphilis with good results. The present author in order to produce fever has used injections of foreign protein (mild), mercury and salvarsan, and has caused the Wassermann to become negative. He believes that fever is of value only when produced by antisiphilic remedies.—*Wiener klinische Wochenschrift*.

Book Reviews.

LIGATIONS AND AMPUTATIONS. By A. BROCA, Professeur d'Opérations et Appareils à la Faculté de Médecine de Paris. Translated by ERNEST WARD, M.A., M.D., F.R.C.S. Octavo of 285 pages with 510 illustrations. Price \$3. New York: William Wood & Company, 1917.

THIS is a book of particular interest just at the present time, since the technique of ligations and amputations should be thoroughly known by all members of the Medical Reserve Corps who are at all likely to have active war service. These subjects are presented in detail in Broca's book and practically all essential features of the technique of individual operations are illustrated. The book is divided into two sections; the first covering the ligation of arteries; the second, amputations and disarticulations. The second section is again divided into three parts under the headings: General Observations; Amputations in Continuity; and Disarticulations. Broca's long experience as a teacher has enabled him to cover the different portions of the subject briefly or in minute detail, with a nice discrimination as to the amount of space to be allotted and the relative importance of the various subjects; while the book is still further enriched through material added on the basis of Broca's experience during the present war. The essential anatomical facts are briefly stated, then the technique of the individual operation, together with a running commentary giving many practical points. Concerning the latter, we agree with Broca's translator when he says in his preface: "It is chiefly a knowledge of little points which makes the difference between the recently appointed hospital surgeon and the man with several years' experience on the staff." This book appears at a very opportune time, is of convenient size, well printed, and profusely illustrated, and should be a great help to those preparing for war service.

RADIUM THERAPY IN CANCER AT THE MEMORIAL HOSPITAL, NEW YORK. By HENRY H. JANEWAY, M.D. with the Discussion of Treatment of Cancer of the Bladder and Prostate by BENJAMIN S. BARRINGER, M.D., and an Introduction upon the Physics of Radium by GIOACCHINO FAILLA, E.E., A.M. Price, \$2.25. New York: Paul B. Hoeber, 1917.

THIS report of the Memorial Hospital, New York, deals with the methods of applying radium to malignant tumors in different situations. It gives details concerning the concentration of radium to the unit of surface, the exact nature of filtration, the exact periods of repeated applications, and the successive steps of the therapeutic result. It is obvious now, as the authors point out, that the successful use of radium in cancer requires careful consideration of each particular type of the disease in each organ as separate problems, in which different methods must be devised and different results expected. Hence, in this work, the various forms of cancer are separately considered, and the indications, methods, complications, and results are given briefly for each. This report should prove very valuable to those who have sufficient knowledge of radiology to appreciate its significance, but in order that the uninitiated may derive useful information from it Dr. Failla has given a brief introductory account of the principal phenomena of radioactivity.

A MANUAL OF PERSONAL HYGIENE. Proper Living Upon a Physiologic Basis. By American Authors. Edited by WALTER L. PYLE, A.M., M.D., Member of the American Ophthalmological Society; Fellow of the College of Physicians of Philadelphia; Assistant Surgeon to the Wills Eye Hospital, Philadelphia, etc. Seventh edition, revised and enlarged. Price, \$1.50. Philadelphia and London: W. B. Saunders Company, 1917.

THE new edition of this work is larger than the previous edition by about ten pages. A few paragraphs on infantile paralysis, grip and pneumonia, and cold in the head have been added; and a small number of minor changes have been made in the text. The revision is of the very slightest, and we observe that the price of all kinds of foods, in Philadelphia, is the same

now as it was when the second edition was issued, in 1901. The index (and presumably, the book itself) is entirely innocent of any such entries as caloric, obesity, sexual or social hygiene, gonorrhea, syphilis, venereal diseases, prostitution, social evil, etc. Twenty years ago these latter topics had not assumed (in the eyes of the public) the importance which they have to-day; but at the present time a book on personal hygiene which studiously omits any reference to these subjects is rightly considered incomplete.

DISEASES OF THE CHEST AND THE PRINCIPLES OF PHYSICAL DIAGNOSIS. By GEORGE W. NORRIS, M.D., Assistant Professor of Medicine in the University of Pennsylvania, and HENRY R. M. LANDIS, M.D., Assistant Professor of Medicine in the University of Pennsylvania, with a chapter on the Electrocardiograph in Heart Disease, by EDWARD B. KRUMBHAAR, Ph.D., M.D., Assistant Professor of Research Medicine in the University of Pennsylvania. Price, \$7.00 net. Philadelphia and London: W. B. Saunders Company, 1917.

THIS book is divided into two sections, the first being devoted to a detailed description of the principles and practice of physical diagnosis, while the second and larger section takes up seriatim the diseases of the chest. The first is written by Dr. Norris; he draws extensively from the domain of physics in order to explain the phenomena of inspection, palpation, percussion and auscultation. Although there is nothing new in the author's exposition of physical diagnosis, yet at the same time the data which has been collected is presented in a very readable form and is rather different from the usual stereotyped version. A noteworthy feature is the illustrations, many of which are original. Photographs of frozen sections of the chest are utilized in visualizing physical signs observed in the various diseases subsequently considered. By way of criticism it seems to us that the chapter on blood pressure and use of instruments such as the sphygmomanometer, sphygmograph, and polygraph is dismissed too briefly. We can find no mention of pulse pressure and its significance. A short chapter on the electrocardiograph, written by Dr. E. B. Krumbhaar, is included in connection with the examination of the circulatory system. One of the best chapters in the first section is that on cardiac murmurs, which are lucidly illustrated by diagrams and photographs. The second part, dealing with the diseases of the chest and written by Dr. Landis, is concerned with etiology, morbid anatomy, physical signs and diagnosis. The diseases considered are those of the bronchi, lungs, pleura, pericardium, myocardium, endocardium, congenital heart disease, angina pectoris, aortitis, and aneurysm of the thoracic aorta. The illustrations of pathological specimens are especially to be commended.

THE PRACTICAL MEDICINE SERIES, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of CHARLES L. MIX, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School. Volume V. PEDIATRICS. Edited by ISAAC A. ABT, M.D., Professor of Pediatrics, Northwestern University Medical School; Attending Physician, Michael Reese Hospital, with the collaboration of A. LEVINSON, M.D., Associate Pediatrician, Michael Reese Hospital. **ORTHOPEDIC SURGERY** edited by JOHN RIDLON, A.M., M.D., Professor of Orthopedic Surgery, Northwestern University Medical School, with the collaboration of CHARLES A. PARKER, M.D. Series 1917. Price, \$1.35. Chicago: The Year Book Publishers.

THIS volume of the Practical Medicine Series deals with pediatrics and orthopedic surgery. The part of the book in which infant feeding is discussed is especially interesting. Among other methods for the preservation of milk, reference is made to treatment with hydrogen peroxide. Albumin milk used as a dietetic measure in the treatment of intestinal derangements is also referred to. Several of the diseases to which children and infants are especially subject are considered at length. The section on orthopedic surgery is excellent and the book is fully up to the standard of the other volumes of the series, which is no slight praise.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting Held November 20, 1917.

DR. SAMUEL A. BROWN IN THE CHAIR.

The program of the evening was contributed by the Medical Staff of Mount Sinai Hospital.

Eventration of the Right Half of the Diaphragm.—Dr. EDWARD A. ARONSON made this presentation. He stated that the condition of the diaphragm appreciated as an eventration had been clothed with many synonyms such as dilatation, relaxation, muscular insufficiency, high position, elevation. Others had used these terms to describe a pathological condition of the diaphragm which permitted the abdominal viscera to be displaced upward. In this respect the condition was different from hernia of the diaphragm, which, whether true or false, was dependent on the presence or absence of a hernial sac consisting of a localized opening in the sheet of the diaphragm through which the abdominal viscera passed into the thoracic cavity. All the terms mentioned were partially descriptive though none were satisfactory. Eppinger, in 1911, published a study of 635 cases of true and false hernia and eventration of the diaphragm. Of this series of cases only 17 were eventrations, two being right-sided and 15 left-sided; thus the ratio of eventration to hernia was 1 to 37. This gave a very good idea of the rarity of the eventration of the diaphragm. There was a great preponderance of left-sided hernias and eventrations over those of the right side. Bayne Jones had collected from the literature 45 cases of eventration and described a third case of right-sided eventration. The clinical symptoms and the physical signs of hernia and eventration were not essentially different; the Roentgen examination afforded the most effective means of exact diagnosis and of differentiating the one from the other. In the etiology of the condition, apart from being congenital, it might occur in disease of the motor columns of the cervical cord, as for example, in anterior poliomyelitis, tumors such as tubercle, gummata, lepra tubercles, in diseases of the cervical vertebrae, fracture and dislocation of the mid-cervical vertebrae, involvement of the anterior horns, hemorrhages in the anterior horns, or into the meninges surrounding them, the latter being mostly of traumatic origin. It might also be seen in Duchenne-Erb paralysis, in tumor compression of the phrenics, in tuberculosis caused by compression of the thoracic glands, as a neuritis, in infectious diseases as diphtheria, in alcoholic, lead, chronic arsenical, carbon-dioxide and opium poisoning, in acute and chronic inflammation in the vicinity of the phrenic nerves, as in pleuritis, in progressive muscular atrophy, in tabes, and hysterical and rheumatoid forms have also been described. Dr. Aronson said he wished to add a fourth case of right-sided eventration, which occurred in a young woman, 20 years of age, a Russian, saleswoman, admitted to the hospital on August 22, 1917, and discharged September 21, 1917. Her chief complaint was pain in the right hypochondrium for the past two years. Her family and past history were negative with the exception that she had fallen from a car just prior to the beginning of her complaint. The pain in the right hypochondrium was cramp-like in character, increased by taking food, usually occurring one hour after taking meals and accompanied by nausea and frequent vomiting. The patient also induced vomiting for the relief of epigastric distress and distention. She had frequent eructations, of no particular taste or odor, no jaundice nor hematemesis, was constipated, had frequent attacks of pain at night, frequent headaches, some loss in weight and had had several fainting spells. She had no cardiac, respiratory, or genito-urinary symptoms. The abnormalities revealed by physical examination were anemia, pigmented spots on the abdomen, increased respiration, slight dyspnea at times, and slightly palpable cervical, axillary and epitrochlear nodes. Examination of the lungs showed dulness above the right clavicle, becoming tympanitic below and continuing so to the costal margin. On the left side the pul-

monary resonance was normal. On the right side in the supraclavicular region breathing was rough and loud; below breathing became diminished and finally absent. Posteriorly there was dulness over the suprascapular region with tympany below the shoulders. Over the upper portion breathing was rough and loud; below it gradually diminished. On pressure in the right epigastrium or over the right hypochondrium musical gurgling sounds were heard. On the left side posteriorly there was relative dulness and breathing was somewhat rough. Examination of the abdomen showed resistance in the right hypochondrium. The edge of the spleen could be felt two inches below the costal margin. The heart was displaced, the apex being in the sixth space in the anterior axillary line. Pulse action was increased but of normal tension. The writer presented the data with reference to the examination of the blood, stomach contents, blood pressure, etc. The roentgenographic plates of the chest which he exhibited showed almost complete absence of the lung markings on the right side. At the level of the second rib anteriorly a linear line traversed the chest, the convexity of which was upward. Below this shadow the lung structure was absent and was replaced apparently by air. The linear shadow was probably the diaphragm. The heart and the mediastinum were displaced toward the left. Fluoroscopic examination showed the diaphragm on the right side to be almost motionless on respiration. Examination of the colon after the injection of a barium enema showed a markedly distended colon. The megacolon was so marked that it pushed the right side of the diaphragm up to a high point in the thorax. This patient had been operated upon last Saturday by Dr. A. A. Berg and when the incision was made the colon was so large that it immediately extruded itself through the incision. He resected three feet of the colon and made a side to side anastomosis. While the very large colon was pushing the diaphragm up he did not believe that this alone was the cause of the eventration, but that there must have been in addition some pathological condition of the diaphragm which permitted the eventration, though just what this condition was they had not yet determined.

Dr. ALFRED MEYER said that he had heard of this case which Dr. Aronson had just reported, and while the malposition and the high position of the diaphragm were interesting, a point to which he wished to call attention was the paradoxical excursions of the diaphragm sometimes, though not frequently, observed in artificial pneumothorax. In these exceptional cases the diaphragm *ascended on inspiration* on the side of the artificial pneumothorax in place of descending. That was perhaps because of the paralysis of the diaphragm on that side. The conditions of intraabdominal pressure were such that during the excursion of that portion of the diaphragm which was functioning the viscera were pressed down and in consequence of this an upward pressure would be exerted on the side of the artificial pneumothorax. He mentioned this because he thought the phenomenon bore a certain relationship to that of the case reported, though there was admittedly in both some difference of opinion in regard to the exact explanation.

Dr. L. T. LEWALD said he had three cases of bilateral eventration, all occurring in males, and he had been struck, just as Dr. Aronson had been, by the apparent upward displacement of the diaphragm of the colon. In his cases the displacement was not to quite such a high point on the right side as in the case reported by Dr. Aronson; on the left side the displacement in all of the cases extended up to about the third rib. These three cases all occurred in males, two of them being only seven or eight years of age, and the third an adult, so that he felt that the condition was distinctly a congenital one and associated with a malposition of the diaphragm due to the enlarged colon. He did not think the condition was due to a paralysis of the diaphragm.

Dr. MAURICE FISHBERG called attention to an elevation of the diaphragm sometimes observed in tuberculosis. They occasionally found a case in which the liver was up to the third or fourth rib and the diaphragm might be high on both sides, especially in cases of pleuritis. Again one might have fibrous bands formed as the result of tuberculosis which would push the viscera downward. The elevation of the diaphragm

in tuberculosis had always struck him as rather peculiar and he had been inclined to attribute it to a paralysis or irritation of the phrenic nerves. This case of Dr. Aronson's was simply a case in which there was a higher degree of elevation than that due to tuberculosis.

Dr. ARONSON, in closing, said that there was one point to which he had called attention and that was that the patient's symptoms began just after a fall from a car. He did not want to dispute the statement that the megacolon was of congenital origin, but the fact was that the patient only began to have symptoms since just after the fall and the question arose whether the fall had occasioned an injury to the mid-cervical vertebræ causing paralysis of the nerves, so that the possibility of the fall having been an exciting cause of the eventration was an open question. He believed there was a prior pathological condition of the diaphragm which permitted the megacolon to push it up, so that the eventration was the result of the association of both conditions.

A Case of Artificial Pneumocardium.—Dr. ALFRED MEYER made this contribution. He stated that injections of air, oxygen, or nitrogen, into serous cavities for the relief of various diseases had been advocated for many years. He reviewed some of the instances reported in the literature in which procedures of this kind had been applied in tuberculous peritonitis and cirrhosis of the liver. The procedure, as was well known, had found its most extensive application in pulmonary tuberculosis. The pericardium appeared to be in respect to gas introduction an untilled field. The only two cases which the writer had been able to find in the literature of the therapeutic introduction of gas into the pericardial sac were those of Wenckebach (*Ztsch. f. klin. Med.*, '10, Vol. LXXI, 402) and that of Weil and Loiseleur (*Prose Médicale*, Dec. 28, 1916). These cases Dr. Meyer reported in detail in view of the rarity of the procedure. His own case, probably the third reported in the literature of this subject, was admitted to his service at Mount Sinai Hospital on April 26, 1917. The patient was a woman, 20 years of age, married 14 months, and the mother of a child five months old. Her past history showed that she had had an appendectomy four years ago. The onset of her present trouble occurred four months before admission to the hospital, with cough, fever, shortness of breath, and later occasional vomiting and precordial distress. Before her admission to Mount Sinai Hospital she had been in the New Haven Hospital where she had been aspirated several times and where the diagnosis of polyserositis was made. On May 1, 1917, the writer aspirated the pericardium, removing 1350 c.c. of bloody fluid and introducing 180 c.c. of nitrogen gas. The gas injection was made under local anesthesia with the Floyd Robinson apparatus. There appeared immediately distinct succussion at the first left interspace near the sternoclavicular junction and at the level of the spine of the left scapula, but at no time was there a splash with cardiac systole. The extreme width of precordial dullness before aspiration was 24 cm.; after aspiration the exact limits were determined with difficulty on account of the admixture of tympany, but there was a reduction of at least three or four cm. The heart sounds were more plainly audible. The radiographic report of May 4 showed a condition of hydro-pneumopericardium. The heart border extended on the left side as far as the axillary line, and on the right side almost to the mid-clavicular line. The pericardium was almost completely filled with fluid, the fluid level extending as far as the level of the third rib anteriorly. Above the level of the fluid the pericardium was distended by an accumulation of air. By May 10 the fluid had gradually reaccumulated and there was no longer any evidence of air in the pericardium. The pericardium was again tapped on May 10, 1270 c.c. of bloody fluid being withdrawn; no nitrogen was substituted. Four more aspirations were done between this time and June 7. On June 7, 700 c.c. were withdrawn and 650 c.c. nitrogen injected. In the meantime the ascites had increased to such an extent that a paracentesis abdominis was made on June 12 by Dr. H. W. Berg, 2120 c.c. of clear straw-colored fluid being removed. After emptying the abdomen, the sharp edge of the lower border of the liver apparently much enlarged was palpable. On June 26 and July 14 paracentesis abdominis was

again performed. During this period general anasarca was continually on the increase, but there was no necessity of tapping the pericardium until July 24, one month and 17 days since the substitution of nitrogen. During all this time no positive conclusion as to the underlying cause of the patient's trouble was reached. She had occasional slight fever, never above 102, mostly between 99 and 101, and during the last three weeks of her stay mostly subnormal. Her blood pressure was always low, but there was a high hemoglobin and red cell count and a leucopenia. The urine had occasional albumin and occasional hyaline and granular casts. The Wassermann was negative and the pericardial fluid was negative for tuberculosis. The ascitic fluid was also negative. This patient left the hospital, on July 28, and died probably two or three weeks later. As yet he had been unable to ascertain whether an autopsy had been performed. The weight of evidence seemed to favor the conclusion that there was some central circulatory disturbance involving perhaps a partial closure of the vena cavæ. Dr. Meyer said he was reporting the case for the purpose of accentuating the simplicity and safety of this procedure in cases of pericardial effusion which required tapping. He would certainly urge its trial in cases of tuberculous pericardial effusion, in view of the experience in cases of tuberculous peritonitis and in the two cases quoted from the German and French literature. From a study of his case (non-tuberculous though it was) it would appear reasonable to introduce larger proportionate amounts of gas than were employed by him at the original tapping. A natural conservatism in view of the newness of the procedure guided him at the time of the first substitution, but at the last tapping nearly as much gas was introduced as fluid had been removed (750 c.c. and 650 c.c.), and this with perfect comfort to the patient. In a proven tuberculous pericardial effusion, Dr. Meyer stated that if the occasion arose in the future, he would use oxygen or possibly ozone gas. During the study of this case it had occurred to him that a similar procedure might possibly be of service in cases of hydrocele and he had suggested it to some surgeons for trial. Even in diseases of the cerebrospinal canal there might be a future for this procedure.

Dr. LOUIS HAUSWIRTH said that the injection of air into the peritoneal cavity after tapping, to which Dr. Meyer had referred, had been made for diagnostic rather than for therapeutic purposes. A German observer had been able to gain some information with reference to the condition of the spleen and liver by the use of the oxygen injection. He injected oxygen until the splenic dullness disappeared entirely, and then the fluoroscopic and radiographic examination showed that the diaphragm was lifted far off of the kidney and liver and the outlines of the kidney and liver were shown very distinctly. Such a procedure as this might be of value in the diagnosis of abdominal tumors. So far as the therapeutic effects were concerned they were not very successful in this case. With reference to the length of time that the air or gas remained in a closed cavity it seemed that in ascites it escaped very quickly through the trocar, and it seemed to have no influence on the reaccumulation of fluid. He had tried Dr. Fishberg's suggestion that gas replacement might be employed in pleurisy; in his hands it had been a dismal failure. It seemed that oxygen would be absorbed in about twenty-four hours and nitrogen in three or four days after intraperitoneal injection. In one patient who had repeated hemorrhages from the lungs he had considered the advisability of producing artificial pneumothorax, and had made two or three attempts, but found that pleural adhesions made the procedure impossible. A member of the house staff, not knowing of his attempt, tried to make an injection into the eighth or ninth interspace and went into the peritoneal cavity. No harm resulted. All those doing artificial pneumothorax understood that if they entered the pleural cavity the manometer gave a negative pressure reading, and that if they entered the peritoneal cavity the reading would be positive. The diaphragm was often quite high in cases of tuberculosis, even as high as the second, third, or fourth rib. Perhaps Dr. Meyer's procedure might work well in cases of pericardial effusion, but it had not been successful thus far in cases of pleural effusion or ascites.

Dr. MEYER, in closing, said he could also report a case

which occurred in the practice of a colleague in which the peritoneal cavity was entered in the attempt to enter the thoracic cavity. So far as they could judge from their limited experience with this procedure it was valueless in cirrhosis hepatitis. So far as the relative value of nitrogen and oxygen was concerned the oxygen was absorbed more quickly, at any rate in the pleural cavity. Ordinarily, therefore, in making a substitution nitrogen gas was certainly preferable to oxygen. Dr. Meyer said he had also made substitutionappings in cases of hemothorax in several cases of malignant disease of the lung and pleura and in one case of leucemia, using nitrogen. The final outcome of course was not satisfactory, but he felt that the final outcome of cases of tuberculous peritonitis was so hopeless that they were justified in making every possible attempt that gave promise of relief along the lines he had described, and that the limited experience thus far on record seemed to justify artificial pneumopericardium. In all such cases as these, Dr. Meyer said, atmospheric air or oxygen should be used.

A Case of Polycythemia with Focal Nervous Symptoms.—Dr. LOUIS HAUSWIRTH reported this case for Dr. MORRIS MANGES. He stated that his reason for making this report was because Dr. Christian had recently reported ten cases of polycythemia, seven of which presented symptoms of profound nervous disturbance. It had been his impression that only about 30 per cent. of these cases of polycythemia presented marked nervous symptoms of a focal character. The case he reported was that of a woman forty-eight years of age, who always lay on her left side and whose spleen was markedly enlarged, extending beyond the umbilicus. She had attacks of a neurotic nature localized in the right eye. The pain in the right eye radiated to the back of the head. The patient also complained of pain in the right forearm and hand and weakness and numbness of the forearm and hand. All of her pain and symptoms were relieved when she was lying down. She had the characteristic cherry-red spot in the eye. The blood examination showed 9,150,000 red blood cells and 135 per cent. hemoglobin. The findings of the blood examination were somewhat different from those of Dr. Christian. The speaker compared the findings of Dr. Christian and Dr. Lucas in respect to the blood examination in polycythemia and commented on the fact that Dr. Lucas had found nervous symptoms present in only 30 or 40 per cent. of his cases.

A Case of Large Pericardial Effusion.—Dr. HAUSWIRTH reported this case also for Dr. MANGES. He stated that the patient was a young man twenty-eight years of age with an enormous pericardial effusion apparently due to a rheumatic condition. The question was whether one should tap such cases. In cases which one decided to aspirate an x-ray examination should be made first in order to be sure that in making the aspiration they were entering the pericardial cavity.

Dr. GEDIDE A. FRIEDMAN said that during the past few years he had had three cases of polycythemia vera, one of which he had published. In all of these cases he had observed nervous symptoms, and these he thought could be attributed rather to irritation of the sympathetic nerves than to the vagus. He also described polycythemia occurring frequently in patients suffering from chronic duodenal ulcer. In patients suffering from chronic gastric ulcer there was usually a mild anemia. Practically all of these duodenal ulcer cases with polycythemia presented nervous systems which one would call stigmata of the vegetative nervous system. However, the symptoms and signs correspond rather to sympathicotonia. He had been experimenting on dogs and rabbits with adrenalin. When he injected the usual dose of adrenalin and then took the blood count he found that the red cell count was markedly increased. In one dog two hours after the adrenalin injection the erythrocytes rose from five to eleven millions in the c.c. of blood; in other words an excess of adrenalin in the system caused a polycythemia. From these findings it might be argued that polycythemia might have some relationship to a disturbance of the glands of internal secretion. Dr. Friedman said he had also injected dogs with glandular secretions and had produced acute duodenal ulcers with adrenalin. This work was published in the *Journal of Medical Research* in 1915. Taking all these facts into consideration it seemed possible that

there might be a relation between polycythemia and an excess of adrenalin.

Dr. ROSENBLUTH recalled two cases of polycythemia coming under his observation, one of which showed symptoms of hemiparesis due to an exudate in the brain, and the other a patient who was neurasthenic and showed symptoms referable to the vegetative nervous system.

Dr. ALFRED MEYER said he just recalled that in looking through the literature of pericardial effusion and its treatment he had come across the treatment of tuberculous effusion by aspiration and the injection of a gram of naphtholated camphor. It resulted in a cure, but with total adhesion. The pulse rate first rose from 120 to 180 and the patient had attacks of syncope. The case seemed to show, Dr. Meyer said, how nature sometimes protected the physician against disaster that he seemed to have invited.

Dr. HAUSWIRTH said he did not think Dr. Friedman's theory as to the relation between polycythemia and the sympathetic nervous system could be substantiated. Dr. Christian had called attention to the fact that the condition was definitely associated with lesions in the blood vessels and that it was perfectly possible for these lesions to be transitory; they might subside and the patient recover. The point to be emphasized was that nervous symptoms should lead the physician to make a blood count to see whether or not the disturbance of the sympathetic nervous system might not have its basis in a polycythemia. He felt sure that if physicians were stimulated to look more carefully for these cases they would find polycythemia of more frequent occurrence than they had hitherto believed.

Multiple Hydatid Cysts of the Liver.—Drs. A. V. MOSCHOWITZ and A. O. WILINSKY presented this patient, a Greek, thirty years of age, who was admitted to Mount Sinai Hospital on August 8, 1917. Dr. Wilinsky stated that the patient had complained of masses in the abdomen for two weeks before admission. The family and personal history were negative. The patient had lived in Greece until nineteen months ago. He then was in Paris for six months and had been in New York thirteen months. The patient, aside from the increasing size of the mass in his abdomen, felt well. Physical examination showed the submaxillary, axillary, and inguinal glands palpable. Examination of the lungs showed numerous moist râles at the right base posteriorly. There were three prominences in the upper half of the abdomen which moved with respiration. These masses felt cystic. On percussion there was a distinct thrill imparted to the finger. Rectal examination revealed high up in the midline a sense of resistance and slight tenderness. Dr. Moschowitz performed an operation which consisted in a marsupialization of the echinococcus cysts of the liver. He found a large cyst in the left lobe of the liver on the upper surface, a smaller cyst below the margin of the left lobe, and one under the right lobe in the flank. Part of the lining of the lower cyst was excised. The lining of the cysts of the left lobe was then swabbed with 10 per cent. formalin. The cyst in the right lobe was not attacked because of its inaccessibility and the poor condition of the patient. For three weeks after the operation there continued to be a discharge of bile-stained fluid with cysts and liver debris. Because of a daily rise in temperature a second operation was performed, at which one large cyst on the under surface of the right lobe and another on the upper surface of the right lobe were incised and marsupialized as before. The cyst on the upper surface contained a large amount of pus and the cavity extended up under the diaphragm. The incision in the right rectus was closed in layers and the patient made a good recovery. Owing to the profuse loss of bile the patient had been given bile. He was still discharging a moderate amount of light-brown material with daughter cysts. It seemed quite probable that he would have another operation.

Dr. MOSCHOWITZ said he had had occasion within a few days to see the brother of this patient and he was able to supply a missing link in the history. He had questioned this brother as to whether the patient had ever had a dog or tended sheep. The brother said the disease was very common in Greece and he had seen sheep killed in which they had found something that looked just like the daughter cysts which which had been removed from the patient.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held November 27, 1917.

DR. GEORGE W. KOSMAK IN THE CHAIR.

Large Pedunculated Cavernous Angioma of the Liver Reaching into the Pelvis and Causing Obstetric Difficulty.—Dr. I. C. RUBIN reported this case and exhibited the specimen. He said that this cavernous angioma of the liver which he had recently removed was unique both from the point of view of its large size and the serious difficulty it caused during pregnancy. The patient was a young woman, 33 years of age, who had already born 12 children, eight of whom were twin pregnancies. During her last gestation her abdomen had increased so markedly in size that she considered herself again pregnant with twins. The abnormally large size of the abdomen with increasing sense of discomfort and then pain led to an induction of premature labor. The presence of the abdominal tumor then became obvious. The diagnosis of ovarian tumor was made because of the location of the tumor in the abdomen and the palpatory findings on bimanual examination. On laparotomy it proved to be a giant sized pedunculated cavernous angioma of the liver. It was easily removed without hemorrhage. Recovery was complete and uneventful. In regard to the diagnosis, it seemed that if they had paid sufficient attention to the percussion signs, namely, dullness in the right hypochondrium continuous with the liver dullness, they might have ascribed the origin of the tumor correctly to the liver and not to the ovary. However, the great rarity of tumors of this variety and the greater frequency of ovarian tumors complicating pregnancy would favor the latter as the most probable diagnosis. Apparently laparotomy alone could establish the diagnosis in this as in many other instances of large abdominal tumors. The specimen removed was ovoid in shape, measured 24 by 16 by 4 inches, and weighed four pounds and twelve ounces. On section it resembled liver tissue with peculiar myxomatous changes. There were several circumscribed areas about the size of a silver half-dollar which were pale and homogeneous in color and suggested possible malignant changes; these, however, on microscopical examination proved to be fibroid changes, while the great mass of the tumor proved to be a cavernous angioma.

A Case of Twin Pregnancy; One Child a Monster.—Dr. GEORGE W. KOSMAK reported this case. He said the subject of twin pregnancy was of interest both from the biological and obstetrical standpoints. Considerable difference of opinion existed as to how twin pregnancies developed in the unioval variety, but they did know that they were generally of the same sex and that there was an anastomosis between the two vascular systems in the placenta which was not present in the fused placenta of double ovum twins. Occasionally one fetus was so much larger and stronger than the other that it crowded the second fetus to such an extent that the latter became flattened out and assumed the character of a fetus papyraceus. In other instances the heart of one embryo was so much stronger than that of the other that it monopolized the gradually increasing area of the common placenta. As the other fetus received less and less blood it failed to develop, and a mere remnant was left to which the name of acardia was given. Then again they sometimes had a hydramnios in the case of the larger fetus, supposedly due to the fact that the stronger heart appropriated the largest share of the blood with a corresponding hypertrophy of the kidney function. In the case reported variations to these general rules were to be seen. Although the first fetus was normal and larger than the second, the contents of its amniotic sac were quite normal in amount; whereas the smaller and abnormal fetus developed in an amniotic sac that contained at least a gallon of fluid at the time of delivery. Although evidently of bioval origin, both twins were of the same sex. Another feature of interest in this connection was that in this type of twin pregnancy no anastomosis between the placenta could have been present. For this reason also the second twin could not have been interfered with by the growth of the first. In none of the obstetrical text-books which were

consulted was any record of a similar anomaly found. The patient was 35 years of age, a IV-para, who was admitted to the Lying-in Hospital on October 13, 1917. At the time of admission the cord was found prolapsed, the cervix four fingers dilated and the vertex presenting. A version and breech extraction was done and a normal baby, weighing 2200 grams, was delivered. The abdomen remained greatly distended, and as there seemed no reason for waiting, the membranes were ruptured and a large amount of liquor amnii allowed to escape. The second fetus presented by the breech and was easily extracted. It was an anencephalic monster, weighing 1420 grams, and died about an hour after birth. An examination of the secundines showed two distinct placenta and sacs. There were no abnormalities in the placenta. The sex was the same in both fetuses. The mother and baby were discharged in good condition.

Tyramine in Labor.—Dr. ALFRED M. HELLMAN presented this report. He said that his interest in tyramine as an adjunct in labor had been aroused by the statements of Professor Barbour of the Department of Pharmacology of Yale University. Through the kindness of the manufacturers he had secured sufficient tyramine for nine doses and administered it during October to nine patients on the service of Dr. Seeligmann at Lebanon Hospital. Eight times it was given with morphine when this latter drug was indicated, the dosage being that suggested by Barbour, namely, 16 mg. of morphine sulphate given hypodermically in solution with 40 mg. of tyramine. Tyramine was a synthetic preparation, parahydroxyphenylethylamine hydrochloride. Laboratory workers had called attention to it as a respiratory stimulant and others had noticed that it counteracted the respiratory depression of morphine. It was claimed that experimentally it caused a rise in blood pressure which was more gradual, lasted longer, and was less powerful than adrenalin, but resembled this drug. In 1910 Dale and Dixon from some experiments deduced that besides its adrenalin action it caused in rabbits contractions of the uterus and vagina, more marked if the animals were pregnant, but it did not bring on labor. Its oxytocic action was also noted by Guggenheim, whereas Lieb called attention to the fact that it stimulated the sympathetic nervous system and that it also stimulated the non-pregnant as well as the pregnant excised human uterine muscular tissue. Judging from a review of the literature, one would have expected to find that the use of tyramine in labor would increase the mother's respirations, raise blood pressure, that the analgesic effect of morphine would be unaltered, and the uterine contractions stimulated until the end of labor. Unfortunately, his own experience did not bear out these reports. In the eight cases in which the drug was used the respirations of the mother were unchanged and the blood pressure was lowered from 5 to 15 mm. of mercury in six cases; in one there was no change, and in the other there was a five-point increase. In every case the pains became decidedly less frequent and seemingly less powerful. Dr. Hellman said he realized that the cases were not enough to allow a definite conclusion, but to him the results were quite a surprise and were not very satisfactory.

The Rationale of Radiotherapy in Uterine Hemorrhage.—Dr. JAMES A. CORSCADEN presented this communication, in which he first drew attention to the gradually prevailing view, as expressed in an extensive literature, that abnormal uterine bleeding formerly attributed to anatomical lesions, such as chronic endometritis, fibrosis of the uterus, arteriosclerosis of uterine vessels, syphilis and tuberculosis of the uterus, chronic passive congestion of local origin, etc., was due to extrauterine agencies, alterations in the menstrual mechanism, to correct which we must attack some link in the menstrual cycle, particularly destruction of either the corpus luteum or the endometrium. In summarizing the effect of the use of radiotherapy on the grossly normal uterus he stated that radiant energy exerted a specific destructive effect on the Graafian follicle. Menstruation was dependent on and controlled by a corpus luteum formation. Destruction of the Graafian follicle must therefore cause an amenorrhea. The majority of abnormal uterine hemorrhages were due to disturb-

ance in the menstrual mechanism, and not to local mechanical causes, therefore these bleedings must cease in the same manner as normal menstruation, under radiotherapy. Added to its effect on the corpus luteum, radium had a local cauterizing effect on the uterine cavity. In women of the late child-bearing period radium was the procedure of choice. In girls radiotherapy should be used as a late procedure. The speaker then discussed the position of radiotherapy in the treatment of hemorrhage associated with fibromyomata, summing up his ideas as follows: (1) Results showed that amenorrhea followed radiotherapy in fibromyoma of the uterus precisely as it did in uterine bleeding with any other benign condition. (2) Following radiotherapy the mass shrank to a marked degree, often so much as to escape the examining finger. (3) Fibromyomata should remain untreated unless they caused symptoms. (4) When the symptom to be treated was hemorrhage, radiotherapy was the treatment par excellence, because it put the condition again in the symptomless class. (5) Since amenorrhea should be permanent, radiotherapy was best indicated in women of thirty-eight or over and restricted more and more as the ages were lower. (6) Where mechanical symptoms predominated they were best treated mechanically, that was by operation. Carcinoma was practically out of the scope of this paper, since the hemorrhage of carcinoma, although important, was of small importance compared with the other dangers of the disease; nevertheless allusion should be made to its treatment by radiotherapy. In a small number of cases of inoperable carcinoma coming under his observation in which more or less severe bleeding had been a symptom, it had been controlled, and the immediate results were like those reported from many sources. His experience with inoperable carcinomata of the cervix showed that treatment by radiotherapy was just as rapid and just as complete as when treated by the Percy method. Thus far no accidents had followed the use of radium. Dr. Corscaden stated that the series of cases from which he had drawn his deductions included 44 cases in women of 38 years of age or over treated by the x-ray; eight cases in women under 25 years of age treated by the x-ray; four cases in women of from 30 to 35 years treated by the x-ray. There were nine cases in women over 38 treated by radium; one case in a woman of 31 treated by radium. Among the women of 38 or over there were 22 cases with fibromyoma; among the women between 30 and 35 years there were two cases of fibromyoma. In the women of 38 or over treated by x-ray, menstruation ceased after the treatment, and there was no further bleeding in one case, no further bleeding after one period in 12 cases; there was no further bleeding after intermittent dribbling lasting for several weeks in three cases. In one obese subject scant menstruation coincident with hot flushes continued for four months after x-ray treatment and was stopped completely after an application of radium. The uterine bleeding in eight girls had been controlled with varying success in all cases. In three of them something approaching a regular menstrual period was accomplished. In the other five varying periods of amenorrhea were induced. The results of the cases treated by radium were too recent to be suitable for tabulation. In general it might be said that amenorrhea occurred after one period. The profuse first period following the x-ray treatment had only a mild counterpart after the radium installation. The secondary results of x-ray treatment had practically stimulated the normal menopause. There had been a few gains in weight, but no adipose. The only characteristic symptom of the menopause had been the onset of hot flushes; this had been serious in one case; absent in two, and moderate in the rest of the women of 38 years or over; it had been severe in one young woman, absent in four, and moderate in the rest. Comparing the x-ray and radium, it might be said that radium was preferable in practically all cases except young women, in whom small repeated doses might be desired. While the actual time consumed in the treatment was about the same for both, that devoted to x-ray was spread over from six to ten weeks, while the radium was finished in twenty-four hours. In conclusion it might be said that uterine hemorrhage from almost any cause might be stopped by the intra-

uterine application of radium, and that the hemorrhage from disturbed menstruation with or without fibromyoma might be controlled by the x-ray. Also practically all fibromyomata would shrink to a satisfactory degree after radiotherapy. All cases of hemorrhage from a grossly normal uterus in a woman of 38 years or over should be treated by radiotherapy after carcinoma had been ruled out. In younger women radiotherapy should be used as a late resort.

Dr. S. STERN said that he had treated in hospital and private practice several hundred cases of hemorrhage and fibroids by radiotherapy, the patients ranging in age from 14 to 60 years. The results had been just as Dr. Corscaden had said; there was absolutely no question that we could induce an amenorrhea in any patient if a sufficiently large dose were given. He had had a number of cases in young women in which amenorrhea followed the treatment, lasting up to two years, and then menstruation began again. In some instances these women had become pregnant and had borne perfectly healthy babies, and they were perfectly healthy to-day and had had no recurrence of the fibroid or of the hemorrhage. The only difficulty with this treatment was to know how to gauge the dosage. He had no doubt the time would come when we would be able to work out a definite formula and by following this get identical results. There was no question that one occasionally got young girls who should be treated radiotherapeutically. Dr. Stern said he had never seen a case under thirty years of age that did not menstruate again. In the older women the question of dosage depended upon how near the menopause they were. As to the interesting question of how the radiotherapy did the work, at one time it was thought that the results were obtained entirely through the reflex action produced on the ovaries, but he was inclined to think there was a decided action on the fibroid tissue itself. The fact that one obtained this effect upon a fibroid in a woman long past the menopause in whom the ovaries were atrophied would suggest that the effect was produced in some other way than only through the ovaries. There were not many contraindications to this treatment if one could rule out malignancy. This was sometimes very difficult, and it might happen that some mistakes might be made. Of the 300 or more cases coming under the speaker's observation there was only one which proved later to be carcinoma, and in this case there was some suspicion of malignancy from the beginning. He did not know why Dr. Corscaden took the age of thirty-eight years and said that when the patient was under thirty-eight years he preferred a surgical procedure. He believed that if an operation could be performed in such a way that enough of the uterine organ could be preserved to keep up menstruation it was probably better than to take a chance of making the woman permanently amenorrheic. But otherwise he thought that radiotherapy which was likely to produce only a temporary amenorrhea was better than a procedure which surely made the patient permanently amenorrheic.

Dr. L. T. LEWALD said the findings of Dr. Corscaden were in agreement with those of Dr. Pfahler, and he was inclined to believe his rationale was correct. His selection of cases followed that of Dr. Pfahler and others who were doing successful work along this line.

Dr. HOWARD C. TAYLOR said there was little in which he would not agree in what Dr. Corscaden had said. He wished that Dr. Corscaden had said more about the dosage. The literature contained much regarding the results of the use of radium, but little regarding the exact dosage, amount of filtration, and the duration of the application. The vast majority of cases of uterine hemorrhage could be cured by curettage. If one took all those due to metritis, retroversion, fibroid, or conditions of the appendages, he usually preferred to do a curettage and such other operation as might be indicated rather than use radium or the x-ray. If a young girl flowed profusely, and no real lesion was found in the pelvis, it was his custom to regulate her life, her exercise, rest, and general hygiene. He disliked to curette a young girl, but would curette her rather than use radium, though he certainly would use radium before he would do a hysterectomy. He would not use radium until a curettage had failed more than once. In the treatment of fibroids he thought it was

not a question of whether a woman was 38 or 44 years of age, but whether she needed her uterus or not. A woman might be 40 or 41 years of age and just married and in that case she did not wish to remain sterile. On the other hand, if a woman was under 38 years of age and had children and did not care to have any more, she had less need for her uterus and it was of less importance to save it. Myectomy seemed preferable if the woman needed her uterus and wanted a chance to have children. One could do quite an extensive myectomy with safety without rendering the woman sterile. Dr. Taylor said he wished Dr. Corascaden would make some reference to his treatment of submucous fibroids.

Dr. HIRAN N. VINEBERG said he thought Dr. Corascaden had given a very fair presentation of this subject and had furnished a standard upon which we could look as a guide in the future in our own cases. He thought Dr. Taylor had struck the keynote. If one started out to do a myectomy, it was surprising how few cases there were in which one could not do this operation, and in this way a great many uteri could be saved. As to the submucous fibroids, those who had operated on this kind of growths knew how easily one could shell them out. He had had very little experience with radium or the x-ray, but he thought every gynecologist should be familiar with these methods of treatment and should avail himself of them in some cases. As to the young girls, he had had one case in a young girl who had been curetted several times and this procedure had failed to control the hemorrhage. She was in a desperate condition and it was imperative that something be done. He decided to open the abdomen, and upon doing so found that one ovary was double the normal size. He simply incised this ovary. It was now nine months since this had been done and the patient had had no more hemorrhage and was in normal health.

Dr. HERMANN GRAD said he thought the paper was fair and very instructive. He had had three experiences with cases that had come back from the radiologist after they had been treated. These cases were of three distinct types. The first patient was a woman treated for uterine hemorrhage for four months who was sent back because the radiologist feared malignancy. Although there was nothing demonstrable on microscopical examination of the curettings, hysterectomy was done. The specimen showed a fibrosis of the uterus and an extremely marked endarteritis. In the myometrium there were very peculiar changes which the pathologist said he had never seen before, and there appeared to be a great deal of scar tissue. The ovarian structures also showed changes under the microscope; one could not demonstrate a Graafian follicle at all. In this case the x-ray treatments did not control the bleeding. In another case, a young woman treated for about six weeks, the hemorrhage was not controlled. The woman had been treated for fibroids, but on opening the abdomen it was found that she had a pyosalpinx on both sides and no fibroid. This brought up the question of diagnosis; differential diagnosis was difficult at times. In another case of submucous polyp the hemorrhage was not controlled by the x-ray, though there had been a sufficient number of exposures to have produced such an effect. At operation a polyp was found; here again was the question of diagnosis.

Dr. HARRY ARANOW said his experience had been just the opposite of that of Dr. Grad. He cited several instances in which x-ray and radium had been effective when other measures failed. He said he had the impression that in women around the age of 38 or 40 years the x-ray was more effective than in younger women in controlling hemorrhage due to fibroids.

Dr. CORSCADEN, in closing, said he had simply taken the age of 38 years because it represented about the average of a number of cases taken from the literature. It was about the age at which the conditions laid down by Dr. Taylor more often occurred, and it was the age at which the majority of women ceased to want to have children. His original reason for selecting this age was that after this time one did not need to have much fear on account of menopause symptoms. He had seen these symptoms of the menopause in young girls and found that they were largely psychic. As to the dosage

and what was meant by a massive dose. A massive dose of x-ray was this: The abdomen was divided into ten areas and each area was given an erythematous dose, that was a dose just short of what would burn the skin, and this dose was repeated as quickly as was convenient. Then a second similar series of doses was given three weeks later, and a third again three weeks after this. No one really knew what a massive dose of radium was for a case of metrorrhagia or menorrhagia. A limit had not yet been set to the dose in carcinoma. More than 3600 milligram hours was likely to produce a fistula formation. He had put in 25 milligrams for 24 hours, 50 milligrams for 12 hours, and 50 milligrams for 24 hours, and in each instance the result had been about the same, except when one put in 50 milligrams for 24 hours the primary period was less profuse, but there were the same number of periods and the amenorrhea was just as complete. As to the measurement of the fibroids, that was done by the ordinary obstetrical calipers with one straight arm. A discount was made for the thickness of the abdominal wall, and the same discount was made at each subsequent examination. Dr. Corascaden said that in failures to get results with the x-ray treatment he would like to see the apparatus and all the measurements of the x-ray dose. Giving x-ray was like giving digitalis, we must know the proper method of administering it. If one did not know all the factors bearing on the x-ray dose, it was just as useless to attempt to employ it as it was to give a man a handful of strychnine tablets and tell him to use them when he felt he needed them. It was the speaker's custom to do a preliminary curettage and then if a fibroid was present he learned what condition obtained in the cavity, and if he thought operative interference was indicated because of a polyp or pedunculated fibroid he operated, so in a way he was working on both sides of this question.

Dr. TAYLOR asked whether, if several fibroids were found projecting into the uterine cavity, Dr. Corascaden gave radium treatment and whether he had found that radium caused submucous fibroids to disappear.

Dr. CORSCADEN said he gave radium and the fibroids disappeared. He believed the disappearance was due to the effect of the radium on the ovary. He found that under radium treatment these fibroids shrank faster than those that went through the natural menopause.

Dr. HOWARD LINDEMAN said that in their earlier treatment of fibromyoma they used to castrate in order to cure the patient. Some fibroids did diminish in size under this treatment, but many others did not, and it was this fact that suggested to his mind the possibility that the x-ray and radium had some direct effect on the fibroid itself and did not exert their action merely through their effect on the ovary.

Dr. CORSCADEN said he was glad of the opportunity to answer that question. Gaus, Kroenig, Albers, and Shoenberg, and indeed all the German authorities on this subject, agreed that the cases in which there had been a failure to reduce the fibroid after radiotherapy had been those in which menstruation had recurred, and therefore they insisted that in order to make the fibroid disappear menstruation must cease.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

VIRGINIA STATE MEDICAL EXAMINING BOARD.

June, 1917.

(Continued from page 1101.)

SURGERY.

1. What is meant by hyperthyroidism and hypothyroidism?
2. Differentiate tuberculous peritonitis and typhoid fever.
3. Mention some of the dangers from the use of spinal anesthesia.
4. Differentiate between contusion and concussion of the brain.
5. Give diagnosis of congenital pyloric stenosis and state what operations will relieve the condition.

6. Differentiate subluxation of the elbow joint and supracondyloid fracture of the humerus.

GYNECOLOGY.

1. Give causes, symptoms and diagnosis of acute cervical atresia.
2. Give symptoms and diagnosis of ectopic pregnancy.
3. Differentiate acute appendicitis, right urethral calculus, and acute salpingitis.
4. Give surgical technique for abdominal hysterectomy.

MEDICAL JURISPRUDENCE, HYGIENE, AND PREVENTIVE MEDICINE.

1. What do civil and criminal responsibility imply?
2. Define: (1) Insanity, (2) Melancholia, (3) Dementia, (4) Paranoia, (5) Idiocy.
3. What is rigor mortis? Why is its rapid appearance of greater medicolegal interest than delayed onset?
4. What is the legal status of a medical examiner in regard to the life insurance company for which he examines?
5. What are the natural purifiers of the atmosphere which prevent its composition from varying much from the normal for any great length of time?
6. Name some of the most important and fatal diseases among soldiers and state the precautions necessary in locating camps and their hygienic management.
7. What are the respective merits of sulphur and formaldehyde as germicides and insecticides?
8. What three measures are necessary in the prophylaxis of smallpox? How long after vaccination before immunity appears?
9. What knowledge is necessary for success in the suppression of an epidemic?
10. The record of what important events are included in the registration of vital statistics? From a sanitary point of view, what is the most important object of a registration of vital statistics?

ANSWERS.

SURGERY.

1. *Hypothyroidism* is the name given to the symptom complex found when the thyroid gland is absent, degenerated, atrophied, or is functionally deficient. There is arrested growth, dry and swollen skin, pale and puffy face, swollen abdomen, hair thin and with a tendency to fall out, weak muscles, the nervous system seems undeveloped, mental dullness, lowered body temperature, diminished sexual activity, lower sensibility, and accumulation of adipose tissue.

Hyperthyroidism is due to an increase of thyroid secretion; there will be noticed lowered blood pressure, rapid pulse, excessive perspiration, nervous excitability, digestive disturbances, loss of fat, and in extreme cases exophthalmus, dilatation of pupils, sleeplessness, and tremors.

2. *Tuberculous peritonitis* is characterized by a distended or retracted abdomen, irregular fever and more or less pain of a sharp character. Occasionally there is diarrhea, sometimes constipation. If the abdomen is distended the presence of free liquid in the abdominal cavity can usually be diagnosed by dullness in the flank and the presence of a wave transmitted from one side of the abdomen to the other when the center line of the abdomen is strongly depressed by the edge of the hand. Occasionally dull areas may be distinguished in various parts of the abdominal cavity.

In *typhoid fever* there are rose spots, enlarged spleen, the peculiar tongue, diarrhea, and the Widal reaction. Typhoid fever is usually more acute than tuberculous peritonitis.—(From Fussell's *Differential Diagnosis*.)

3. The chief dangers of spinal anesthesia are: Infection, injury to the spinal cord, loss of respiratory power, paralysis, poisoning from the drugs employed, and death.

4. "Concussion of the brain is the name given to the state of unconsciousness immediately following upon a blow on the head. The patient is, in a word, stunned. The symptoms appear immediately on receipt of the injury, and two stages are recognized: (1) The stage of collapse; (2) The stage of reaction. In the collapse

stage there is insensibility of varying severity. The patient can generally be roused, but relapses into insensibility. The pupils are equal, often contracted, and react to light. The pulse is slow and weak; the respirations slow, shallow, and irregular. The muscles are relaxed, but there is no actual paralysis; the reflexes are present; there is incontinence of urine and feces, and a subnormal temperature. When reaction occurs, there is a gradual return to consciousness; vomiting may occur but does not persist. The pulse increases in rate and volume; and the respirations become deeper and more regular. The extremities become warmer, and the body temperature may rise to a degree or so above normal.

Contusions or lacerations give rise to symptoms resembling concussion, but generally of greater severity, the period of unconsciousness being considerably prolonged. The typical symptoms may not appear for three or four days. If the laceration is in the sensorimotor area, clonic spasms may occur affecting certain groups of muscles, or in more severe lacerations, paralysis may result. A group of symptoms apart from sensorimotor symptoms may occur to which the name of *cerebral irritation* has been given. The patient lies curled up on his side, eyes closed, pupils contracted and equal, pulse slow and weak, and temperature subnormal. He can be roused, but resents interference, and will often keep his eyes tightly closed if an examination of them is attempted. The urine and feces are passed into the bed. The condition may last for several weeks, but tends to recovery. In the early stages of laceration a lumbar puncture will demonstrate the presence of blood in the subarachnoid space.—(Pye's *Surgical Handicraft*.)

5. The symptoms of *congenital hypertrophic stenosis of the pylorus* are quite characteristic and show themselves from within a few days to three weeks after birth by vomiting, loss of weight, and constipation. The physical signs are dilatation of the stomach, with visible peristalsis from left to right, and the presence of a sausage-shaped tumor. The progress of the disease is rapid, and from being possibly at first a well-nourished infant, the patient rapidly becomes emaciated. The following operations may relieve the condition: Pylorotomy, gastro-enterostomy, pyloroplasty, and pylorodiosis.—(From Keen's *Surgery*.)

6. In *supracondyloid fracture of the humerus*, "the elbow is flexed at an angle of 120° or 130°, and the forearm, held semipronated, is supported by the other hand. Around the seat of fracture great swelling rapidly ensues. The olecranon projects behind, but the mutual relations of the bony points of the elbow are unaltered. The lower end of the upper fragment may be felt in front above the level of the joint, as a rough and sharp projection, and this sometimes pierces the soft parts and renders the fracture compound. The joint movements are normal, but unnatural mobility may be detected above the level of the joint. Crepitus and localized tenderness may be elicited. The displacement is readily reduced by manipulation, but is usually reproduced when the support is withdrawn. The upper arm is shortened to the extent of about half an inch. In rare cases the obliquity of the fracture is downward and backward, and the lower fragment is displaced forward."

Subluxation of the head of the radius, or "dislocation by elongation," is a comparatively common injury in children between the ages of two and six. It almost invariably results from the child being lifted or dragged by the hand or forearm. The traction and torsion thus put upon the radius causes the front part of its head to pass out of the orbicular ligament, the edge of which slips between the bones. The person holding the child may feel a click at the moment of displacement. The child complains of pain in the region of the elbow; the arm at once becomes useless, and is held flexed, midway between pronation and supination. All movements are painful, but especially movements in the direction of supination. The deformity is slight, but the head of the radius may be unduly prominent in front. From the way in which the injury is produced the wrist also is often swollen, and in some cases the patient is brought to the surgeon on account of the condition of the wrist, and attention is not directed to the elbow.—(Thomson and Miles' *Manual of Surgery*.)

GYNECOLOGY

1. *Atresia of the cervix*.—"Congenital atresia of the cervix may have its seat at the internal or at the external os, or it may affect the whole canal. It is not discovered until after puberty and the institution of menstruation. If there is no associated anomaly of the uterine body or ovaries, the menstrual menses appear regularly and become more painful without the discharge of blood from the genitalia. By a bimanual examination the physician detects a spherical cystic tumor in the pelvis, occupying the position of the uterus. By a specular examination the closure of the external canal and the distension of the cervix may be seen, or if the atresia is higher up it is detected by a sound. Exceptionally there is no attempt at menstruation, and occasionally the menstruation is vicarious. The diagnosis of congenital atresia of the cervix is easily made. It is impossible to pass a sound through the cervical canal. If there has been an accumulation of menstrual fluid or of mucus within the womb, the latter is converted into a cystic tumor with rather thick walls, and on both sides of it there may be enlarged and distended tubes. In atresia at the internal os the external form of the cervix is well preserved. In atresia at the external os the cervix is practically obliterated and becomes continuous with the vaginal vault. By digital examination it is impossible to detect the cervix, but upon inspection through a speculum it is indicated by a slightly projecting nipple in the middle of the vaginal vault, and the seat of the external os is marked by a shallow dimple."—(*Hirst's Diseases of Women*.)

2. *ECTOPIC GESTATION*. *Diagnosis*: "When extra-uterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs*; Nos. 3 and 4 are *probable signs*; Nos. 5 and 6 are *positive signs*."—(*American Text Book of Obstetrics*.)

3. In *appendicitis* the pain is of sudden onset and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle, and tenderness at McBurney's point; there are usually fever, nausea, vomiting, and constipation.

In *acute salpingitis* the pain is not localized, but may be bilateral or just above Poupart's ligament, and spreads to the vagina and rectum; there is no tenderness at McBurney's point; it is usually worse just before the menstrual period, which sometimes affords relief; on vaginal examination the ovary is found to be tender; there may be history of infection and leucorrhea, and the gastro-intestinal symptoms are generally absent.

In *right ureteral calculus*, the pain may be excruciating, and radiates down the course of the ureter and to the genitals; x-ray may show the calculus, and the passage of a ureteral catheter may also demonstrate it; cold sweat and collapse may be present, and the other signs of appendicitis and salpingitis are absent.

4. *Abdominal hysterectomy*.—"The patient must be carefully prepared as for any other abdominal operation, but in addition the pubes and vulva must be shaved and thoroughly purified; the vagina should be douched for some days previously, and an antiseptic dressing worn, and if need be the uterine canal should be curetted and disinfected with some powerful antiseptic.

"After anesthesia has been induced the Trendelenburg position is adopted, and an incision of suitable length made in the median line. The parts are then carefully explored, and if no adhesions exist an abdominal cloth is packed in over the intestines in order to protect and keep them from exposure and injury. If adhesions to omentum or gut are present they must be carefully divided; it is, of course, most desirable that a complete peritoneal covering should be secured for any adherent organs; omental grafts may be sometimes useful in this direction. The broad ligaments are then examined, and a decision made as to whether or not the ovaries and tubes are to be saved.

"A pedicle needle carrying a sufficient length of well-boiled silk is carried through the round ligament so as to secure the ovarian artery and veins, and tied as far away from the uterus as possible. A broad ligament clamp may then be placed in position close to the uterus, so as to prevent venous regurgitation, and the broad ligament is divided half-way down. It is often possible and desirable to pick up the divided end of the ovarian artery on the face of this section and secure it separately, while the little artery which accompanies the round ligament should also be carefully secured. The ovarian artery on the other side is next dealt with in a similar fashion. A transverse cut is now made across the front of the uterus, involving merely the serous membrane and connecting the two ends of the incisions in the broad ligaments; the peritoneum below this transverse cut is detached, together with the bladder, from the cervix, and the intraligamentary space is thereby opened up on either side. In this will be found the uterine vessels, and it may be possible to see and isolate the uterine artery before securing it by ligature. Care must be taken in this part of the operation to keep close to the uterus, as the ureter comes forward from behind under the uterine artery to reach the bladder, lying about the level of the os internum. The uterine vessels are in this way carefully secured and divided.

"The uterus is now merely held by the connection between the vagina and cervix and the peritoneal reflection in Douglas' pouch. If a supravaginal operation will suffice, the surgeon cuts across the neck of the uterus in such a way as to fashion two flaps, and finally the peritoneum behind is divided. A few small vessels will probably need to be secured on the face of the uterine stump. This having been effected, the uterine flaps are stitched carefully together so as to bury the open cervical canal; the uterine stump is then covered in by uniting the divided portions of peritoneum. This line of sutures is carried up on either side so as to secure the two layers of the broad ligament; the final result is that the pelvic floor is covered in by a continuous layer of peritoneum, showing a sutured incision which runs transversely from one side to the other. The usual peritoneal toilette follows, and the abdomen is generally closed entirely, no drainage being required."—(*Rose and Carless' Surgery*.)

MEDICAL JURISPRUDENCE, HYGIENE, AND PREVENTIVE MEDICINE

1. *Civil responsibility* implies that an individual is capable of making a will, signing a contract, marrying, managing his estate, etc.

Criminal responsibility implies that an individual is capable of controlling his actions, that he knows right from wrong, that he realizes that certain acts are forbidden, and that he will be held responsible to the state for the commission of criminal acts.

2. *Insanity* is defined, in Allbutt's System of Medicine, as "such a disorder or disease of the nervous system as prevents the individual from reacting normally as a member of society to which by birth and education he belongs."

Melancholia is a variety of mental disorder, characterized by a general perversion of the mental faculties and accompanied by depression.

Paralytic dementia is a gradually progressive and chronic inflammation and degeneration of the cerebral cortex; it is characterized by failure of memory, changed disposition, delusions of grandeur, and may lead to epilepsy and paralysis.

Paranoia "is a form of insanity which comes espe-

cially under the class of degenerative diseases. It is essentially characterized by a delusion or delusions of a fixed and systematized character. They are usually indeed of one kind, and the disease has perhaps for this reason been called monomania. This is, however, an unfortunate term, as we find this symptom not infrequently in other forms of insanity, as melancholia, where we always observe decidedly fixed ideas of depression. The main fundamental characteristic of this disease is a delusion which has become a part of the belief of the individual, and which he believes himself able to explain and defend."—(Witthaus and Becker's *Medical Jurisprudence*, etc.)

"Idiocy differs from other states of insanity in the fact that it is marked by a congenital deficiency of the mental faculties. There is not here a perversion or a loss of what has once been acquired, but a state in which, from defective structure of the brain, the individual has never been able to acquire any degree of intellectual power to fit him for his social position. It commences with life and continues through it."—(Taylor's *Medical Jurisprudence*.)

3. *Rigor mortis* is the condition of rigidity or contraction into which the muscles of the body pass after death. It begins at a period varying from about fifteen minutes to about six hours. It usually begins in the muscles of the eye, neck, and jaw; then the muscles of the chest and upper extremity, and last of all those of the abdomen and lower extremity are affected. It passes off in the same order in about twenty-four hours. It is said to be due to the coagulation of the muscle plasma.

Medicolegally, it is a sign of death, and an indication of the length of time that has elapsed since death occurred.

The onset and duration of rigor mortis depend upon the previous degree of exhaustion. In death from exhausting diseases, there is an early onset, while in those dying suddenly, as from accident, it may be delayed for twelve hours or more. Its duration is very variable; it is shortened by heat, and prolonged by cold; it generally lasts about twelve to twenty-four hours; in death by lightning or electrocution it may only last a few hours; in other cases, several days.

4. In general a medical examiner is an agent with limited powers, but, nevertheless, his acts are binding within the scope of his authority, and to this extent the same general rules are applicable to him as to other special agents. The certificate of the medical examiner is conclusive upon the company as to its recitals in the absence of fraud of the applicant in making the representations or in concealing material facts; and in answering the questions of the medical examiner the applicant has the right to rely upon his construction of them at the time and may answer them in the light of such interpretation. So if the examiner, knowing the facts, suggests answers which are made in accordance therewith, the company is bound. Again, an insurance company is bound by the act of its medical examiner in reporting an applicant to be a fit subject for insurance, unless he was purposely misled by the applicant and inveigled into recommending him as a fit subject for insurance when but for such deception he would not have done so. But where the answers of the applicant given to the medical examiner are false and material and are known by him to be so, his conduct in writing them down and in not communicating his knowledge to his principal constitutes a fraud upon the company which is not estopped to set up their falsity. Such examining physician is the insurer's agent even though the application makes him the applicant's agent and his acts within the scope of his authority are binding upon the association and the company is estopped to show incompetency of its medical examiner. The laws regulating the legal relations of the company and its medical examiner vary, however, in the different States.

5. *Natural purifiers of the atmosphere, which keep its composition fairly normal*, are: Winds, rain, the power possessed by the green parts of plants (in sunlight) of absorbing CO₂ and setting free oxygen, gaseous diffusion, movements of the air caused by changes in the temperature, and oxidation processes.

6. *The most frequent diseases of soldiers are*: Typhoid, dysentery, diarrheal diseases, tuberculosis,

pneumonia, influenza, colds, sore throat, measles, mumps, meningitis, scarlet fever, smallpox, and other infections; hookworm disease, yellow fever, cholera, plague, typhus, sunstroke, skin disease, and bites of fleas, lice, ticks.

In selecting a camp site the following conditions should be borne in mind: The presence of water, wood, and grass. The soil should be dry and elevated, with some protection from winds. There should be space enough to accommodate the men without crowding. Old camp sites should be avoided because the soil is certain to be polluted and may be infected. Excess of vegetation and dense woods should be avoided on account of the extreme moisture or dampness which they induce. Marshes and stagnant water should also be avoided on account of mosquitoes.

If tents are to be used these must be such as to afford both thorough protection and good ventilation. They should not be too crowded, either as regards the number of occupants or the location of the tents one to another. If the camp is of extended duration, the tents should be floored, or, at least, the men should not sleep on the ground. A trench should also be dug about each tent to prevent flooding by rains, and from time to time the tents should be moved about, as it is well known that tents occupying the same ground for a length of time become unhealthy. Camp kitchens, stables, sinks, latrines, etc., should be as far from the sleeping tents as reasonable convenience permits, and to the leeward of prevailing winds. All camps should be regularly and carefully policed, and the fact that a camp expects to change its position does not justify neglect of proper policing of the ground occupied.

7. *Sulphur* is a good insecticide, but a poor germicide. *Formaldehyde* is a good germicide, but a feeble insecticide.

8. *Three measures necessary in the prophylaxis of smallpox*: (1) Compulsory vaccination, (2) isolation, and (3) disinfection.

Immunity appears about the eighth day after vaccination.

9. *For success in the suppression of an epidemic*, the health officer must have knowledge of the epidemiology of the disease, particularly of the mode of transference of the infection; if the disease has an intermediate host, or is transferred by an insect, a knowledge of the biology of such insect (or other animal) is necessary.

10. In the registration of vital statistics are included the statistics of births, marriages, deaths, population, diseases, immigration, and emigration.

From a sanitary point of view the most important object of a registration of vital statistics is to ascertain the prevalence of diseases, and causes of death, and to protect the community as far as possible from communicable diseases.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

THE PRINCIPLES OF MENTAL HYGIENE. By WILLIAM A. WHITE, M.D. 323 pages. Price, \$2.00. Published by The Macmillan Company, New York.

ANNUAL REPORT CITY OF CHICAGO MUNICIPAL TUBERCULOSIS SANITARIUM, 1916. Board of Directors, CHAS. P. CALDWELL, M.D., JOHN DILL ROBERTSON, M.D., F. BOWDEN DEFOREST. 98 pages. Illustrated. Published by the Board of Directors of the City of Chicago Municipal Tuberculosis Sanitarium.

NEUROSYPHILIS, MODERN SYSTEMATIC DIAGNOSIS AND TREATMENT. By E. E. SOUTHARD, M.D., Sc.D., and H. C. SOLOMON, M.D., with an Introduction by JAMES JACKSON PUTNAM, M.D. 496 pages. Illustrated. Price, \$5.00. Published by W. M. Leonard, Boston.

GENERAL PRINCIPLES OF THERAPEUTICS. By FRANCIS H. MCCRUDDEN, S.B., M.D. 183 pages. Price, \$1.50. Published by Gregory, Boston, Mass.

Miscellany.

Kayak Vertigo.—This is an affection occurring among the Greenland Esquimaux, especially in the northern countries and attacks pure and mixed bloods alike. Kayak is the native name of a canoe made of sealskin large enough for only one person who uses a two-ended paddle; it readily capsizes with the unskilled. With his harpoon the Esquimaux hunts the walrus, etc. He has learned to use the boat when a child. Fear of capsizing and drowning is based on the fact that 15 per cent. of the men die from falling into the sea. The vertigo so called is regarded as a modern disease, but occurred off and on before the advent of the whites. As a rule the man is far from the coast when seized and when he is the fit tends to come on, especially when the snow-covered mountains cast long shadows on the water. The "vertigo" comes on very suddenly as an indescribable fear. The subject thinks the canoe is sinking and in trying to "trim ship" may go overboard; or, perhaps, the boat seems heavy and unmanageable or the man himself feels his energy gone. He may have precordial anxiety and palpitation. Vertigo is actually present only in one-third of the cases. If he sees another Kayak his self-confidence returns. Even a neighboring ice floe is better than nothing. The seizure may be followed by great psychic depression, migraine, etc., and one attack is apt to be followed by others and the man must renounce the sea for good. Attempts have been made to use outriggers and two-man canoes, but these reforms take away the special advantages of the one-man boat. Laache believes that the disease is aggravated by the use of coffee and tobacco.

Insanity and the War.—The third annual report of the British Board of Control for the year 1916 states that the number of notified insane persons under care in England and Wales was 134,029, or 3159 fewer than the number for the previous year, although in 1915 there was also a decline of 3278 cases. The year 1915 was the first year since reliable statistics have been available, *i.e.* since 1889, in which there was a decrease in the numbers under care as compared with those of the year preceding. This has now been followed by an almost equal decrease for 1916. During the ten years ended January 1, 1915, the average annual increase was 2251, and had this rate been maintained during the last two years, the total number under care on January 1, 1907, would have been 144,968 instead of the actual number, 134,029. In their previous report the board called attention to the consistent manner in which yearly increases of the number under care had occurred since 1859, and drew the inference that the diminution for 1915, was a temporary one, bearing some relation to the exceptional conditions, social and economic, arising from the war. If this inference was justifiable then it may equally well be drawn with respect to the continued decrease for 1916. On January 1, 1917, there were nearly 2000 mental and nervous cases under observation in military hospitals, of whom a certain number will be probably eventually certified as insane.—*The Medical Officer*, November 17, 1917.

Therapeutic Hints.

Chronic Bronchitis.—In cases of this condition where there is a moderate amount of secretion, the following formula may be used with excellent results:

R Tinct. nucis vomicæ. ṁv to x 0.35–0.70
Tinct. scillæ. ṁxx 1.25
Ammonii carbonatis. gr. iij 0.20
Syrupi tolutani. ṣss 2.00
Infusi senegæ. ad. ṣss
M. et fiant mistura.

Sig.—Three times daily after meals.

From the same source is offered this old formula for use in cases having a great deal of cough but little sputum:

R Tinct. camphoræ compositæ.
Oxymellis scillæ.
Syrupi tolutani. āā ṣj (30.0)
M. et fiant mistura.

Sig.—A teaspoonful from three to six times daily in water.

Often the cough is kept up by an irritable condition of the pharynx, when barley water flavored with lemon will give much relief, especially at night, when it can be sipped as required.

A spray that will aid in producing relief is the following:

R Menthol 1 part
Eucalyptol 2 parts
Benzinol 3 parts
M. et fiant mistura.

Sig.—Inhale from an inhaler or handkerchief.—*Forchheimer's Therapeutics of Internal Diseases*, Vol. III.

Anorexia.—Hare, after giving attention to the proper, nourishing diet needed in the correction of this condition, which is usually a result of some constitutional condition, uses the following formula as an aid in producing good results:

R Arseni trioxidi gr. $\frac{1}{2}$ (0.03)
Extracti nucis vomicæ. gr. iv (0.25)
Quininæ sulphatis gr. xx (1.3)
M. et fiant pilulæ No. xx.

Sig.—One pill after meals.

Or,

R Acidi hydrochloridi diluti. . . ṣss 16.0
Tincturæ cinchonæ compositæ ṣvj 180.0

M. Sig.—Dessertspoonful (8.0) three times a day after meals, well diluted with water.—*Practical Therapeutics*.

Chilblains.—Owen recommends the use of woolen stockings and the avoidance of tight shoes if the feet are affected. When the hands or ears are affected, they too must be protected from weather conditions. The affected parts must *never* be placed in front of a fire after being exposed directly to the cold. The fingers and toes must be bathed daily in cold water, dried with flannel, and a solution of one part iodine to two parts soap liniment applied. He states that the Esquimaux and Indians use oil of turpentine, which may be applied, but should first be mixed with an equal part of olive oil. To relieve itching, apply an ointment of 1 dram of powdered camphor to 4 ounces of vaseline.—*The Treatment of Emergencies*.

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Original Articles.

THE ACUTE ABDOMEN.*

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AT the risk of repeating an oft-told tale I have chosen to devote my remarks to the question of the acute abdomen, having in mind more especially acute perforations and gangrene of the appendix, perforating gastric or duodenal ulcer, acute perforating and gangrenous cholecystitis, acute hemorrhagic pancreatitis, and acute intestinal obstruction. The subject is an important one. Indeed, in gravity it is perhaps not exceeded by that of any other acute conditions with which we are confronted.

The picture, more or less familiar to you all, usually begins with sudden local pain, vomiting, and shock, followed by a more or less prolonged period in which the body is attempting to overcome the shock and to repair the lesion and fight the defensive battle against bacterial invasion. Peritonitis, varying with the viscus that has caused it, sets in early along with symptoms of toxic absorption.

The most common type of acute perforation into the abdominal cavity is that of the appendix. As a rule, this produces a diffusing peritonitis, the most severe form of which results from early perforation near the base of the appendix. If the perforation develops suddenly the appendicular contents are poured forth free into the peritoneal cavity, the intensity of the resulting inflammatory process depending upon the amount, the fluidity, the virulence, and the rapidity of evacuation of the contents. The latter having once gained entrance to the general peritoneal cavity, they are rapidly dispersed through extensive portions of the peritoneum by the peristaltic action of the intestines, and a diffuse purulent peritonitis results. When the ulcerative process develops slowly the peritoneum has had time to form a greater or less amount of plastic exudate that completely surrounds the appendix and in the event of perforation a circumscribed peritonitis or abscess develops.

In either case, from these bare outlines of the pathological process involved the seriousness of the condition becomes evident. The primary consideration now is not the treatment of the lesion in the appendix so much as that in the peritoneum. Within the first 24-40 hours of any peritonitis, localizing

or diffuse, the process is confined, that is to say, it is lying free between the coils of the intestines, and with few exceptions at this stage the condition is amenable to surgical interference. The operative mortality in perforating appendicitis is low at this stage, about 1 per cent., but it rises rapidly if first seen after that period and immediately operated upon. This time limit is, of course, not absolute, being subject to modifications according to individual conditions.

The initial symptoms of acute perforating and gangrenous appendicitis do not differ greatly from those inaugurating an attack of uncomplicated acute appendicitis, and it is no doubt difficult to say exactly when an appendicitis goes over into a peritonitis. Some guiding signs are the persistence and exacerbation of the pain and tenderness in the right iliac fossa, followed by extension of tenderness to adjacent areas, increase of pulse rate and of muscular rigidity, the latter being perhaps the most significant, absence of peristalsis, etc., until, in short, the presence of peritonitis is clearly established.

Of all the varying pictures presented by an inflammation of the appendix none is so misleading as that of gangrene of that organ. One reason for this is the insidious nature of the process which allows the toxins to be absorbed without producing marked local indications. Very often at operation in such a case the appendix shows little if any signs of active inflammation, but merely a highly necrotic patch of tissue sometimes limited to the wall of the appendix. Another reason for the deceptive nature of this type of acute appendicitis is sometimes seen in the anatomical conditions present, that is, when the appendix is so placed in relation to the abdominal and pelvic walls as to prevent pressure upon it from without; consequently palpation in such a case will cause comparatively little pain. It is easily seen how this would lead to delayed operation with disastrous results. These quasi-quiescent cases are really in the early stage of a grave if not fatal illness unless the progressing toxemia be stemmed by removal of the offending organ. Every surgeon of experience dreads these cases in which because of their insidious character he is called in to perform "not an operation but a miracle," for it is rarely that the life of a patient in an advanced stage of blood poisoning from gangrene of the appendix can be saved by operation.

Next to perforation of an appendix the most common cause of the acute abdomen is that of a perforating chronic gastric or duodenal ulcer. The pain is of an intense stabbing character referred to the upper abdomen, which soon assumes a board-like rigidity. Very often the downward course of the infection toward the right iliac fossa causes

*Read before the First District Branch of the Medical Society of the State of New York, Newburgh, November 9, 1917.

extreme rigidity at that point and leads to the not uncommon and not unnatural error of accusing the appendix as the *fons et origo* of the trouble. But as a rule, the appendix rarely perforates without some premonitory attacks, and when it does rupture through into the general peritoneal cavity the symptoms are not so alarming nor so prostrating as those of a gastric or duodenal perforating ulcer. Collapse in the latter does not usually appear in the first hour or two, the abdomen at this stage is retracted, not distended, rigid, and exquisitely tender, especially to the right of the median line above the umbilicus. With the escape and the gravitation of the fluid through the opening at the base of the ulcer the pulse rate rises and the abdomen becomes distended. Intestinal obstruction is almost complete. Tenderness becomes more marked and the symptoms of shock are accompanied by collapse. As a rule, after the first onset of pain the patient vomits, but only once. This is an important distinction between perforation and obstruction or strangulation of the bowel. The temperature now generally falls and the pulse rate increases. Thus, in a word, acute overwhelming pain, vomiting, fall of temperature, rise of pulse, shock, and peritoneal reaction, while indicative of a perforation into the peritoneal cavity in general do not designate what part of the gastrointestinal canal is affected. The previous history is, of course, very important, and if this were always clear and always obtainable there would be little difficulty in making the distinction.

The symptom complex of an acute perforation of a chronic ulcer whether situated in the duodenum or in the anterior wall of the pyloric antrum is the same. If presented by a young anemic female the chances are in favor of a gastric location, while if in an adult male the site would be more likely to be found in the duodenum. The latter is much the more frequent site of a perforating ulcer, while in case of hemorrhage the ulcer will more likely be found in a gastric location. Perforated duodenal ulcer also more often gives the typical picture because the ulcer-bearing area is not so easily isolated from the general peritoneal cavity as are the walls of the stomach. Reactive peritonitis involving the parietal peritoneum and the serosa of adjacent viscera usually prevents acute perforation of an ulcer on the posterior wall of the stomach. An interesting exception to this rule came under my observation in a patient who was the subject of three acute perforations—two of the duodenum and one of the posterior wall of the stomach. Operation was performed for each perforation with recovery. It is, however, not generally possible to make a positive pre-operative determination of the position of a perforating peptic ulcer, nor is it important. The most essential point is to prevent the catastrophe by proper treatment—surgical, as a rule—of the underlying causes that lead to it. It is rarely that in any of the acute abdominal conditions under consideration that a warning signal, in the form of some more or less pronounced digestive trouble, has not been displayed at some time or another of future trouble.

What ignoring such a signal means is perhaps best illustrated in acute perforating or gangrenous cholecystitis. Only recently William Mayo has

called attention to the fact that in his experience, perforation of a gall-bladder has been one of the most fatal of the different types of acute perforation. He attributes this to the fact that the cases come to operation late because the patients, usually having had one or more attacks of gallstone colic, consider the condition to be merely a repetition of such an attack, and surgery is not resorted to until the ominous sign of "too late" dooms the patient.

The significance of the foregoing becomes all the more apparent upon consideration of some of the factors that create a predisposition to the development of acute cholecystitis. Prominent among these are previous attack or attacks of inflammation of the gall-bladder, the exciting microorganism of which may remain latent for a period and superinduce a recurrence at some future time. Furthermore, a gall-bladder once infected will almost always be subject to repeated attacks, and the sequelæ of such repeated inflammations are often more serious than the original disease—gallstone formation and the impairment of health due to the development of pericholecystitic adhesions. The action of gallstones makes an easy path for infection to reach the gall-bladder; indeed, anything that causes biliary obstruction increases the chances for infection of the gall-bladder, and in the ordinary course of events infection is the primary factor in the etiology of acute cholecystitis.

The clinical picture of this disorder may range in severity from a mild, uncomplicated, catarrhal inflammation to a suppurative and eventually a phlegmonous, a perforating, and a gangrenous cholecystitis. The symptoms vary little, the results of infection differing with the increased virulence of the bacteria rather than with the kind of responsible microorganisms. Their virulence also influences the severity of the symptoms. The pain may be dull, aching, severe, and continuous, with acute exacerbations, or paroxysmal, as in typical gallstone colic. The initial pain usually appears in the epigastrium, but soon localizes in the right hypochondrium. It is sometimes referred to the right shoulder blade and very frequently to the right iliac fossa, suggesting appendicitis, with which, in fact, it is very often associated. Nausea and vomiting are always present, and, in the more severe cases, tenderness and muscular rigidity are marked, as in all acute abdominal conditions. Jaundice is absent so long as the common duct and the hepatic duct remain patulous.

It is true that in a certain percentage of mild acute cholecystitis the symptoms subside in about ten days or less, but it is the effect on the general health that gives the picture its serious aspect. I repeat, an infected gall-bladder seldom, if ever, regains its normal condition, and subsequent acute or chronic inflammation and the formation of gallstones are the phenomena to be expected. These are the remote effects which in their turn again give us the original picture with perhaps the addition of more serious features; and the time will come when an acute attack will fail to subside and we are confronted with a suppurative inflammation of the gall-bladder or the more grave conditions of phlegmonous, perforating, or gangrenous cholecystitis. In most instances the severer forms of infection occur in connection with cholelithiasis. The symptoms are

those of uncomplicated acute cholecystitis greatly aggravated, with much more pronounced indications of peritonitis, in fact, of infection of the general peritoneal cavity rather than of the gall-bladder alone.

The chief danger of a suppurative cholecystitis is perforation with the possibility of a local peritoneal abscess or, as we have seen, of a fatal peritonitis. The appendix is often involved and may also perforate; it is often difficult to say which is cause and which effect.

Another lurking menace of repeated inflammation of the gall-bladder is the effect on the pancreas with which it is in such close anatomical and physiological relationship. Infection of the pancreas has been satisfactorily demonstrated commonly to occur by way of the lymphatics which form a rich anastomosing network in the retroperitoneal tissues about the pancreas. Not only this, but there is sufficient evidence to show that pancreatitis may arise in the same way from ulcer, especially in the second portion of the duodenum, and also from colitis, as well as from more distant foci, the appendix and the pelvic organs.

The overwhelming, sudden seizures of the acute abdominal conditions thus far discussed are repeated and exaggerated in the symptoms of acute pancreatitis. The mortality of the disease is high if unoperated, and high enough, in the author's experience (21 per cent.), in operated cases. The pain is agonizing and prostrating and more or less constant, with a tendency to localize in the epigastrium or to radiate to the left. Vomiting is persistent, and this together with the very obstinate constipation is apt to lead to a diagnosis of intestinal obstruction. Tenderness and muscular rigidity are marked, but not extremely so. The pulse is rapid and small and the temperature may be normal, subnormal, or elevated.

Acute pancreatitis usually falls into three types—ultra-acute, acute, and subacute. The ultra-acute cases, with their sudden onset of symptoms of profound shock and profuse hemorrhage into the pancreas and its surroundings, are rapidly fatal, and although the primary shock may abate somewhat death usually ensues within three days. The pancreas will be found infiltrated, hugely swollen, and more or less gangrenous and necrotic.

The prognosis of the acute type is only little brighter than the first. The onset is just as sudden, though less severe, and the hemorrhage is apparently not so profuse and does not involve the entire organ. If the patient survive the early toxemia, improvement gradually sets in, operation will show that a part of the pancreas has either been unaffected or has recovered itself. The affected portion undergoes necrosis and gangrene and, as a rule, suppuration ensues promptly. In exceptional instances pyogenic abscess develops, and recovery takes place with the formation of an aseptic hemorrhagic cyst. The usual result, however, is sepsis and, unless relieved, death.

Subacute pancreatitis is the more common type of the disease and is more amenable to treatment. It is usually limited to the head of the organ, hemorrhage is not so constant a feature, and when present is small. As a rule, there is no hemorrhage but the head of the pancreas is swollen and tender, though it is

not often distinctly palpable. The symptoms of pain, nausea, and vomiting are less severe than in the preceding forms and more often than not a diagnosis of acute indigestion is made. The pulse and temperature are not always affected, unless complicating inflammation of the organ is present. Acute cholecystitis often either inaugurates or accompanies the condition.

Fortunately, acute pancreatic disease is among the less frequent causes of acute abdominal crises, for it may be said to head the list as far as exquisite suffering and unfavorable prognosis are concerned.

From this almost hopeless condition let us turn to a more frequent one and one which with *early recognition and prompt operation* presents a more favorable outlook. About one fourth of the causes of acute abdomen, exclusive of intussusception, are said to be due to intestinal obstruction. Its onset does not differ greatly from symptoms of perforation of a hollow viscus except that vomiting is more persistent and continuous. The pain is distinguishable from the pain of peritonitis by being so much more susceptible to palpation than to percussion; and the rigidity, so typical of peritonitis, is usually absent, the abdomen being relaxed during the intervals of pain. Peristalsis can frequently be excited by abdominal friction, and the lower bowel may be emptied, but there is total obstruction of the upper bowel neither feces nor flatus being passed. The patient also is restless and tosses about to find a comfortable position.

The pain usually begins in the umbilical region, and varies in constancy and degree according to the seat—high or low—of the obstruction; a high obstruction usually produces the more severe type of pain. The temperature shows little, if any, rise and the pulse is little changed at first, acceleration and reduced tension appearing later on. A variety of causes may be responsible for the crisis. Among the more common ones are: a fibrous band which may be constricting the bowel, or beneath which a loop of intestine may be strangulated; or the bowel may be kinked by adhesions; or obstruction may be due to strangulation of an internal hernia, as when one loop of bowel slips into another or into one of the many peritoneal pouches; or the sudden impaction of a gallstone in the small intestine; sudden stricture of the small intestine or colon; or a sudden twist of the bowel.

The cause of the obstruction, however, is not a matter of importance. The thing is to recognize the condition and to bring it to operation at the earliest possible moment before septic absorption and inflammation lead to grave and hopeless peritonitis.

Not long ago I had occasion to observe an interesting case of the internal hernia type of obstruction in which a knuckle of gut had become engaged in a congenital hole in the mesentery. The patient, a young man, while cranking his automobile was seized with a sudden and agonizing abdominal pain. He was brought to the hospital moribund, and at autopsy the condition as described was found.

In this brief summary of the causes of the acute abdomen it is not difficult to discover in each, with the possible exception of the last-named, a logical chain of events whose beginning can usually be read in the case histories coming under the head of the various gastralgias and whose final outcome will be

found under one or the other of the desperate conditions described. This does not necessarily imply that no digestive disorders are amenable to treatment other than surgical, it is intended merely to emphasize the fact that it is only exceptionally that the histories of these acute conditions fail to reveal some gastric disturbance, sufficiently marked at some time or other to have warranted the suspicion of more trouble to come. Since such warnings continue to be ignored or unrecognized, it is well to know what to do to avoid a fatal outcome in the event of perforation of an abdominal viscus with the development of peritonitis.

The greatest factor in the mortality of peritonitis is undoubtedly delay in surgical intervention for the lesion which gives rise to it. And next in importance is faulty method of treatment at the onset of acute conditions preceding the peritonitis. The main point in caring for the latter is complete physiologic and anatomic rest for the purpose of preventing the spread of the peritoneal inflammation, for it is the spread of infection that does the fatal work. The abdomen protects itself from this spreading infection chiefly by surrounding itself with a plastic exudate which walls it off from the general cavity, and this can be accomplished only by rest. It has been demonstrated that it is the phagocytic action of *Staphylococcus albus*, present in this exudate that creates a local immunity against infection (after the initial leucopenia is over) and maintains leucocytosis. The leucocytes do not degenerate in its presence as they do in the presence of the bacillus colon, for example. It also causes sufficient reaction (harmless to the host) to produce agglutination and adhesions which tend to limit infection. It appears early, in fact, it is the first microorganism to appear and the last to disappear in intestinal infection. The natural peristaltic movements prevent the formation of this protective covering and they must therefore be inhibited. No food should be given by mouth and above all nothing in the nature of a laxative or a purgative. To illustrate the importance of this let me give you figures from some of my cases of acute appendicitis, apropos of the question of purgation.

In a series of 259 operations for acute appendicitis 79 (30.5 per cent.) had been purged before admission. At operation, in all but two of the 79 the appendix was either perforated, gangrenous, acutely ulcerated, or surrounded by an abscess. The two exceptions showed merely a simple catarrhal inflammation. It is about as logical to purge these cases as it would be to rub an inflamed eye or to prescribe active swallowing movements for tonsillitis.

In view of the discovery that the lower abdominal viscera possess relatively little power of absorbing the toxemia from bacteria, and exudates compared with the active and rapid absorption of the same inherent in the diaphragmatic areas, it is important to direct the possible spread of infection downward toward the pelvic region. This is best accomplished by the Fowler sitting position.

Another preoperative measure which is of immense value is the Murphy method of enteroclysis. Having deprived the body of fluids by mouth, we have in this an invaluable means of providing a continuous supply of the necessary fluid through the large bowel, with a minimum of motion. Not only

this, but circulation is stimulated by it, the kidney and other functions are resumed, and the toxins eliminated, and the patient is given a fair chance of resisting the infection.

Ice bags are of value but only in relieving pain and lessening peristalsis, but they do not and cannot reduce the inflammation.

Operation in these acute abdominal crises presents two important aspects—time and technique.

In appendiceal peritonitis of less than 40 hours' duration immediate operation has given the best results. But in cases of longer duration there are several factors to be considered. Where there is a tendency for peritonitis to localize, or to form an abscess, and the temperature, pulse and leucocytosis indicate that the body is successfully combating the toxins—immediate operation is indicated unless the localization and subsidence of general symptoms have been rapid, marked, and unmistakable. In such an event delay would prepare the way for still more favorable conditions for operation, which can then be done at once as soon as improvement appears to have reached a standstill. It seems superfluous to add that even with favorable localizing signs indication for operation will depend on the patient's general condition. Where this is good and there is evidence of a localizing process it is not necessary to wait until there is a distinct sharply outlined abscess. The time to operate is when temperature and pulse have attained an equable level and consistently high leucocytosis shows good resistance to the toxemia, and the free passage of flatus indicates the re-establishment of peristalsis. If in addition there are signs of a deep-seated mass of resistance in the right iliac fossa, operation will, as a rule, disclose a limited peritoneal inflammation.

But in progressing peritonitis, if due to appendiceal perforation of more than 40 hours' duration, delay is the best policy. The time to operate in these cases will depend very much on the patient's condition. It is safe to presage a fatal outcome if operation be undertaken in the presence of symptoms of diffusing peritonitis—rapid running pulse, abdominal distention, cyanosis, and the facies Hippocratica—while delay may save the patient in such cases, as has already been indicated.

As to the technique of operation. Removal of the appendix is, of course, imperative except when a circumscribed abscess would present the risk of spreading septic material.

Lavage of the peritoneum is unnecessary and harmful. The pus should be removed in the gentlest manner possible, especial care being taken not to disturb the protecting coat and lymph frequently found on the intestinal serosa. It is not this lymph which causes subsequent adhesions. The latter are more likely the result of trauma or rough handling of the bowel during operation. Tubes are best for drainage, and a glass tube through the incision or a stab wound in the pelvis is most essential; for obvious reasons it is this region, even more than the operative field, that should be provided with free drainage. After operation the patient is again placed in the Fowler sitting position and the preoperative treatment resumed until gradual improvement justifies a normal convalescent régime.

In the treatment of perforating peptic ulcers the most important single factor is the time at which

the operation can be done. From my experience, and with modern technique, I have no hesitancy in saying that every case of perforated duodenal ulcer operated on within the first twenty-four to thirty hours should get well. I have now operated on fifty-one such cases of acute perforation with but one death, and that was in a case operated on over seventy-two hours after perforation had taken place. I have not refused to operate in any case that was not frankly moribund.

It is my practice to perform a primary gastrojejunostomy after closing the perforation. It adds but little to the time, and these patients are not usually severely shocked. It enables the surgeon to make a secure closure of the perforation or even to plicate the duodenum without fear of encroaching upon its lumen, and the suture line is not exposed to strain and danger of leakage. Convalescence is smooth and the cure permanent. Gastroenterostomy is curative in many cases, and, as a rule, the nearer the ulcer to the pylorus the more likely is the anastomosis to be effective. To my mind it is the only proper procedure for the expert surgeon to pursue both when an excision cannot be done or as a supplement to excision of a bleeding or perforating ulcer. The occasional operator, unaccustomed to doing a gastrojejunostomy, had better content himself with simple closure of the leak. My immediate results as well as the end-results I have been able to obtain justify me in advocating the combined operation. Whenever the condition of the patient permits I also remove the appendix and examine the gall-bladder and remove it if found diseased.

In the treatment of acute gall-bladder conditions also the most vital item is operation before the toxins of the perforating or gangrenous gall-bladder have had time to get in their pernicious and usually fatal effects. There here arises the much discussed question of cholecystostomy versus cholecystectomy.

In the hands of the expert the two operations are about equally safe, so that much will depend on concomitant circumstances in deciding which procedure to adopt. I prefer the radical operation wherever possible, and therefore do a cholecystostomy only when the condition of the patient, the pancreas, etc., makes the step obligatory.

The arguments in favor of cholecystectomy are to my mind convincing. First of all, we now know that all things considered it does not materially affect the comfort of the patient. From the Mayo Clinic* we learn from experimental as well as postmortem observation on ectomized subjects that the most vital change after removal of the gall-bladder is dilatation of the common duct, which in a sense may be considered compensatory. Removal of the gall-bladder not only greatly lessens the chance of recurrence of gallstones, if such have been present, but it is known also to cure pancreatitis, and also pancreatic lymphangitis, the forerunner of disease of the pancreas. In most cases of the latter the primary source of infection is in the gall-bladder whence it extends along the lymphatics into the glands and through the lobules of the pancreas. And if, as is claimed by some investigators, pancreatitis results from irritation due to bile entering the pancreatic ducts,

rather than to bacterial influences, the dilatation of the common duct that results from cholecystectomy also affects anatomical conditions, so that the bile is led to flow directly into the duodenum with little, if any, back pressure and the pancreatic tissues are thus protected from its irritating action.

Thus, without entering more deeply into physiological details, it is quite evident that in dealing with the diseased gall-bladder in the conditions under consideration the radical operation should be chosen whenever warranted by existing conditions.

In acute pancreatitis the stage at which operation should be undertaken differs with the type of the disease. In a fulminating ultra-acute case, the rapid progress of the patient from bad to worse may make early operation imperative in order to give him a fighting chance, for that is all it would be. But in general it is of advantage to wait a short time to give the body a chance to prepare itself, so to speak, for a still greater tax upon it; but this is a matter of judgment acquired only by experience.

In operating on the pancreas we may choose one of two routes: through the general peritoneal cavity, or extraperitoneal through a loin incision. The latter allows approach to the pancreas, especially its tail, without entering the general peritoneal cavity, which is of great advantage, but it allows no free exposure of the parts and radical surgery is impossible, while concomitant lesions, gallstones, etc., cannot be reached by this route. It is only feasible where the symptoms point to the localization of inflammatory exudate or pus in the loin.

The transperitoneal route is in order in a beginning pancreatitis when the localizing symptoms are all epigastric, when there is a palpable tumor, and when the diagnosis is in doubt. Once in the general peritoneal cavity, the pancreas itself can be reached either through the gastrocolic omentum or through the lesser omentum or through the transverse mesocolon. While presenting the serious disadvantage of the risk of infecting the general peritoneal cavity, the advantages are: free exposure of the operative field, opportunity for radical surgery and for establishing adequate drainage; a most important item whether the disease be in a presuppurative or in a hemorrhagic state. In a case of acute hemorrhagic pancreatitis, having approached the organ through the intraperitoneal route, the only possible procedure is to apply the tampons and drains freely to the organ itself going either above or below the stomach, according to circumstances. Tube and gauze drainage is essential. The pancreas should be freely incised in a longitudinal direction or numerous blunt punctures should be made in its substance, thus giving free exit for the contained blood, lymph, and obstructed secretion. Both gauze and tube drainage should be conducted to the surface through an enveloping sheet of rubber dam to lessen the chance of adhesions to the stomach and intestines.

Any free fluid in the peritoneal cavity should, of course, be removed by gentle wiping, since this pancreatic exudate of itself contains sufficient toxic material to cause death. Drainage of the pelvic cavity with the patient in the semi-erect position is in place here, as are the postoperative measures alluded to in discussing the other acute conditions under consideration. A typical antidiabetic diet has been found useful in so altering the pancreatic se-

*Judd: Collected Papers, Mayo Clinic, 1916, Vol. VIII, p. 282.

cretion as to make it less active and less irritating, and likewise in promoting healing of recent as well as of old pancreatic fistulæ.

In spite of the improvement in the mortality of minimal lesions acute intestinal obstruction has shown little if any improvement in this respect for the past few decades. The reason for this is delay in recognizing the symptoms, and resultant delay in operation. Diagnosis is usually not made until the patient is moribund, and then we are confronted with that favorite reproach "the operation was successful but the patient died." So I would say, do not wait, do not give opium, for it masks the symptoms, but send for a reliable surgeon and let him do the rest. The outcome will usually be satisfactory to all concerned.

1634 WALNUT STREET.

STUDIES OF SOME BORDERLINE CASES AMONG CRIMINALS.*

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AMONG the populations of prisons and of hospitals for the criminal insane we frequently come in contact with cases which are difficult to classify from the standpoint of the mental status. They show no symptoms which place them in the list of those who are definitely mentally ill, yet they cannot properly be classed as mentally normal. It is the object of this article to study some examples of these cases, to work out, if possible, some of the etiological factors which lie at the bottom of their conflicts with society and its laws, and to show the difficulty we have in knowing what to do with them. Often it devolves upon the psychiatrist to determine the degree of responsibility in a given case, and upon his verdict depends the individual's destination, whether to prison or insane hospital.

More and more we of today are coming to realize that crime, vice, drink, and poverty are due to mental unfitness on the part of the individual to cope with the world, in these days of selfish struggling against our fellowmen for the material things of earth. As the years go by, society is requiring more and more of the individual—is making it increasingly difficult for him to keep his place in the struggle for existence. More and more complex are the conditions to which he must react, and his adaptability must increase accordingly, else he falls behind, fails "to keep up his end," and goes to a lower scale in the social standard. Is it any wonder, then, that those who come into the world without a strong physical and mental endowment are apt to find themselves unable to measure up to these standards, and become parasites instead of useful members?

We are beginning to realize that the criminal should be regarded in the same light as the mentally diseased patient, and should be studied with as great care. We are learning that mere punishment of the offender will not safeguard us from further offenses on his part when he regains his liberty. True, there are those who are mentally sound and morally responsible who deliberately offend the law, but

they are in an ever-increasing minority when carefully studied by those who understand the abnormalities of the mind. As yet only too few of the offenders are studied and placed in one of the two classes—of those who are responsible for their misdeeds and those who are not. The psychiatric clinic at Sing Sing is an excellent example of the work which should be carried out in all prisons and institutions where criminals and delinquents of various kinds are confined. The function of classifying these individuals is not an easy one, and even when the cases are carefully studied, it is not always possible to say with any great amount of definiteness what the individual's degree of responsibility and fitness for extra-institutional existence may be.

In the present article I am not considering the high-grade mental defective or moron, because much has been written concerning the high percentages of these individuals in the criminal population. These people get along very well while in institutions, are often excellent workers, more or less efficient at manual labor, quiet and peaceful so long as they are under institutional care, but unable to exist for any length of time outside before being committed to prison or insane hospital. In prison, or when put under mental strain, they often show manic-depressive or precox-like episodes. Manifestly the reasonable treatment of these cases is confinement in colonies, under proper supervision, where they may ply their trades and be more or less self-supporting.

Another class, now coming to be recognized, and belonging to the type of cases which forms the subject of the present article, are the constitutional inferiors and the psychopathic personalities. Gifted with normal intellect, as gauged by Binet-Simon, Yerkes-Bridges point scale, or similar tests, the history of these individuals is that of continual maladjustment to their environments. They do not lack in the ability to work—they are able to learn skilled trades or to achieve such educations as their facilities afford; yet they lack stick-to-it-iveness, steadiness of purpose, coolness of judgment, in fact the mental stability which enables the average man to find his place in the world, and keep it or better it. They are very apt to come into conflict with the law, for among this class are often found individuals with absence or blunting of the ethical sense. Tramps, petty fakirs, and beggars are apt to belong to this class. A history of having led a tramp life and of having served prison terms for various offenses is the rule among this class of patients. The so-called psychopathic personality is often seen in individuals who possess a high degree of intellect, often accomplished, and giving, to the casual observer, every evidence of poise and efficiency. Yet these cases always give the same sort of history—inability to cling to one line of work or to adapt themselves properly to the personal problems which they must meet at times. Questioned about the unsavory incidents of their lives, they shirk the responsibility for their misdeeds by calling themselves the victims of circumstances, or by speaking of their prison sentences and conflicts with the law as if they were the usual, every-day incidents of a man's life. Sometimes they realize their own inability to adapt properly, but as a usual thing they lack all insight into the reasons why they cannot live in harmony with society and its conventions.

*Read before the Clinical Society of St. Elizabeth's Hospital, Washington, D. C., Oct. 29, 1917.

At the basis of most of these cases we find poor heredity. In very few cases indeed have I been unable to find at least one or two of the ancestry showing mental or nervous stigmata. Heredity in itself, however, is merely predisposing to mental imbalance. The precipitating cause is found in the mental conflicts which the individual must meet sooner or later. All of us have our problems, but the tainted individual is poorly equipped with the adaptability necessary to meet his life problems successfully.

The length of time he is able to live in the world before coming in conflict with society's conventions depends upon the amount of mental stability he possesses and his relative freedom from mental strain in the form of mental conflicts. Often the reactions of these individuals are quite childish. Among those I have observed, the sulking and pouting when they are displeased resembles nothing so much as the spoiled child's method of showing disappointment. It is rather striking when it occurs in men of intellectual and physical vigor—men who have tramped Alaskan trails, led the hardy life of the soldier or miner, or accomplished some little success in business or profession. But we note that although they were efficient in their respective occupations, they did not "stick," were never really contented with their lots, and seldom met successfully any of their life problems.

In the lives of all of us come times when we must meet unpleasant situations, in circumstances where there seems to be no comfortable or acceptable solution of our difficulties. In those of normal mental stability such situations are met as best they may be, and in due time the failures and disappointments are submerged and sublimated in the onward and upward rush toward the fulfillment of our ambitions. To the normal individual the failures and difficulties are mere sign-posts on the road of life, and he utilizes the experiences gained by them to avoid similar situations hereafter. This is precisely what the psychopathic individual cannot do. His ability to stick to one line of endeavor is a variable quantity, but he is fairly consistent in his inability to meet his life problems squarely, and either solve them or sublimate them. Give him a situation he cannot meet satisfactorily, and he comes to a full stop, for the mental conflict accompanying the situation begins to control his life and progress. The twin demons of indecision and discontent stand in his way, and only those who are afflicted with the curse of an indecisive mind can really understand what a tremendous obstacle it is to any progress one tries to make.

Just what such an individual's reaction will be to a given situation will depend upon the seriousness of the situation and the relative mental stability the individual possesses. If the situation is sufficiently serious it throws the balance over into a definite mental upset, or leads him to do things he would ordinarily avoid. The individual with a paranoid makeup, who has some grievances which he cannot get settled to his satisfaction, may finally take justice into his own hands, because the situation becomes unbearable and he sees no other way out of it.

When such individuals come to grief and enter an institution, those who study them can often work

out the reasons which led to their conflicts with society, in the form of personal conflicts which had come to the unbearable stage. Unable to solve his problems, each takes the path of least resistance, and when society demands that he pay the penalty for his misdeeds, by robbing him of his liberty, the added strain of prison life proves the last straw necessary to throw the balance on the side of real mental illness, and various forms of prison psychoses are apt to result. A "prison psychosis" may be simply a situation psychosis, clearing up when the man is given his freedom; it may be the bringing forth of a latent mental disease which had been kept under the surface, held back until prison discipline proved more than the individual could react to; it may be manic-depressive or precoc-like episodes which are of brief duration; or any form of mental disease which the individual has a tendency to develop and which would have developed under any equally unpleasant situation.*

Many of these prison psychoses are brief in duration, and when the individual is transferred to an insane hospital he is either convalescent or entirely cleared up. In such cases it is at times very difficult to find anything pathological in examining the patient, and we must depend upon a careful study of the individual's past life and an investigation of his adaptations to his surroundings and of his reactions to the various problems which have confronted him.

Prison life is well calculated to bring out latent traits; I have frequently been told by a patient that he had committed sexual perversions in prison, though his previous sexual life had been normal. The environment of the prison, like that of any body of men shut off from the society of women, as in army or navy life, favors the lifting of mental barriers against such acts. Even when not actually performed their mention is common in the conversation of prisoners, soldiers, and sailors, and in latent homosexuals, these things act as exciting factors in causing mental conflicts. They do not, as a rule, realize the nature of their conflicts—their reactions being apt to assume the form of paranoid ideas referring to their comrades—ideas that they are called vile names, accused of perverted practices, and the like. One latent homosexual, who has no insight into his condition, declares "I can't bear to have a man touch me. I feel as though a snake were crawling on me every time a man puts his hand on me, accidentally or otherwise." This, of course, is a defense reaction.

Prison life also brings out other innate traits, such as a tendency to meditation, introspection, or seclusiveness. In those so inclined it is easy for these traits to merge into depressions or catatonic states, perhaps mild in degree, perhaps marked. Hysterical episodes are frequent among psychopaths, and not infrequently they have no recollection of them at all when they reach the insane hospital. An extremely effeminate individual underwent such an episode in prison, during which he made open and unashamed homosexual advances to every one who came near. On reaching this institution he was in his normal mental state, but had absolutely no recol-

*There may be some dissension in regard to my idea of what constitutes a "prison psychosis." I intend to make this the subject of an article at some later date.

lection of the episode. This forgetting is explainable on the basis that it is the thing of which we are ashamed and which conflicts with the customs of society which is soonest relegated to the realm of the unconscious. These hysterical and other types of episodes are defense reactions against prison environment or other uncomfortable situation, though we cannot always work out a satisfactory mechanism in a particular case.

Two characteristics which I have observed constantly among these borderline cases are—first, a tendency to assume the rôle of martyr in all unpleasant circumstances; second, a tendency to assume a self-sufficient air, which is plainly a compensatory reaction. If one of these individuals has some difficulty with another patient, and he is asked to explain the reasons for certain of his misdeeds, or questioned as to his lack of success in life, he is almost certain to lay it all to circumstances beyond his control, or to the malice of others. I do not mean to say that all of these patients are of paranoid makeup, but they never blame themselves for their lack of adaptability or their numerous misdeeds; they always have some explanation as to why they could not do otherwise than they did. Related to this trait is the tendency to be excessively self-sufficient. As the mental defective often shows a pseudo-solemnity, and an air of grave meditation, so the psychopath assumes a superior, often overbearing air. The psyche recognizes the inferiority, and the reaction is the exaggerated self-sufficiency. In a few cases I have seen the two traits mentioned above were the only departure from normal that I could discover.

Restlessness is another characteristic of many of these individuals. They cannot remain long in one position, because they dislike anything which smacks of routine. They are unable to resist a wanderlust, which is a common trait among them. In the ward they are constantly asking for this or that favor, never satisfied unless something is being done for them. They are impatient over delay of any sort, and cannot understand why their cases cannot be taken up immediately by the authorities. Often they are antagonistic toward other patients, and even when they realize that those who annoy them are insane, are apt to overlook the fact, and conflicts are not infrequently the result. Selfishness is another trait commonly seen, though I would not apply it to the class as a whole.

These "borderline" cases, then, consist of the constitutional inferior, the constitutional psychopath, and, one may add, the high-grade mental defective, who is able, by means of the "polish" he picks up here and there, to give to the casual observer the appearance of being of normal intelligence. They present widely varying grades of mental instability and lack of adaptability, and each case is a law unto itself, in so far as the individual's degree of responsibility and chances for success in life are concerned. No two individuals have exactly the same life problems to meet, and it is possible to acquire a certain amount of mental stability in some cases. In passing on a given case we must rely largely upon what the individual has been able to accomplish in the past, and the evidence his record gives as to how he has met his problems. He may be of a makeup that fails lamentably

whenever he faces a problem, or he may be stable enough so that only once or twice in his lifetime will he meet a situation sufficiently severe to overthrow his mental balance.

Prognosis as to future chances of mental upsets, or as to likelihood of winning success in life must be very guarded. One cannot foretell what the individual's problems are to be, or how he will meet them. These individuals always make sweeping promises as to their future conduct, and make high resolves, but, like the chronic alcoholic's pledge of future temperance, they are of little avail.

There are all possible gradations of these borderline cases, from those in whom only an expert can detect anything abnormal, to those just on the safe side of the opposite near-pathological border. It is not uncommon to meet cases in which the individual acted rashly in some uncomfortable situation because of inability to solve it properly, and in which his committal to the psychopathic ward is based upon this one rash act; when the patient is examined he is found to be quite stable in ordinary everyday life and fully cognizant of the poor judgment he displayed in acting as he did. Such an instance was the case of W. B., given below. This man has always been very efficient and intelligent, and had a good army record; he shows, at present, nothing pathological, but is an inherent homosexual and his desertion, explained by him as due to his wife's desperate need of him, was really part of an effort to convince his unconscious mind that he loved his wife, when, as a matter of fact, he has found the marriage tie unsatisfactory and will not admit it to himself. He is able to go into the world and earn a good living, and his associates will see little, if anything, which is not normal. He is one of the cases which are just under the normal border, and only to the initiated is there anything in his makeup which is not compatible with his leading the same life that any normal person leads.

The question of the disposition of this class of cases is a very puzzling one. We have no right to hold a man who is not insane, and from a legal standpoint most of these borderline cases are sane. But we know that while they are capable of self-support and can exist comfortably so long as they are not under stress, yet they must meet such stress sooner or later, and their return to prison or insane hospital is a matter of time.

From the legal standpoint, too, we are often at a loss to say whether the patient is responsible for his crimes or not. The psychiatrist may be asked "was or was not this man mentally sound at the time the crime was committed, and what was his degree of responsibility?" Of course we have to take into consideration the facts in the particular case; but what are we to say in the case of an individual not insane, but plainly a mental inferior or psychopath, who is not responsible for his poor heredity, but is able to distinguish right from wrong and appreciate the seriousness of his misdeeds?

The answer, as I see it, is a careful study of such individuals, classifying them as to intellect, mental stability, and moral responsibility, and colonizing them in such a fashion that they may lead normal lives, be useful members of society, and yet be under supervision of persons trained for the work.

The chief object of this plan would be to remove them from all such situations and responsibilities as they could not meet properly. It is difficult for the lay mind to understand why a person whose intellect is normal, who has no delusions, hallucinations, or other manifestations of insanity, should not be allowed freedom and the responsibilities of citizenship, or why he should be regarded as mentally abnormal. Nevertheless, these individuals who are near the borderline are not able to exist comfortably unless under supervision, and can lead useful lives only when they have someone to direct them in meeting their problems. There should be no stigma attached to such individuals, if colonized as suggested, and the public should be made to understand the purpose of this grouping of such cases.

One great objection to this plan is the large number of such cases which can be found in any population, far too large to make the plan practicable, it seems to me. Again, I believe that there would be considerable difficulty in making enforced residence in such colonies legal, for the individual would argue that since he was neither insane nor guilty of a crime, there was no legitimate ground for depriving him of his liberty. So we are no nearer a satisfactory solution of the plan than before.

However, the chief object of this article is the study of some cases I have encountered recently, and I will pass on to them. They are selected from records I have made in the routine examination of new admissions in the department of the institution which is devoted to the care of the criminal insane, and comprises Federal, military, and civil prisoners. All were admitted within the last year. My object in presenting them is to study some typical borderline cases as seen among criminals, and to trace, if possible, the relation of the mental state to the crime committed.

CASE I.—Constitutional Inferiority.—A. B., a Highlander by birth, of Jewish extraction, aged twenty years, was arrested for desertion from the Army. While awaiting trial he began to manifest hysterical laughter and epileptiform attacks. Sentenced to a year at Fort Leavenworth prison, these attacks continued, but the prison physicians suspected malingering. An apparent suicidal attempt, and strange behavior on the part of the prisoner caused him to be transferred to this institution, where my study of him elicited the following history:

Born as one of the younger children of a nervous mother, the patient's home life was far from pleasant. He worshipped his father, who was always busy and, instead of returning the boy's affection, was rather indifferent to him. At the age of twelve the father began to accuse the boy of masturbation, and to punish him for real and fancied offences in this direction. He constantly threatened the boy with the layman's idea that the practice causes insanity, and that it would be the means of putting him in an insane asylum sooner or later. School life was a bore to the sport-loving outdoor heart of the boy, and he made poor progress in his studies, in spite of the fact that he was quite intelligent and was given every educational opportunity possible. The boy used to run away from home and stay weeks at a time; on his return he was always punished severely and sent to some training school for boys. He reached the first year of high school and then, because he made such poor progress and lacked interest, his father obtained work for him in a store. He soon tired of indoor work and of the continued beratings of the father, who, as has been proven by letters written to the boy while here, has never had a father's love for this particular son, though proud of the other children, who have been more successful in life. At the age of seven-

teen the boy ran away from home for good—the mental conflict caused by the intense love for his father and the entire absence of any return of this love being more than he felt he could bear. After weeks of hobo life, with occasional positions at manual labor, he entered the Navy, and was discharged at the end of three months for sodomy. After another period of wandering aimlessly about, trying to obtain newspaper work, and spending some disagreeable hours at home, he found himself "down and out" and joined the Army. He soon discovered that, having been dishonorably discharged from the Navy, his Army enlistment was fraudulent, and that he was liable to a prison sentence. Frightened, he sought out a non-commissioned officer, who rashly advised him to go absent without leave, go to a neighboring city to see some influential friends, and have the matter adjusted. The patient took the advice and was twice punished in three months for absence without leave. Then he deserted, was soon apprehended, and taken to the disciplinary barracks to await trial. Desperate, hardly knowing what to do, he sought to avoid the trial by feigning insanity and epilepsy. This latter move was of no avail, and in due time he found himself in the penitentiary. Having begun his malingering, he was afraid to cease, and though the physicians suspected that he was feigning insanity, they sent him here for observation.

During the first weeks of his stay he was very well behaved, and he was a faithful worker all during his residence here. Mental examination showed nothing of definitely psychopathic nature, and intelligence was normal. He showed great emotion when speaking of his sexual delinquencies, confessing to having practised all of the sexual perversions except bestiality. He showed a very natural shame when discussing his many wayward actions, and said, "I don't know what you'll think of me now, doctor." After becoming familiar with his new surroundings, it was soon observed that he tended to be mischievous, annoyed less fortunate patients, and made a general nuisance of himself to patients and attendants, by reason of his many tricks and teasing habits. He avoided physical conflicts, as a rule, and when questioned about the latter, always laid the blame on others. He showed a marked tendency to lying and exaggeration, apparently not wilful, but quite spontaneous. He was a confirmed masturbator, but showed no other sexual delinquency while here. He took considerable interest in the games and other activities of the patients, and became quite adept at handball.

He was extremely sensitive to small niceties on the part of others, and if a physician or supervisor failed to say "Good morning" to him, he would ask what he had done to make them dislike him. He constantly asked for interviews with the physician, entered complaints against the other patients, and asked how he could avoid conflicts with them. He could not be made to realize that his own mischievousness was the cause of his differences with his fellows.

During most of his stay here he assisted in one of the dining rooms. Here he was a capable worker, but a trial to his coworkers because of a tendency to assume a certain amount of authority, even over the heads of the attendants. He came into conflicts with peaceably-inclined patients over trivial matters, and often grossly insulted them. He always assumed that they were in the wrong (a habit mentioned above), yet when we talked with him in our frequent endeavors to make his relations with his fellow patients more pleasant, he would make all sorts of promises to do better, though we found them of no avail.

I have mentioned his intelligence and his deficient education; a well educated patient gave him some instruction during a part of his residence here. The boy was very anxious to become a writer and declared his intention of writing his autobiography in fictionized form. He wrote one or two crude poems, and had an article published in the Hospital paper, much to his delight, though he was afraid the material in it might be misunderstood by other patients. He used to bring his literary efforts to me for correction, and they showed a certain amount of originality of style, in spite of misspelled words and poor grammar.

Briefly stated, the boy's make-up is that of an individual of normal intelligence, capable of earning a

livelihood, but entirely incapable of keeping out of trouble. He often volunteered to me the statement that if his father had been like other fathers and given him the affection he craved, he would have been a success in the world. This is probably partly true, for his father-attachment has played no small part in his life, has been a constant stimulus to him in his efforts to do better, and he used to say that he was bound to make good just to show his father that it was in him.

The outcome of his case is doubtful. He was recently pronounced not insane by the hospital authorities, and he was taken back to prison, where it is said that he must now stand trial for malingering, since he had imitated epileptic fits and mental disease before he was sent to this institution. This seems to me a very unfortunate turn of affairs in the boy's life. He had nearly completed his present sentence, and expected to be released and go to work on a Western ranch, where the out-of-door life and clean surroundings might have had a salutary effect. If the law sees fit to punish him for this other offence, which was really a mental upset of the situation-psychosis type, a defense reaction for which he can hardly be blamed, he will again have to endure prison life, with a chance that he may develop a real psychosis, a more serious one, and become a burden on the government; whereas if they overlook the offence and free him, he may yet make something of himself. He responds at once to any show of affection, and if perchance he could come in contact with some paternal type of man who would take an interest in him, this "black sheep" might yet become one of the people who are of use to the world, instead of continuing to be—as he has been in the past—a public burden. His crimes have been the result of his inability to adjust to critical situations; he becomes panicky when such situations arise. He is inherently unstable and his father-attachment has been the source of constant mental conflict. In addition he is polymorphous perverse, and there seems little likelihood that he will ever make a lasting or comfortable adjustment.

CASE II.—Another Constitutional Inferior.—J. W., an American, aged 39 years, was sent to this institution as a Federal prisoner, while serving a sentence for representing himself as a Federal officer. On admission he was suffering with a paranoid type of psychosis, with precoc-like elements. He could not give much information about his family, but there were sufficient data to show a poor ancestry. He had less than a year of schooling and was barely able to read and write. About his childhood he could tell us but little, but we know that at the age of twelve his father began to give him beer, and his alcoholism dates from this early age. The father tried to teach the boy his trade of stone-mason, but the boy was unable to learn it. The patient has always led a wandering, irresponsible life, working at all kinds of manual labor, sometimes earning as high as five dollars a day. This was earned as a watchman on a levee. He never stayed in a place more than a few weeks, due to a wanderlust which made it impossible to settle down with any comfort. He enlisted as a volunteer during the Spanish War, and was dishonorably discharged for drunkenness at the end of six months. Since that time he has several times enlisted in the regular army, but has always been arrested for fraudulent enlistment, and served time for the offence. He states that all of these enlistments have occurred while he was under the influence of alcohol. He has been a periodic drunkard since early youth. He has led the life of a tramp, and learned the use of cocaine in a

bobo camp. While in a drunken sleep he rolled into a hobo campfire, receiving burns which badly deformed both feet.

His sexual experiences began at the age of six, when a sister, now dead, took him into a closet and tried to perform sexual intercourse with him. He is a confirmed masturbator. His first successful heterosexual experience was at fourteen years of age, with a prostitute. While he has led an active heterosexual life, he has frequently allowed himself to be used as the passive agent in homosexual acts. He admits sexual inclinations toward a half-sister, but has successfully repressed them. However he confesses that while at her home, her twelve-year-old daughter used to climb into his bed, and he was accustomed to fondling the child. He did not know whether he had ever violated her or not, but stated that this might have occurred when he was under the influence of alcohol. He has had gonorrhea and soft chancre, but not lues, so far as can be determined.

At the age of twenty-three he married a woman of doubtful character, and deserted her within three months. They were very obviously unfitted to each other. She obtained a divorce and he remarried, at the age of thirty, a woman who had led a fast life, and had an illegitimate child. His married life with her was rather happier, and he managed to lead a settled life for two years, then the wanderlust became too strong and he deserted the second wife to become a wanderer again.

While out of funds, and with no prospects of work, he forged a check and had it cashed, representing himself to a restaurant keeper as a Federal officer. He evidently did not do a very clever piece of work, for in a few hours he was under arrest, and in due time was sent to the penitentiary. As usual with him, he was intoxicated when he committed the crime, for he never violates the law when sober.

I will not go into the details of the psychosis which caused him to be sent here. It was of paranoid type, with visual and auditory hallucinations of terrifying character. Voices told him that he had scattered syphilis all over the country, and accused him of many crimes, most of which had some actual foundation in his past life. He was very hypochondriacal, depressed, and spoke in low tones. He was accessible, frank, and at times showed marked fear of his hallucinated persecutors, who threatened him with death. Syphilophobia was the most marked feature, but this was later relieved by the physicians' assurance that the Wassermann tests gave negative results. The patient had some insight into his condition, realized that his mind was not in its normal condition, said that his memory was failing and expressed a desire for aid for his mental condition. In reply to a question about his troubles he said, "*Seems like I never have been right, somehow. Everything goes against me and I can't stay satisfied with anything.*" This expressed in his crude way more insight into himself than individuals of this type usually have.

Intelligence tests showed that he was not a defective, in the intellectual sense, though allowance had to be made for his meager education. He could answer the fifteen-year-old tests of the Binet-Simon scale fairly well, also some of the adult tests, and we do not consider an individual to be a mental defective who can pass the fifteen-year-old tests, especially if he is uneducated. Memory was, on admission, grossly impaired for both recent and remote events. The psychosis gradually cleared up and he regained his normal mental state.

This man labors under strong congenital taint. A maternal aunt was insane, the mother was a consumptive, and if he were able to tell more about his family still other tainted ancestors would probably be in evidence.

In his make-up he is a very pleasant individual, sociably inclined, accessible, responding at once to any show of interest. He chose the more intelligent and refined patients as his associates and took a keen interest in everything in his environment. He wrote letters to his father, which were concisely and intelligently expressed, in spite of his poor education. He always got along remarkably well, his only conflict being with the patient mentioned in case one. He once knocked this man down after repeatedly warning him that he would do so if he did not let him alone. In this case he

was quite justified, the incident amounting really to self-defense. He was a good worker, in spite of his deformed feet, and was well liked by all his associates, being one of the few patients about whom no complaint was ever made by attendants or patients.

To casual observation J. W. is a normal individual, able to earn his own living, and quite harmless. But just as soon as he gets out into the world his alcoholic habits, which are in all probability a shield from his unpleasant mental conflicts, will return. The man is polymorphous perverse, unable to make any lasting or comfortable adjustment, because of his inherent instability. Alcohol is the only comfortable solution of his problems, and with him alcoholic indulgence means loss of his ethical sense and lapses into crime. This latter fact he himself realizes and he says that he realizes he has done wrong in the past, and would not have done so if in his right mind, but while under the influence of alcohol he gives no thought to the ethical side of crime. As might be expected, he does not realize his sexual difficulties. He is decidedly not a moral imbecile, for when sober he is honest and trustworthy, and fully appreciates the difference between right and wrong. He realizes quite fully the unfortunate blunder he has made of his life. He is unable to adjust to his difficulties unless he is under institutional care, where he is in the proper environment to make the most out of his life. Under intelligent and understanding supervision this man could be made into a useful citizen, instead of being a public burden, as he now is, and will continue to be under our present system of dealing with such individuals.

He once told me that he would like to spend the rest of his life in such an environment as this institution afforded, because he could always have the physicians and attendants to appeal to for what he wanted, and would be free from the influences which he must invariably meet when he goes into the outside world. Not that he does not desire his freedom, but he seems to realize how fruitless will be his endeavors to lead a better life. His amount of insight into himself is rather unusual, for practically every other similar case I have met attributed his mishaps and misdemeanors to environment, unfortunate circumstances, or the fault of others, and stoutly maintained himself to be quite innocent.

CASE III.—Psychopathic Constitution.—M. W., aged 39, a chemist, was sent here as a Federal prisoner, while serving a sentence of fifteen years for white slavery. I can give but a brief synopsis of his case, the records of which occupy many pages. The facts given below are for the most part fairly accurate, being partly obtained from outside sources. The patient himself is the most fluent liar I ever met, and no two of his accounts of himself agree.

He comes from heavily tainted stock. The father, aged 73, has always had a violent temper, and is insanely jealous of the mother. The father is at present suffering from senile dementia. A brother and sister are insane, the sister being a catatonic precox. One brother is alcoholic and the whole family are of decidedly nervous make-up, and subject to various physical ailments, which the patient is inclined to think are the result of congenital syphilis, although there is no definite support for this belief.

The patient's birth was normal and he was healthy during infancy and early childhood. Mentally he has always been rather above the average, and did well in school and college, where he specialized in chemistry. His senior year in college was interrupted by his enlistment as volunteer in the Spanish War, and he took special courses in chemistry on his return. He has held

good positions as a chemist, and as an officer of a mining company, earning \$1500 a year and expenses, and accumulating considerable property.

Unfortunate influences were present in his life at an early age. From his fifth to his thirteenth year, a manservant in the family used the boy as a sexual object. The boy was kept in constant fear of this man, and though his parents believed that they had stopped the practice, it continued until the boy was ill for a year at the age of thirteen, suffering from a severe attack of typhoid. These experiences of course left their mark on the mind of the growing boy, although he does not realize the part they have played in his later life.

He masturbated from his ninth to his eighteenth year. Normal sexual intercourse began at the age of fifteen, in a house of ill-fame, while on a football trip. If we were to believe the patient's own statements he has always been strongly heterosexual, although from the results of our observations, those in charge of him have always believed him to be an inherent homosexual, and that his unrecognized homosexuality has played a large part in his mental life.

During his college career he received a severe head injury, and later two other injuries of the skull, which left him unconscious for several hours. The man actually has a depressed fracture of the skull in the left parietal region, but it is difficult to believe in the light of the combined facts of the case that this fracture is responsible for his mental instability, and the series of events which led to his prison sentence and his incarceration in this hospital. He has always laid great stress on his belief that all his misdemeanors and the course of his life since leaving college were directly and solely due to his head injuries.

His family life has been far from happy. He had a strong attachment for his mother, and was her favorite child. He and his father were always at swords' points, and one of his brothers has always played a part in his family troubles, the two being enemies, whether due to a rivalry for the mother's affections or not, I am unable to say. This brother will be mentioned later in the case.

Since leaving college the patient has led a wandering life, though never a tramp, for he has always been able to obtain remunerative employment. If we take his statements as truth he has had periods of what he calls amnesia or epileptic equivalents, during which he would wander all over the United States, Alaska, and even Siberia. He would come to himself far from home and not be able to account for himself, not knowing where he was or why he had come. He has also been subject to epileptiform attacks, which we believe to have been hysterical in nature, as they practically always occur when he is in some painful situation, and he has had but two in a residence of nearly a year in this institution. I was present during one of these, which occurred after he had been telling me certain painful details of his past life. It lasted about fifteen minutes, and there was nothing about it to indicate that it was either epileptic in nature or due to his head injury. These convulsions occurred with great frequency while he was in prison, because prison life was of course an extremely painful situation for him, as he is rather refined and over-sensitive as to the material comforts of life. Since being here he has had more attention and his people have provided many delicacies and creature comforts for him, and the environment has been comfortable enough so that he has not had to seek refuge in his hysterical episodes.

The patient married a Catholic girl in 1904, by a civil ceremony, and refused to accede to her parents' wishes and be married by a Catholic priest. They lived together only four months. His accounts of why they separated are very contradictory, but I feel safe in assuming that the patient's latent homosexuality had much to do with it. He refuses to recognize this homosexual element, and I believe his boasts of numerous heterosexual experiences, as well as the white slave episode, are but an unconscious reaction against the homosexual element. He professes extreme disgust for anything except normal intercourse, and tries to give the impression that he has led an extremely active heterosexual life. This is a common reaction in homosexuals.

Previous to the episode which led to his arrest the

patient came home from Alaska to make what he believed would be his last visit to his aged mother, who he did not think would live long. He no sooner reached his parents' home than the old conflicts with the father and brother were renewed. The father caused the brother to accuse the patient of having been too intimate with the mother and said that he had seen the two in a compromising situation. (This incident has been partly corroborated by the family.) The patient was so angry at the charge that he obtained a knife with the deliberate intention of murdering his brother for the insult to the mother. A convulsion conveniently intervened, and when he recovered it was too late to carry out his plan. He obtained all the money he could, several thousand dollars, and started for Alaska, but reached only a nearby city, where he lost money, clothes, and baggage in some mysterious manner. He borrowed from a sister and started again. He arrived in San Francisco, where he became very ill and was unconscious for many weeks. (This was, in all probability, a precox episode, as he has been treated in a local sanitarium for a similar one some time ago.)

After recovering from this and while traveling in the Middle West, he became involved in his present difficulty. His accounts of this are extremely conflicting. While in a small town, he one night picked up a woman on the street, believing her a common prostitute. He was under the influence of alcohol at the time. They spent a night at a hotel, and while he was asleep the woman searched his pockets and obtained the address to which he was going. Shortly after arriving there he received a letter from the woman saying she was pregnant by him and asking his advice and help. He made a trip to see her and found she had lied. The upshot of the matter, however, was that he allowed her to travel about with him for a time, though trying to bribe her to leave him. During their stay in a mid-Western city, they became acquainted with a young waitress in a restaurant. Here the sequence of events is not clear, but the waitress went with them when they left the city. The girl's mother and sweetheart followed them and caused the arrest of the patient and his companion on the charge of seduction. This charge failed, also a second charge for statutory rape. He was then charged with violation of the Mann Act. Of his trial he has told many conflicting stories. His brother appeared as a witness for the prosecution, and swore that the patient was a sexual degenerate. The patient's companion turned State's evidence and testified that he had hypnotized her so that she was powerless to resist him; she also testified that he had performed homosexual acts in the lodge room. The patient says that he himself was so confused as not to know what he said or did at the trial. I have since learned that it was definitely proven that he really committed one of the most flagrant white slave crimes which has been brought to light since this law went into effect.

During the six months he was at Fort Leavenworth before coming here he was frequently violent and had numerous hystero-epileptic seizures. He complained of constant headache and vertigo, with epistaxis and projectile vomiting (symptoms which might be referable to the depressed fracture). He was told he had a blood clot on the brain and needed an operation.

On admission here he was hypochondriacal and complained constantly of headaches and vertigo. An x-ray of the skull at the Army Medical School was negative. It is noteworthy that after the lumbar puncture was performed these headaches disappeared and now return but occasionally and with decreased intensity. Our study of him here shows him to be decidedly hypochondriacal, and unable to stand even slight discomforts without much complaining. He is rather paranoid, being apt to translate any untoward incident as deliberately planned to annoy him. He complains, in letters to relatives, of his treatment here, although he is given every possible privilege, receives special food ordered for him by relatives, and has more luxuries than any other patient in this department.

He is decidedly intelligent, reads the better periodicals and books, and his opinions on current events are quite worth listening to. He is sociable, associates with only the better class of patients, and is usually good humored and fond of a joke. He is refined in appearance and habits, and would make a good impression in

any society. I have never been able to decide whether his untruthfulness is normal or pathological. He lies only to evade giving information about himself and when proven to be lying he shows no shame, but proceeds to repeat the offence in order to cover the default. He reacts in an exaggerated manner to any stimulus, and thus makes himself rather a nuisance at times. He is very neurotic, complains frequently of trivial ailments, and is constantly asking for medication of one kind or another.

Some of his paranoid reactions amount almost to delusions of persecution. He is a Mason and believes that three of his fraternity "have it in for him," and cites specific instances thereto—instances which might seem convincing had not the patient deviated from the truth so often in other matters.

One matter which troubles him considerably is the fact that he is considered a sexual pervert. In conversations with me he has frequently mentioned this and gone to much length in trying to convince me that he is strongly heterosexual and that he had never had the slightest tendency toward homosexuality. All of this, as well as his paranoid reactions, are, to my mind, a defense reaction against his homosexual trends. And since in his early years, in the period of psychosexual development, he was for so many years the object of homosexual practices, it is only reasonable to suppose that his psychosexual development ceased at the homosexual level. His inner conscience recognizes the fact, but the psychic censor refuses to let it come into outer consciousness. Hints of his homosexuality do penetrate and are met by defense mechanisms—as for example, the desire to prove to us that he is heterosexual, the disgust when sexual perversions are discussed, etc.

This man, then, is a constitutional psychopath. With a strong congenital taint he came into the world unfitted to react to the critical situations he has had to meet. Highly intelligent, efficient in his line of work, he is yet unable to make a lasting adjustment because of his inherent instability. What are we to do with this man? When his sentence expires he will be about forty years old; it takes a man of stable make-up to start at such an age and make anything of his life. He refuses to try to have any real insight into himself and his paranoid nature makes him think of himself as a martyr suffering from the malice of people who persecute him without any cause. And of course his abilities are going to waste as long as he is in confinement. He is able to support himself well, but is forced to a life of idleness. When he is released he is suddenly thrust into a situation where he must adjust to sterner problems than ever before, and the result is very doubtful. Is this man responsible? Yes, and no. He is not lacking in intelligence or ethical sense. He is not to blame for his inherent instability, the real basis of his inability to live as society demands. I must confess that I can make no suggestion as to the proper disposition of the case.

CASE IV.—Sexual Perversion; Constitutional Inferiority.—F. C., aged 23, was arrested in a public park, having been detected in a perverted sexual assault on a little girl. In order to escape the disgrace and publicity of a trial, his brother managed to have him committed to this institution. To aid in this committal, the patient feigned confusion and dementia. An experienced observer made a diagnosis of low-grade imbecility, though our observations here have since shown him to be of normal intelligence. In the family history we find that the mother is of nervous make-up, and had a brief mental upset, mild in character, at the time of her marriage. I have had occasion to interview one of the patient's brothers, and he gave the impression of being of precox make-up.

The patient's birth, infancy, and childhood were apparently uneventful. He received a moderately good

education and had no difficulty with his studies. He has worked at various occupations, the last one being as motorman on an electric car line. He is said to have been discharged for having failed to register fares properly. However, those under whom he worked considered him to be an efficient worker. He is a member of the Catholic Church and always attended regularly. He has always been considered by his friends to be a model young man. His home life has been happy as far as can be determined.

His initiation into the knowledge of sex was, as in the case of so many boys, obtained from other boys, when he was about fourteen. He avers that he was told about normal sexual intercourse, but not about any of the perversions. When he was seventeen years old, in company with some other boys, he visited a house of prostitution. It was his first contact with women in a sexual way. To the surprise of the woman he began to perform cunnilingus. Believing that the patient was ignorant the woman tried to show him how to perform normal intercourse, but he told her he had no desire for it. The perversion seemed to be instinctive. He had never been told about any sex perversion and claims never to have had any previous experiences which would lead him to perform cunnilingus. He continued the practice until the segregated district was abolished. Since then he has experienced much difficulty in finding women who would submit to his abnormal desires. At intervals of about a month he has marked sexual desire, accompanied by a feeling of heaviness in the head. This feeling is relieved if he can perform the perversion. When he cannot find a woman he often obtains sexual pleasure by contact with a woman's undergarments to his mouth. On one occasion he sent a letter to a Jewish merchant, telling him to hang his daughter's undergarments in front of his house, or his store would be burned. He was apprehended, explained his perversion to the police chief, and was put on probation. Realizing the abnormal nature of his sexual instincts, he has on a few occasions attempted normal intercourse, but has never been able to accomplish it.

He does not care for the company of the opposite sex and has never had a sweetheart. He is rather seclusive, preferring to spend his time reading. However, during his stay in this institution, he has developed a tendency to spend much time in the company of some of the poorer class of patients, chumming with those who are uneducated and degenerate, in preference to the educated and better class. In his day dreams, if we may believe his own statement, he likes to picture himself as being normal sexually and as a married man with children. He is rather fond of children, but would prefer to have them without having a wife, if possible. He can not bring himself to care for women, except as objects for indulgence of his perversions.

When admitted the patient was quiet, orderly, polite, and obedient to suggestions. He asserted that his sexual perversion was a constant source of worry, that he felt himself a degenerate, and eagerly accepted the examiner's suggestion that psychoanalysis be tried in his case, saying that he would cooperate to the best of his ability. However, he did not live up to his promises, and unfortunately soon had a negative transfer toward the examiner, due to a paranoid interpretation which he put on some insignificant occurrence in which the examiner figured innocently. From this time he was distinctly inimical in attitude for several months. He then came to the examiner and asked why the latter had it in for him, and proffered apologies and renewal of friendly relations. He was not sincere in this offer, though, and the examiner has never been able to get in good touch with him.

Mentally, the patient is of average intelligence, and shows no disorders of conduct. He was rather emotional at the time of admission, but at the present time he is adapting well to his situation. He has shown nothing which could be interpreted as belonging to a mental disturbance, with the exception of a somewhat paranoid attitude toward the officers of the institution. This is very slight in degree and can hardly be classed as being delusional.

Physically, he shows a number of stigmata of degeneration.

There is nothing in the examination of this man to point to mental instability if we rely solely on his record since in the institution. However, when we take his past life into consideration it is not difficult to see that his sexual twist is one phase of his illy-balanced mental make-up. The discharge from the car company for theft, the threat to burn a man's house if he could not obtain the object he sought, the tendency to seclusiveness which he showed before coming here, all point to a lack of stability in mental make-up. In addition, he is impulsive, and unable to resist the desire to indulge in his perverted practices. The man is not insane, from the ordinary standpoint, yet he is a dangerous individual to be at large, because of likelihood of further attacks on girls. What is to be done with him? This case was recently brought before the hospital staff for a decision as to its disposal, and the unanimous opinion was that he should be kept in confinement here; that while he is not insane, the nature of his crime was such as to make confinement imperative.

CASE V.—Constitutional Inferiority.—L. N., a young Greek of 21, was arrested on a charge of indecent exposure. While awaiting a hearing he became frightened, being unable to speak English intelligibly, and had a brief prison psychosis of the dementia precox type, recovering rapidly after being sent to this institution. On account of his extremely limited knowledge of English it was impossible to make a satisfactory study of his life. As far as can be learned, his childhood was quite normal. He ran away from home and led a wandering life for several years, but always worked and saved his money. His habits were good, and until he reached this country he never had any trouble with the law. He was accidentally left in this country by failing to sail with a ship on which he had been working. He has been in the United States about a year, working in New York and Washington, and seems to have been fairly contented and to have been satisfactory to his employers.

His three offenses against the law seem to have been due to an absolute ignorance of our laws and customs, rather than to any intentional disregard of them. While near a small town he bathed in a small stream without a bathing suit and was arrested and fined. A week before his present arrest he was on the street, when he felt a desire to micturate. Knowing nothing about public convenience stations, he turned into a small alley and satisfied nature's demands. He knew no wrong in the act, for it did not seem at all unusual to him. He was seen by a policeman and warned against repeating the offense. A week later, coming out of a public convenience station, he carelessly neglected to fasten one trouser button. He was seen by the same policeman who saw him before and arrested on a charge of indecent exposure. He had not the slightest idea why he was arrested and saw in it only rank, malicious injustice.

When he was placed in jail to await trial, the boy became extremely frightened and confused, wept, and finally became angry. Then he refused to keep on his clothes or to eat. This caused the officials to suspect mental disease, and he was examined by a psychiatrist. He told the latter of a vivid dream of seeing his mother and, on account of the patient's broken English, the psychiatrist put this down as a visual hallucination.

On admission to this institution the boy presented the picture of a mild depression, weeping frequently, and once threatening suicide. Aside from the depression, which was distinctly pathological, the boy showed no other psychopathic symptoms except a slowness of adaptation to his surroundings.

Physically, the patient is short of stature, but well developed. His head is dolichocephalic, and the facies rather repellent, though it is difficult to say just what particular feature is unpleasant. At first sight the boy gives one the impression of being both defective and degenerate. However, he is of normal intelligence, as judged by the Binet-Simon test, and no evidence of

degeneracy has been observed to date. A few days after his arrival a sexual pervert entered the patient's room early one morning and frightened the boy into permitting fellatio. The patient came to the physician in considerable distress, asking that further attacks be prevented. However, he showed no abnormal reaction to the incident. During the first few days of his stay he showed fear of his surroundings and was slow in adapting himself to his environment. He frequently approached the physician, saying, "I good boy; I no done nothing. Please, mister doctor, let me out." He could not understand the reason for his confinement in the institution and, although it was explained to him many times, he repeated his request for liberty. His reaction to his situation is rather childish. If he cannot obtain what he wants he cries, then becomes angry.

Of course considerable allowance must be made for his lack of knowledge of American customs and the English language. Also, he comes of a somewhat temperamental race. But his difficulty in adaptation is pathological, as is his infantile reaction to unpleasant situations. He has always managed to make a normal reaction to his environment until confronted by the situation which brought him here. This was more than he could meet and the prison psychosis was the result. He is not a mental defective, has previously reacted normally to the ordinary every-day situations, but is distinctly lacking in adaptability to the more serious situations. This man is an alien and will probably be deported as an undesirable.

CASE VI.—Homosexuality.—W. B., a soldier, aged 30 years, was sent to military prison for desertion. While there, it was observed that he was of paranoid make-up, and inclined to be excessively self-sufficient. He was accordingly sent to us for observation. Unfortunately our study of him has not been as satisfactory as we wished, so his case will be rather inadequately presented.

Both maternal grandparents died of tuberculosis. His father died of a "nervous breakdown." Otherwise no psychopathic determinants are elicited. The patient's birth and early development were normal and he had a moderately good education. At the age of twelve he was thrown on his own resources by the death of his parents. Most of his life he has done electrical work, and has had some good positions, the best one being as superintendent of line construction at \$140 per month. In 1908, during a hard-luck period, he enlisted in the army and received an excellent discharge at the end of his first enlistment. He reenlisted, transferred to a different branch of the service, and later bought out his discharge to take a paying position in civil life. After a time he again reenlisted and was in the third enlistment when he became involved in his present difficulty.

As a boy his family life was happy and he got along well with his playmates. As a rule, he has been a hard worker and of exemplary habits. In one of his enlistments he was in a rather bad company of men and as a result of this association, he says, he was a heavy drinker for about two years.

Sexual life has been normal, and he has repressed his sexual desires to a considerable extent, because he believes in moderation in such things. He tries to give the impression that he has not been given to thoughts of sexual matters, and has put them out of his mind as much as possible. He was married about a year before his present trouble began. It is noteworthy that, although he had a good record as a soldier, he violated one of the unwritten rules of the service, which says that when a soldier marries he shall obtain the consent of his superior officer. He believes that this caused him to incur the dislike of his superior officer. He claims that his married life has been very happy. His wife became pregnant a few months after marriage and then the patient's troubles began. His wife was not strong and her physician told her that she ought to spend most of her

pregnancy in a hospital. The patient was getting but \$25 per month, and he estimated that it would cost this amount per week to put his wife in the hospital. Immediately he became panicky and, instead of calmly reasoning out the proper course to pursue, he acted on the impulse of the moment and deserted. He says that he did this in order to get a paying position in order that his wife might have proper care.

He was soon apprehended, tried, and sentenced to three years. He had not been long in confinement before it was observed that he was of markedly paranoid make-up. Also he was too self-sufficient, and thought that he could do things better than anyone else. He says that in an interview with a medical officer, the latter made impertinent inquiries about his domestic life, and finally called his wife a prostitute. This story he has steadfastly clung to since being here. He says that his mail was help up and censored. This is quite likely true, but the officials were within their rights. There were a number of small incidents upon which the patient put a paranoid interpretation. He has thoroughly convinced his wife that he has been wrongly treated.

Since admission here he has always been quiet, a good worker, and spends his spare time in the study of electricity. He is sociable and agreeable, and enjoys the diversions which the patients have. He gives the impression of being extremely careful to avoid giving expression to anything which might be considered pathological. He has made the best of his situation and is, in fact, rather too self-satisfied. He is somewhat suspicious and has devised a scheme of numbering his letters to his wife to find out whether they all reach her or not. He believes that the medical officer referred to above had it in for him, and sent him here in order to deprive him of his chance for freedom.

He writes frequently to his wife, and his letters are a curious combination of endearments and anxious inquiries, with definite orders as to how she shall conduct herself in this, that, or the other matter. Practically the only thing he allows her to use her own judgment in is the choice of her clothes. When she does not do things exactly as he likes he scolds her and says she does not obey him as a true wife should. In the next paragraph he tells how much he loves her and misses her and the baby.

Mental examination shows that his intelligence is normal. There are no true delusions of persecution. He has put a paranoid interpretation upon numerous incidents, and believes himself a martyr to the whim of a superior. With the martyr's attitude is combined the exaggerated self-sufficiency, and the tendency to take everything into his own hands. Evidently it is painful to him to have to submit to the judgments of others, and his wife is the one who must suffer from his wish to be his own master, all-sufficient, at once lover and master.

What was the psychology of this man's desertion? Why should a previously good soldier disregard the courtesies of the service when he married, and then desert? To my mind, he is a latent homosexual and the marriage tie has therefore been unsatisfactory. He cannot acknowledge this to himself, and the reaction is a desperate attempt to convince himself that he *does* love his wife, and he proves it to himself by breaking the law, making a deliberate sacrifice of his military career. His period of alcoholic addiction may be explained by the fact that in the bad company he was then in there was unusual material to bring out the latent homosexuality, and it was compensated for by drink. Again his tendency to repress heterosexual desires speaks for the same homosexual trend. This may seem like far-fetched reasoning, but it is to me a satisfactory explanation of an otherwise inexplicable case. The man has hitherto compensated well, but marriage and its responsibilities were too much for the mental balance to withstand, and the idea of strengthening the marriage ties by paternity was the last straw. And

since, when he gains his freedom, he must face the same situation, his future seems doubtful as to mental stability.

CASE VIII.—*Constitutional Psychopathy; Homosexuality.*—A. R., a soldier, was arrested on a charge of sodomy, and sentenced to two and one-half years in prison. While serving sentence he became hysterical, had wandering delusions, brief in character, showed great effeminacy, and openly proposed homosexual acts to the attendants. On account of his behavior he was sent to this institution for observation.

His family history is negative. Birth was normal, but he was a weak infant and never very strong in his earlier years. His schooling began at the age of four, with home instruction, and he attended public schools from his seventh to his eleventh year. He then received instruction under private tutors until his eighteenth year, studying a varied program of scientific subjects, theology, philosophy, and the like. He then felt a desire to "start out for himself," believing he should no longer depend on his father for support. This, in spite of the fact that he was a dreamer, impractical, whose chief object in life was reading and study. He did not care for the games and sports of his companions, but preferred to read or play the piano. Of his family life he has told us but little. He says it was happy, but prefers not to discuss it.

When the subject of his sexual life was broached, the patient launched into a long argument, the burden of which was that he is strongly heterosexual and has no homosexual tendencies. He put forth the facts of his sexual life, and proved (to his own satisfaction, at least) that he has always been extremely fond of the opposite sex, and a gay Lothario. He boasted of having lived with a girl for three years, as man and wife. He understands the subject of sexual perversions in a superficial way, and used this knowledge as part of his argument. He stated that he had a double positive Wassermann in 1912, but says he had not had a luetic infection to his knowledge. However, the fact of having the positive test seemed to give him satisfaction, and to be an added proof of his virility. He recognizes the fact that he is considered to be homosexual, yet fails to understand what there is about him to give the impression.

In appearance he is very effeminate. The features are feminine and the hair, parted primly in the middle, accentuates this. He uses feminine expressions, such as "Goodness me," "My gracious goodness" and the like, forming his words with a prim preciseness and speaking in soft tones. His gestures are also effeminate. So marked is this effeminacy that some of the patients remarked about it, and one of them, who had known him before, stated, "He is a disgusting degenerate." He is avoided by many of the patients on this account.

He had a good record in the army previous to his crime. He is an expert stenographer and has testimonials showing that he was a valuable clerical worker. His account of his present trouble is not convincing. He denies absolutely that there was any ground for the charge of sodomy, saying that it was a trumped-up affair by men of his company who considered him a snob because he did not associate with them, and drink, and patronize prostitutes. However, he received a sentence of two and one-half years, indicating that there was some ground for the charge. In prison, according to the records which accompanied him, he became emotional, had wandering delusions, was more effeminate than ever, and proposed homosexual acts to the attendants. He denies all of this at present, and it is quite likely that he has forgotten it, that is to say, it has been relegated to the realm of the unconscious, with his other disagreeable and repressed mental processes. During his stay here he has spent his time reading scientific works, and writing poetry. He has a large number of poems, none of them showing real merit, and several of them giving unmistakable homosexual symbolism.

Here we have a latent homosexual, in whom a superficial knowledge of the sexual perversions has helped to repress tendencies which were very near

the surface. The desire to show himself independent, choosing the life of a soldier (symbolic of virility), exaggerated attention to heterosexual life, as well as the frank homosexual outbursts in his psychosis, all point to a striving to overcome the homosexual element, which he probably really recognizes, but will not acknowledge to others. His insight into homosexuality was not sufficient to permit a strong compensation, as was manifested by his homosexual advances while in his psychosis. I have purposely omitted many of the details of this man's history, as irrelevant to the subject in hand. He illustrates the type of homosexual which is not so difficult to diagnose, for it is written in his physical make-up, in his speech, and in his reactions under stress.

Relieved of the strain of prison life, free from the environment of the barracks, where he can return to his seclusive, studious habits, he may be able to compensate comfortably for a time, and with his training in stenography can earn his living, giving him the feeling of self-sufficiency, and permitting him to resume his life in the world. Just how long he will be comfortable is difficult to say, for we do not know what situations will arise to stir up the fires which will always smoulder in the depths of the unconscious. He is engaged to be married, and if he does undertake the responsibilities of married life there is likely to be a real disaster. Incidentally, the description he gives of his fiancée indicates that she too may be a homosexual. He has been advised not to marry, but with the exaggerated self-confidence of the psychopath he pooh-poohs the advice, and will probably enter boldly into the married state at his first opportunity, in a final attempt to convince the world and himself of his heterosexuality.

Conclusions.—In summing up briefly the characteristics of the borderland mental cases, referring especially to the criminal type, we note that

1. They usually show poor heredity.
2. They may or may not show mental peculiarities during childhood.
3. They may develop a normal intelligence, and may show special aptitudes for certain lines of work, but fail to accomplish any real or lasting success because of lack of perseverance, restlessness, faulty judgment, impulsiveness, and inability to plan clearly, or to carry through their plans to a definite end.
4. In uncomfortable mental situations they are unable to react properly, and the result is apt to be a mental disturbance or a conflict with the law.
5. This class includes the moral imbeciles, who break the law because they are unable to appreciate the difference between right and wrong. On the other hand, these individuals may have a normal ethical sense, but in confusion or panic, during some uncomfortable situation, may come into conflict with the law because they see no other way out. Their crimes may be traced to the outcome of some psychic difficulty, being a result in the course of an attempted solution of the problem.
6. These individuals have a tendency to be excessively self-sufficient, a compensation for their real inefficiency.
7. They have little or no insight into themselves, and believe themselves the victims of unfortunate circumstances, or of the malice of others.

8. In comfortable environments, free from mental stress, they present a more or less normal picture. However, the trained observer will note lack of real efficiency, poor judgment, childish reactions to many situations, exaggerated self-esteem, and absence of perseverance.

9. They exist comfortably only when under supervision, with absence of mental strain. Under such circumstances they may lead comparatively efficient lives.

BIBLIOGRAPHY

- Wm. A. White: Outlines of Psychiatry.
Edward A. King: Mental Disease in the United States Army.
Henry M. Friedman: Constitutional Inferiority—A Survey, *MEDICAL RECORD*, February 19, 1916.

THE SURGICAL TREATMENT OF CANCER.*

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NEW YORK.

THE surgical treatment of cancer from the standpoint of the gynecologist is limited in comparison with the treatment that comes within the province of the general surgeon. Cancers of the uterus are our most frequent cases, and, therefore, it is in this form that I will discuss briefly.

It is our endeavor, as well as our duty to cure permanently, if possible, all patients who may entrust themselves to our care. But we can do this only when the cancer is still a local disease and when we are afforded an opportunity to operate at an early stage and well away from malignant invasion. If the malignant condition has passed beyond the uterus the result must necessarily be doubtful.

The greater number of gynecologists have relegated vaginal operation for uterine cancer to the past, because the percentum of permanent cures is less than when a radical abdominal operation is done. And yet, there are conditions which undoubtedly make a vaginal operation preferable. If the patient be an obese woman and the disease is still in its incipency no doubt exists but that we get a lower primary mortality and an equally high percentum of permanent cures. Particularly is this so when one does the operation as advised by Schauta, in which the ureters are isolated and the uterine arteries ligated before attempting to extirpate the uterus, so as to make possible the excision of a large part of the parametria. The incision devised by Schuchardt is, however, always necessary to accomplish this.

To eliminate, as far as feasible, the chance of transplantation cancer occurring, it is advisable rapidly to curette with a sharp spoon all readily breaking down structure and thoroughly to cauterize the crater with a hot iron before beginning the operative work of extirpation.

There are still many surgeons who believe that a larger number of permanent cures may be obtained if the extirpation is done with a galvano-cautery. While I have used that method my experience is limited to too small a number to express an opinion on the superior merit. If one uses

*Part of a Symposium on The Treatment of Cancer read by invitation at a meeting of the Eastern Medical Society.

a cautery the current should not be turned on until the cautery knife is in contact with the tissues to be cut, since though the knife be only at a degree of low red heat, it will cause bleeding when it is brought in contact with vascular structures. But if applied cold and then brought to the proper degree of heat, the vessels shrivel before they are cut. This holds good also whenever one takes off the cautery knife for the purpose of changing its position. A description of technic is superfluous at this time. Likewise the several other methods of vaginal operation for cancer, as the clamp method and the uterus enucleation, as devised by a Chicago surgeon, require no mention, since they are not adequate to bring about a satisfactory result.

The surgical therapy considered now as acceptable when the cancer has not advanced too far for radical operation, is the abdominal method made popular by Wertheim and practised by leading modern surgeons. Since W. Alexander Freund did his first premeditated operation by the abdominal route in 1878, which was a simple pan-hysterectomy, the technic has undergone decided changes. We must not fail to give credit, however, to the excellent work done by our American surgeons, Clark of Philadelphia, and Riess of Chicago, who worked out proper technic even before Wertheim published his work, so that really to Americans belongs the distinction of being pathfinders. Without pelvic elevation, however, as devised by Trendelenburg, the proper technic would be almost impossible.

The removal of the uterus, adnexa, extensive removal of the parametria, accessible pelvic and iliac glands, and the upper part of the vagina; particularly if it be cancer of the vaginal part of the cervix, are prerequisite to success.

If the cancer occurs during the usual cancer age, say later than the age of 45 years, we can count on about 50 per cent. permanent recoveries; provided the disease has not progressed beyond a readily operable condition, and if the operation be properly done. The rule is that the younger the patient the less chance of permanent cure. The few patients that I have operated below the age of thirty years have all died of recurrence.

Regarding cancer of the body of the uterus, compared with cancer of the cervix, it may be said that the prognosis for permanent cure is better in corporal cancer.

Some surgeons maintain that in corporal cancer one should also always do an abdominal operation. For me this holds good only in instances of patients in whom the uterus is considerably enlarged, so that we have reason to believe that the malignant neoplasm has made considerable progress and that there is danger of mutilation of the uterus and soiling of the field of work with cancer elements in case one does a vaginal hysterectomy. In early cases of women with a roomy vagina and a small uterus, the operation should be done per vaginam, and, judging from my personal experience, the results are equally satisfactory, with a lesser risk of primary mortality.

What is said of cancer of the uterus holds good for all cancers of other structures that come in the domain of the gynecologic surgeon as to per-

manent curability by operation. Unfortunately the diagnosis of intrapelvic and intraabdominal cancer is not so readily made as is the case in uterine cancer. Consequently the mortality is greater, though it has been my good fortune to cure permanently several instances of medullary cancer of the ovary, which were not diagnosed as such before operation. So long as the peritoneal covering has not been broken through by the malignant disease we have reason to hope for as good a permanent cure as is the case with early uterine cancer. This consideration leads me to say that all pelvic tumors, all abdominal tumors, should be operated upon at the earliest possible moment unless too far advanced for operation, and even in many of these seemingly advanced cases an exploratory operation is advisable, because occasionally it occurs that we give relief if not permanent cure.

Primary cancer of the vagina is seldom met with in a still sufficiently early stage for a satisfactory radical operation. I have not seen any that were cured.

A most important measure should not be lost sight of, namely: Retain all patients operated upon for cancer under observation for several years, and on the first indication of recurrence reoperate. An excellent illustration for the validity of this assertion is the case of a patient 52 years old upon whom an exceptionally extensive radical operation was done for the removal of a "border-line" cancer of the cervix, during which it was deemed safest to resect a part of the ureter and reimplant it into the bladder. The first operation was done on June 1, 1914. I reexamined the patient every month. The latter part of May, 1915, by rectovaginal examination a small nodule, not larger than a hempseed, was discovered in the pelvis. In a month it had increased in size to that of a pea. The patient was told on the occasion of my first discovery what I suspected and I had no difficulty to induce her to consent to a second operation. This was done July 19, and by the pathologist's report the diagnosis was correct. So far there has been no recurrence. The patient is reexamined once every second month. A careful search throughout the pelvis at the time of the second operation failed to find any other lymphatic or glandular enlargement.

We shall now consider briefly what may be done in a palliative surgical way for patients too far advanced for radical operation. The subject may be summarized in a few words. Nothing has given me so much satisfaction as thorough cauterization with a galvanocautery, employing high degrees of heat for the purpose. But it must not be thought that every patient too far advanced for radical operation can still be satisfactorily cauterized. Such is not the case; some of these unfortunate women are past the palliative surgical intervention. Radium and x-ray treatment have occasionally given much relief.

39 EAST SIXTY-FIRST STREET.

Cure of Veronal Habit.—Fog successfully treated a veronal addict, who had become much debilitated from the habitual use of the drug, with gradual withdrawal and powders of antipyrin salicylate.—*El Siglo Médico*.

THE DIAGNOSTIC SIGNIFICANCE OF BLEEDING FROM THE RECTUM.

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THERE are few conditions which give the physician more worry and uneasiness than bleeding from the bowel, even when the reason for it is perfectly clear; when there is any doubt about the source and causation of it, its occurrence is of very serious concern to both patient and doctor. Patients may regard other symptoms (outside of such as give rise to much pain) with an easy tolerance, but the appearance of blood, coming from an organ from which it is not seen in health, is an alarming event, and arrests instant attention. Fortunately nature has implanted in every living thing an instinctive fear and dread of certain physical signs, whose presence is grave enough, if disregarded, to lead to the extinction of the individual. A sudden gush of blood quickly arouses emotions which mobilize every faculty to secure the safety of the sufferer without any unnecessary loss of time. It was a subconscious recognition of this, and no mere idle fancy, which caused the very color of red blood to have been universally adopted to designate danger—loss of blood and loss of life go hand in hand.

A systematic investigation of a patient who loses blood by the rectum must begin with a careful history, which should emphasize the age, occupation, past or present illnesses or operations, habits, presence or absence of protrusion or pain, and any possible loss of weight. Some of these may appear trivial to the casual observer, but they often point significantly to the seat of the trouble, or contain the thread which unravels a puzzling problem. These are to be followed by inquiries into the character of the bleeding, the length of time it has lasted, its relation to defecation, the relative quantities lost, whether expelled pure or mixed with pathological discharges, and lastly by a physical examination of the patient, which must include a searching local exploration of the parts.

It is good practice before starting, to bring in mind the various conditions in which bleeding from the rectum may be met, with a general idea of their importance and frequency. The following classification, though far from perfect, has been adopted by the writer in the hope that it will simplify the problem:

A. SURGICAL.

(a) Local Conditions Not Acutely Surgical.

1. Hemorrhoids, all forms except the external.
2. Ulcerations: (a) Simple; (b) specific—from tuberculosis, syphilis, gonorrhea, various types of dysentery (amebic, Shiga bacillus, Flexner-Lewis).
3. Proctitis, proctocolitis, enterocolitis, simple and specific.
4. Tumors: Benign (Fibromata, Lipomata, etc., various pedunculated tumors), and malignant (carcinoma, papilloma, multiple polyposis, sarcoma).
5. Stricture, specific, non-specific.
6. Procidentia.
7. Fissure.

8. Cryptitis.
9. Helminthiasis.
10. Diverticula.
11. Gastric or duodenal ulcer.
12. Impaction.
13. Chronic constipation (sometimes).

(b) *Local Conditions Acutely Surgical.*

1. Foreign body.
2. Volvulus.
3. Invagination.
4. Strangulated hernia.
5. Portal or mesenteric thrombosis.
6. Typhoid fever.
7. Appendicitis.
8. Rupture of aneurysm.
9. Postoperative bleeding, following operations on rectum or colon.
10. Abscess.

B. MEDICAL.

(a) *Mechanical.*

1. Hepatic disease.
2. Chronic nephritis.
3. Cardiac decompensation.
4. Arteriosclerosis and conditions accompanied by high blood pressure.

(b) *Defective Blood States.*

1. Hemophilia.
2. Purpura.
3. Leucemia.
4. Pernicious anemia.
5. Scorbutus.
6. Icterus.

(c) *Toxic.*

From without: Poisoning by arsenic, mercury, phosphorus, sulphureted hydrogen, nitrobenzene, etc.

From within: Scarlet fever, yellow fever, cholera, malaria, septicemia, pyemia.

It would be manifestly impossible within the limits of this paper to take up in detail all the various causes of hemorrhage from the bowel, with their points of differential diagnosis; we shall confine ourselves mainly to such of them as originate in local pathological conditions of the rectum and lower colon, leaving the others in hands more competent to deal with them.

In making a critical analysis of factors which enter into rectal bleeding, one thing which stands out at once is that the causes differ widely with the age of the individual. Infants and older children bleed from prolapse, various forms of enteritis and colitis, fissure, solitary polyp, foreign body, including intestinal parasites, traumatism, invagination, but rarely from hemorrhoids, stricture, or malignant conditions. Out of 180 cases of hemorrhoids which came under the writer's observation within a definite period, only two were in children, two and a half and four years old respectively. Stricture in children arises frequently from a developmental fault, failure of the mesodermal tissue which separates the caudal extremity of the hind gut and proctodeum to become absorbed, and the persistence of a membrane between the two, partial or complete. Malignancy must not be lost sight of; though very rare in children, it does occur.¹ On the other hand, the most frequent cause

in adults is hemorrhoids, followed by the various forms of ulceration, fissure, carcinoma, stricture, etc. In 141 cases of rectal bleeding investigated by the writer in the Rectal Clinic of the New York Hospital, on the Division of Dr. E. H. Pool, eighty-one were found to have been caused by hemorrhoids, fifteen by ulceration, eleven by fissure, eight by carcinoma, six by stricture, four by abscess, two by procidentia, two by multiple polyposis, one by intestinal parasites, one by foreign body, one by fecal impaction, and nine in which no rectal pathology was discoverable. With the approach of the fourth decade rectal bleeding assumes a graver significance on account of the possibility of malignancy, which does not diminish until the seventh decade, beyond which malignant tumors of the rectum are decidedly rare. In our series of eight cases, four were under thirty-five, only one above sixty. Out of 157 patients examined on the service of the Home of the Daughters of Jacob, between the ages of sixty-five and 107, during the past three years, there were only two which had tumors of the rectum suspected of being malignant.

Occupation.—Bleeding from the bowel as related to occupation is a question which may come up in operatives in mercury, arsenic, phosphorus, etc., on account of the liability of these agents to become absorbed and cause catarrhal conditions of the bowel; indirectly in workers in lead who are predisposed to chronic constipation and fecal impaction; in employees of breweries or distilleries and others whose habits and environment predispose to hepatic and cardiovascular disease.

Illness, past or present, has a decided bearing on the possibility of bleeding from the rectum, as may be readily learned by looking over the list of constitutional diseases in which it may occur. Some of these have a wide distribution, notably tuberculosis, syphilis, and hepatic disease. Primary tuberculosis of the intestine is very rare,² even denied by some (Von Leube, Klebs³), but secondary infection from the lungs is quite common; in 1,230 autopsies in the Royal Victorian Hospital, but two gave evidence of primary involvement, while 285 were secondary to tuberculosis elsewhere. Syphilis may involve the lower portion of the intestinal tract as chancre, or in its secondary and tertiary manifestations as mucous patches, condylomata, fissures, ulcers, proctitis or coloproctitis, gummata, and strictures, besides congenital lesions, principally of the anal portions, which give rise to ulcerations. Of these, chancres and gummata are infrequent, the others fairly common. In an active dispensary service only two gummata and but one chancre were encountered by the writer during the last three years, and the bleeding from these was negligible. Hepatic disease may be set down as a fruitful source of rectal bleeding because of its mechanical and other effects in bringing about pathological conditions of the rectum.

Habits.—Alcoholism being a common cause of cirrhosis and disease of the blood-vessels, is responsible for congestions which may be the starting point of ulcerations and bleeding. Improper food, unhygienic habits, the frequent use of purgative medicines may have the same effect, insofar as they have a tendency to produce proctitis.

Protrusion.—There is an intimate association

between protrusion and bleeding; when the bowel or portions of it loses its normal habitat, it becomes exposed to ulceration from friction, interference with its nutrition, and change in its secretions. The most frequent pathological lesions under this head are, internal hemorrhoids, procidentia, mucous polyps, malignant tumors of the lower rectum which project through the anus, cysts, and various pedunculated tumors.

Pain.—Patients who have lesions in the lower rectal segment have pain whether they bleed or not; in those whose disease is high up the bleeding may be entirely painless, at least until there are secondary effects on neighboring tissues or organs. An acute fissure will bleed but little, but may be exceedingly painful, while carcinoma of the rectal ampulla bleeds profusely almost from its inception, but is not generally at that stage accompanied by much pain. Because of secondary infection, progressive ulceration, the accumulation of mucus, pus, and necrotic slough, and the irritation of the bowel, which seeks to rid itself of this foreign material, there is frequent and painful desire to evacuate the intestinal contents, which may be said to be characteristic of malignant growths of the distal colon, but is never a part of the clinical picture in bleeding from hemorrhoids or other benign lesions, no matter how profuse the bleeding. It is not uncommon to find that some of these patients have as many as fifteen to twenty bowel movements in twenty-four hours, each one containing only a little blood and products of tissue destruction, causing an almost constant rectal burning and distress, and giving them no respite day and night. Furthermore, when bleeding is due to some benign lesion there are either no subjective abdominal disturbances, or if present they are very mild; on the other hand, in malignant conditions cramp-like pains in the abdomen are regular, well-marked, and progressive in character.

Loss of Weight.—Contrary to general belief, there is but little direct connection between loss of weight and loss of blood; there is, however, a definite relation between loss of weight and the *cause* of the bleeding. Patients may continue to lose blood from hemorrhoids day in and day out without any appreciable diminution in weight; at any rate, one never sees that decided loss in such conditions which is regularly encountered in malignancy. When it is present, we are justified in suspecting concomitant malignant disease. There is often large loss of weight in chronic diarrhea from whatever cause, with or without any bleeding, on account of the enormous loss of water from the tissues, and the exhausting effect on the patient's nervous system. To summarize then, we almost always meet with great loss of weight in carcinoma, multiple polyposis, and chronic enteroproctitis or coloproctitis, even with little bleeding, but small loss of weight in piles, polyps, and non-malignant tumors, even with considerable bleeding.

Having considered these various factors as they relate to the history of the patient, and given them the weight to which they are entitled, our next concern is to gather what information we can about the bleeding itself. Our chief interest centers about the length of time the patient has been bleeding, the character of the blood lost, whether liquid and

red, or clotted and dark, pure or mixed with pus, mucus, or pieces of tissue, the quantity lost, and its relation to the function of the bowel.

The length of time it has been going on is important as tending in a measure to exclude malignant disease; obviously if the patient has been losing blood for several years it would be natural to assume that the trouble which is causing it is benign. It must not be forgotten, however, that malignant tumors sometimes become engrafted on benign lesions, and what was originally an innocent trouble may in time be transformed into a formidable disease. The writer recently saw an adenocarcinoma started in the tissues surrounding a fistulous tract which had existed for several years before showing signs of degeneration.

The character of the blood expelled is not as important as was formerly taught; merely because one loses blood from the rectum is no proof that the source of it is in that organ. It may come from any part of the intestinal tract, and its color is by no means infallible evidence of its origin, despite the rule which is often accepted, that if the blood is dark it comes from high up, whereas if it is red the lesion which causes it is low down. Blood coming from high up is indeed dark, clotted, and otherwise altered, but only if retained in the bowel long enough; if it should chance to be expelled before these changes have had time to develop it will be bright red. Conversely, blood whose source is low down may be retained in the rectal ampulla long enough to become dark, and possess all the characters of blood coming from high up. We may even sometimes have both liquid and clotted blood from the same lesion, at the same time, whether situated high or low, thus tending further to confuse the issue; hence we cannot draw any positive conclusions from this circumstance until the findings have been confirmed by more reliable data.

The quantity of blood lost depends in a great measure upon the size of the lesion, its character, and the extent of the destructive process. For example, bleeding from a fissure is usually slight, because we are dealing with a superficial lesion, in a locality where there are no large blood-vessels, which, while it tends to chronicity, will not affect the deeper tissues. On the other hand, carcinoma is progressive, erodes blood-vessels, and generally destroys the neighboring structures. Multiple polyposis, ulcerative coloproctitis, amebic dysentery, and diseases of similar character, show extensive areas of involvement, and the pathological process inclines rather to deep destruction than to spontaneous recovery; hence bleeding from such sources is naturally more severe, and the expelled material moreover contains an abundance of mucus, pus, and pieces of tissue, in contradistinction to such innocent causes as hemorrhoids, polyps, procidentia, cryptitis, etc., in which the blood will be found to be unmixed, and show no products of destruction. It may be accepted then, in a general way, that mixed blood points toward serious conditions, though the converse of the proposition does not invariably hold true, for unmixed blood does not necessarily predicate benign lesions.

When there is any pathological condition of the bowel which has a tendency to bleed, any increase in the intraabdominal pressure, due to straining, vom-

iting, or defecation, may initiate it; however, the sudden appearance of a large hemorrhage, without any previous history of rectal disturbance, and independent of any bowel movement, is quite characteristic of some cases of carcinoma of the rectum. In two out of eight of the cases on our records the patients were unaware of any serious trouble with the bowel until the occurrence of the bleeding. One occasionally obtains a history of a similar onset in hemorrhoids or polyp, but close questioning will nearly always reveal a distinct interval of rectal symptoms preceding the hemorrhage.

Perverted function of the bowel and any coexisting bleeding have a definite relation to each other. When there is persistent constipation, the force and straining required to expel the intestinal contents are liable to cause injury to the mucous membrane, aside from any medical or mechanical means used to secure an evacuation; in an impaction the same factors operate with the further addition of a possible necrosis due to pressure of the hard, dry fecal masses on a delicate mucous membrane. When the stools are abnormally frequent they are likely to contain blood from the lesion which causes the diarrhea, if not from the straining and tenesmus set up by the discharges.

These are the roads by which the physician proceeds to uncover the causes of bleeding from the rectum. Inductive reasoning is valuable in so far as it points to the direction in which he must search, but beyond this he must stand or fall by the skill and thoroughness of his examination. Laboratory methods and the x-ray are useful, and in some cases indispensable, but they will always remain in the domain of the trained specialist, whose number will naturally be limited. But every medical man may with little trouble acquire familiarity with the appearance and character of the normal rectum and colon, and the changes which occur in it in disease, and thus discharge a duty which he owes to himself, no less than to his patient.

REFERENCES.

1. Tuttle: Diseases of the Rectum, page 764.
2. Theob. Smith: Second Mellon Lecture, Pittsburgh, May, 1916.
3. Boas: Diseases of the Intestines, page 294.
4. Lynch: Diseases of the Rectum, page 132.
- 17 EAST THIRTY-EIGHTH STREET.

GONORRHEA AS A CONSTITUTIONAL DISEASE.

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GONORRHEA is generally considered, and in the majority of instances acts as, a purely local disease. It is well that this is so, for if grave constitutional symptoms were the rule rather than the exception, it would be, considering its widespread incidence, one of the most destructive diseases that afflict mankind. Yet constitutional symptoms complicating a local urethritis are perhaps more frequent than is usually supposed; but as such they often pass unrecognized, or, rather, are diagnosed as due to some other cause.

Since the evolvement of the gonorrheal complement fixation test we know that the local focus of the disease is accompanied with a constitutional ef-

fect. Clinical observation confirms this in many ways. The constitutional dyscrasia thus produced it is my purpose here to discuss in its various complexities.

The conditions under which the infection becomes generalized are not well understood; nor do we know the frequency with which it occurs, except in gonorrheal rheumatism, which averages about ten per cent. The subject is one which requires much more attention than it has hitherto received. The gonococcus possesses such a wide biological variation and the blood serum of different individuals varies within such a wide range of susceptibility to its influence that it is impossible to state with any degree of accuracy how frequently the infection becomes generalized. Theoretically it would seem to be of very frequent occurrence for the organisms to enter the blood stream; but it must be with almost equal frequency that they are destroyed before they can do any appreciable harm. The constitutional reactions therefore must take place only as the result of a particularly virulent strain of gonococci or where the patient's blood serum is of low bactericidal resistance. Formerly it was believed that systemic infection could occur only by way of the posterior urethra; but now we know that any mucous surface can be attacked by the gonococci, and from thence they pass into the general circulation and give rise to a gonorrheal septicemia. It may therefore be reasonable to suppose that the presence of gonococci in the blood may not cause a sepsis until after a metastasis has taken place. This combination of sepsis with metastasis may be properly termed septicopyemia—which in fact it is.

This brings us to the consideration of gonotoxemia, of which our knowledge is very slight. At present it is impossible to state whether we have to do with an endotoxic poisoning or an ordinary form of toxicosis. It may be said, however, that the consensus of opinion leans toward the former. Experimental toxins (killed cultures) when injected into the body give rise to the same phenomena met with in acute toxicosis generally. These are headache, fever, joint pains, nausea, and vomiting.

As long ago as 1865, Pidoux claimed that in some patients with gonorrhea a general reaction to the disease took place. This was manifest by pallor, dullness of the eyes, relaxed features, loss of flesh, and a peculiar color of the skin. In 1891, Tonis observed that patients with gonorrhea showed a general enfeeblement with pallor. He expressed the opinion that the disease caused a vitiation of the blood as the result of some virulent principle. Aside from those just mentioned various other observers have noted that many cases of gonorrhea are complicated with a slight pyrexia, which some have stated to be of the remittent type and accompanied with enlargement of the spleen. Von Zeissl has called attention to these symptoms as occurring in some patients with gonorrhea.

In 1893, Souflet published a thesis entitled "Gonorrhea a General Disease." Up to that time the gonococcus had not been discovered in the blood, but in the following year Hewes succeeded in making blood cultures. In 1900, Balzer emphasized the fact that it was the gonococcus and not the toxins which was the cause of a constitutional malady. In 1906, Faure-Beaulieu collected notes of thirty-four

cases of gonorrhea in which the gonococci were found in the blood; in three of these a true septicemia existed. Thus for the first time gonorrheal septicopyemia was recognized as a true clinical entity.

It has long been known to dermatologists that skin eruptions are frequent concomitants of gonorrhea. Some of these have been and still are confused with the eruption sometimes caused by copaiba and less frequently by oil of sandalwood. But it is now known that a wide variety of skin eruptions can be caused by the disease.

Among these are herpes facialis, which may be explained by the presence of fever; purpuric rashes and petechiæ, erythema multiforme and even erythema nodosum, papulovesicular eruptions, as well as those of the scarlatiniform type, and a simulation of the "rose spots" of typhoid fever has been observed. According to McDonagh, the most distinctive rash, which he ascribes to a gonotoxic origin, is the so-called "keratoderma blennorrhagica," which he claims is always accompanied with a balanitis. The lesions appear first as vesicles which rapidly become pustular and then the wall of the pustule becomes keratinized. There may be only a single lesion or there may be several, which later may coalesce. The dorsum of the big toe seems to be the point of selection although they may appear anywhere on the body. When the horny process is removed, there is no ulceration beneath, simply denuded epithelium. This condition is very rare. In a somewhat extensive experience I cannot recall ever having seen a case.

The nature of these outbreaks is obscure. They may be septic, febrile, toxic, reflex, or perhaps trophic. It is possible that some may be due to minute emboli blocking the cutaneous capillaries.

While the skin is often attacked, the central nervous system is practically exempt, although a few cases of meningitis and transverse myelitis have been recorded. This is passing strange when we consider the morphological resemblance between the gonococcus and the meningococcus. Peripheral neuritis is occasionally met with but polyneuritis is very rare.

By reason of the constitutional dyscrasia thus developing in the course of gonorrhea it is but natural to expect that many of these patients become anemic. This anemia may be pronounced; so much so that the red cells have been known to be reduced to less than a million in number. On the other hand, the red cells have been enormously increased. This increase is only relative, however, being caused by the concentration of the blood due to the profuse sweats accompanying the sepsis present in these cases. The percentage of hemoglobin falls with the cell count and may reach as low as twenty per cent. As would be inferred, the leucocyte count is increased, chiefly in the polymorphonuclear and large mononuclear cells.

The anorexia that is not infrequently present in acute gonorrhea is not caused, as is usually supposed, by the ingestion of nauseating drugs such as copaiba, santal oil, pichi, etc., but by the septic process acting in the patient's body. The digestive disturbances may become severe, vomiting and diarrhea being present to such a degree as to cause prostration. There may also be enlargement and

tenderness of the liver with more or less jaundice, all of which suggests the septic nature of the condition. These patients sometimes have an angina with functional murmurs of considerable intensity, with a rapid and compressible pulse.

We will now consider the intense forms of generalized gonorrhea, usually fulminant in character and often attended with a fatal result—gonorrheal septicemia and its variant, gonorrheal endocarditis. Gonorrheal septicemia may pursue one of several courses, depending largely upon the metastatic processes which take place. There is a pure blood infection which has a mortality of fifty per cent. and which cannot be distinguished clinically from septicemia of streptococcal origin. This form may also resemble a meningococcal infection so closely that it can be distinguished only by the agglutination test which is positive in meningococcal sepsis either to autoserum or to the curative sera of Flexner or of Dopter. In this form of gonococcal infection it is to be noted that periartritic symptoms may be present. I mention them in order to emphasize the fact that they must not be confused with gonorrheal arthritis. Pleurisy and bronchopneumonia may also develop in these cases, but as a rule are rarely encountered.

It is important to differentiate gonorrheal septicemia from conditions in which there is a clinical resemblance. These are typhoid fever, especially of the ambulatory type, malaria, and anemia. The intensity of the infection may also vary from the hyperacute or fulminant form to the acute, subacute, and benign. When the disease is fulminant, death may occur very quickly from purulent peritonitis—seen mostly in women—or from malignant endocarditis. A clinical diagnosis from the conditions just named is often impossible except that the presence of a urethral discharge is strong presumptive evidence. Blood culture is our principal resource. Absence of the Widal reaction and of the plasmodia of Laveran are of value in exclusive diagnosis. Acute articular rheumatism may be eliminated by the failure of the salicylates as a therapeutic measure.

A symptom complex that not infrequently terminates the septic condition is endocarditis. It may be rapidly fatal. It not infrequently happens that the septicemia and the endocarditis are combined from the onset. In gonorrheal endocarditis the left heart is almost always affected, especially the aortic orifice. The symptoms are typical—prostration, fever, sweats, rapid and irregular pulse, murmurs, dyspnea, and cardiac erythmism. In the malignant type, ulceration and proliferative vegetations occur on the valves, which not infrequently are broken off and carried away by the circulation to form emboli. The clinical picture just described is not always present. In very many instances the endocardial inflammation comes on insidiously with cachexia and signs of cardiac irregularity. These cases are as a rule ambulatory and mistakes in diagnosis often occur.

From a study of the literature, which is becoming more and more extensive, it is evident that the local urethral disease not infrequently becomes general with symptoms which may assume a character similar to other generalized infections. While it must be borne in mind that comparatively few cases of

gonorrhea react in the manner just described, yet it is my opinion, based on considerable experience, that gonorrhea reacts constitutionally much more frequently than is generally supposed. Indeed, I have come to believe that almost every acute gonorrhea is attended with more or less constitutional disturbance—the “first” gonorrhea especially. The fact that in the vast majority of instances the disturbance is only slight is why it is so often overlooked. I will make an exception in so far as gonorrheal rheumatism is concerned, which has not been dwelt on here. My reason for not doing so is that the subject is so full that it would be impossible to do it justice in the limited space at my command, and I have therefore reserved it for a future communication.

The conclusion to be reached in this brief study of one of the phases of gonorrhea is that it is the part of wisdom to watch carefully the development of any untoward febrile or cachetic symptoms occurring in the course of the disease, let it be acute or chronic. It is quite possible that they may be caused by the condition which was looked upon as purely local.

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Medicolegal Notes.

Privileged Communications—Waiver—Different Witnesses and Different Transactions.—In an action for an injury caused by a fall on ice on the defendant city's sidewalk the injury was alleged to have been sustained about the 26th of February, 1914. The plaintiff testified concerning it, in effect, that it injured her left leg and left hip and made her arm sore; that it caused a numb feeling all through the lower part of the bowels and about the ribs; that it made her feel sick; that she had hard work to get home, and was sick and weak after she reached home, and remained in that condition for several days. A medical witness testified for her, in effect, that his books showed he first treated the plaintiff on February 26th and continued to treat her for a day or two; that no other doctor was with him; that he discovered a tenderness in the region of the pelvis which could be ascertained only by feeling; that the muscles were on tension and comparatively hard; that he found some swelling and a tenderness between the navel and the pelvic bone, and some fever.

Did this testimony open the door to letting a doctor, whom the plaintiff did not call as a witness, disclose what he obtained professionally during the period covered by the testimony adduced for the plaintiff to the extent of telling any and all things he then found the matter with her, and all differences in ailment then existing? In answering this question, the Iowa Supreme Court is of opinion that the policy of the statute may not be left out of consideration. That statute should have a liberal construction because its purpose is to make it possible for every person to consult fully and fairly with a physician or submit himself to his examination without anticipation or fear that the confidence reposed may be broken in upon by a subsequent examination of the physician as a witness. There is no punishment provided for the physician who reveals what has been confided in him. About all, then, that the statute could have aimed to do was to prevent revealing on the witness stand. It must have been understood by the Legislature that those who made confidential revelations to physicians might enter into and produce testimony in litigation, wherein it would be very material, either as impeachment or otherwise, to have the physician disclose what he had been told, and it must have intended, therefore, that the occurrence of these conditions should not operate to waive the privilege. It has therefore been held that such testimony is not made admissible because it will impeach, nor because it will operate to defeat falsehood. And that the naked fact that the plaintiff makes a witness

of one of her doctors does not give consent that the defendant may make use of any or all other of the plaintiff's doctors, and have them testify on the same general subject to which the plaintiff's witness spoke. The plaintiff may be willing to waive the objection as to a witness in whom he reposes special confidence, yet insist on it as to another. This doctrine, citing prior cases, the Iowa court followed, adding that it follows as a corollary that a waiver of the privilege as to one transaction will not operate to waive it as to other and independent transactions.—*Jacobs v. City of Cedar Rapids*, Iowa Supreme Court, 164 N. W. 891.

Opinions of Physicians in Evidence.—Physicians in testifying concerning examinations of the plaintiff in an action for alleged injuries resulting from a fall in the defendant's street car and their opinions derived therefrom were permitted to say that they believed she was shamming. This was claimed by the defendant to have been erroneous as an invasion of the province of the jury, who alone were to determine whether or not the plaintiff was injured. It was held proper to receive evidence of the condition of the plaintiff when so examined, and the opinion of these witnesses as to whether or not she was then suffering from any injury. But whether she was honest or dishonest, sincere or shamming in respect to her claims of pain or injury was a matter about which the jury might have drawn their own conclusions from the facts given by the physicians without their opinions. A search for authorities disclosed, however, that similar evidence has in some cases been admitted by the courts of New York, Illinois, Michigan and Texas; and it was held that while such evidence should be viewed with strictness and caution, its reception in this case was not error.—*Hopson v. Union Traction Co.*, Kansas Supreme Court, 167 Pac. 1059.

Practising Without a License.—In an action to recover the penalty provided for by the Illinois statute for practicing medicine without a license, the following evidence was held sufficient to sustain a judgment against the defendant. The proof showed that the defendant treated one person for stomach trouble and nerves for a long time by rubbing her with her hands, and told her to eat fruit and to take long breaths many times daily. She also told her she was getting along all right and collected \$1 per treatment. One witness testified that the defendant treated her for nervousness for three years by rubbing her all over; that before starting the treatment the defendant asked witness questions about her trouble, “Just about like a regular doctor would,” and told her what the trouble was; that it was nervousness, and that witness paid her \$1.40 per treatment. Another witness testified that the defendant treated her by rubbing; that she had been ailing and had been to a doctor about it; that the defendant told witness her trouble was constipation, and that she paid her \$1.50 per treatment. Another witness testified that the defendant treated her for nervousness three times a week for five months and occasionally for three months more by rubbing; that she told her she could cure her; that she would guarantee that witness would get well; that witness went to her as an osteopath and told her so, and the defendant took her as her patient as an osteopath; that she called the treatments osteopathic, said she was an osteopath, and gave directions as to what witness should eat; that the defendant charged her \$1.40 per treatment.—*People v. Brown*, 202 Ill. App. 530.

Sunstroke Held an Accident.—The Minnesota Supreme Court holds that sunstroke is a “personal injury caused by accident” within the meaning of the Workmen's Compensation Act.—*State v. District Court (Minn.)*, 164 N. W. 916.

Harrison Law—Prescribing Opium.—The federal district court for the District of Montana holds that, the Harrison Law requiring nothing of physicians issuing prescriptions for opium, save that the physicians be registered, and the prescriptions be signed by the physicians and dated, and not limiting the amount which may be prescribed, an indictment merely charging the defendant physician with giving a prescription for and so dispensing pounds of opium charges no offense, “dispense,” as used in the act, relating to the actual delivery of the drug.—*United States v. Reynolds*, 244 Fed. 991.

Military Medicine.

RAT-BITE FEVER IN THE TRENCHES.

IF Dante were alive now with his masterpiece unwritten he would undoubtedly make the first cycle of his *Inferno* the trenches. At least that is the impression gained from a perusal of the pathological side of life there. Trench-fever, trench-shin, trench-foot, pediculi, nephritis, and a host of other evils are described in the literature seen in foreign medical journals nowadays.

Then, too, besides the diseases peculiar to; or enhanced by, trench-life other diseases are appearing from time to time which have their origin in the unsanitary conditions which prevail there in spite of all efforts to the contrary. To be sure, we live in an age where we do not fear that our troops will be decimated by the plague, smallpox, or hospital gangrene, but at the same time the unique environment of the fighting man to-day—between walls of damp earth, his feet in refuse, mud, and icy water, often overrun by fleas and lice, harassed by rats—is responsible for the appearance of diseases which we had almost forgotten in civilized communities nowadays.

For example, rat-bite fever, which is common enough in certain countries and climates, is not likely to be very familiar to the average American doctor. It has, however, made its appearance in the trenches and we may expect before long to hear of cases among our soldiers. Therefore we notice with interest that several Japanese writers have discovered the cause in a spirochete which they have been able to demonstrate in the blood, skin, and lymph-glands of seven out of ten cases which they have examined.

These spirochetes are described as being thick and short (about two to five micra.) and have flagella at both ends, which increase their length to from six to ten micra. The smaller ones are formed in the blood and the larger ones in the tissues. They stain easily with Giemsa and with ordinary aniline dyes. Their movements are perceptibly more rapid than those of any other known spirochetes, this forming a distinguishing characteristic until they are stained, when the movements slow down greatly. These spirochetes are present in the swollen local skin lesions; in seven cases out of eight they disappear on recovery, only to reappear on relapse. This organism appears to be present in about 3 per cent. of all ordinary rats, and has never been found in healthy guinea-pigs or mice. However, it may be transmitted to them by having them bitten by an infected rat.

The clinical symptoms of rat-bite fever are inflammation of the bitten parts, paroxysms of fever of the relapsing type, swelling of the lymph-glands, and eruption of the skin, all occurring after an incubation period of one to three weeks or longer. The writers believe that other causes may exist for these symptoms than the spirochetes described above, but think that they are the cause of the form most common in Japan.

Ordinarily, of course, the investigation of such a disease as rat-bite fever would have for the average practitioner but an academic interest. But in these parlous times, when no one knows unless he has donned the lean and slippered pantaloons—and

not always then—at what minute he will be called to the front, it behooves us all to be conversant with the peculiar perils besetting our men. The next step is to find a cure for the disease. Granting that the *Spirocheta morsus muris* is the cause, or the chief cause, a spirocheticide is next in order. We know that it is markedly affected by salvarsan. Whether or not this preparation of arsenic or some other one will prove to be the ultimately selected remedial agent time alone will tell. In the meantime we are indebted to our Nipponese allies for the pertinent discoveries cited above.

Medical Problems on the Italian Front.—In a paper read before the Section of Experimental Medicine of the American Association for the Advancement of Science at Pittsburgh, on December 31, Dr. Victor G. Heiser gave an interesting presentation dealing with military problems on the Italian front. He said that it seemed to be a peculiarity of persons who were sent abroad on missions to various countries to return ardent partisans of the country they set out to visit, in spite of accidents and difficulties which might occur. People who went to Russia on a mission were enthusiastic for the good ideas which they were convinced would grow out of Russian mistakes. Those who, like himself, went to Italy refused to believe in her ultimate overthrow. He thought it better to interest his audience in a few salient facts which he had observed during his mission, and which would speak for themselves. The Italians were extraordinarily efficient in their medical organization. Italy when she went to war was worse off than any other belligerent country. She had no x-ray apparatus that was not manufactured entirely in Germany; no ammunition and no automobiles that had not come from there. Since the outbreak of the war she had manufactured all the automobiles she had been using, and the fact that she had as many motors for transportation as any of the belligerents would show the immensity of this accomplishment. Not only this, but a sufficient number of cars were made to allow of export to France and to America. Some motor factories also made airplanes, the quality of which was well known, by the Caproni standards. Not a single battle-plane had been made in America for Italian use. It was stated that the British Government had offered every facility to the United States to manufacture battleplanes, but the offer had not been taken up. Italy had manufactured them by the dozen.

Italy had had to face very serious sanitary problems since the beginning of the war. The Austrian prisoners had carried cholera into the Italian camps and the medical service had to vaccinate the entire army against cholera. The laboratory staff had to make examination of the stools of all the soldiers and prisoners who came from infected regions. To convey an idea of the immensity of this task to Americans, who imagine that nobody can exceed them in large undertakings, it was stated as a fact that an average of 3,000 stools a day were examined. In regard to the question of quarantine, it was considered an immense undertaking in this country when the Surgeon General instituted a quarantine station capable of dealing with 2,000 inmates. That was a mere bagatelle to the enormous

numbers that the Italians had to deal with. All the troops returning from Salonica—French, British, etc.—came through southern Italy, on account of submarine dangers by sea. The Italian quarantine for the British had a capacity for 20,000 persons, for the French 40,000. Examinations for malarial plasmodia were made in the blood of all these quarantined. To return more specifically to the Italian front, the medical men had shown admirable resourcefulness. The general idea was that the Italians did not get very far, but they had completed hospitals with a capacity of one million beds. America had been 100 years in building hospital accommodation for 30,000 beds, while the Italians had built a much larger number in six months. The construction of these hospitals was exceptionally good and workmanlike. There were no luxuries, but all the essentials were there. Practically no tents were used, although the British and French armies were still relying largely on tents. The construction of Italian hospital buildings cost less than that of tents and was very strong. A unit was a building 6 feet by 12, and 14 feet high, constructed of fireproof tiles. It was cool in summer, warm in winter, sanitary and efficacious, and if needed could be built in sizes to accommodate any number of patients. In some medical centers there were 40,000 beds. The same number of buildings in France were a heterogeneous collection, but in Italy even a neat type of architecture was carried out. Hospitals were dedicated to special injuries, such as fractures of the lower extremity, lung wounds, jaw wounds, etc., where special care could be given to the defect.

The problem of "mobile hospitals" had been worked out to perfection. By means of a 150-bed hospital, carried on five motor trucks, it was possible for the surgeon to travel 75 miles from the point of the last operation in 16 hours. He took his whole staff of assistants and nurses with him and was ready to operate again. These hospitals were maintained at one-third of the cost expended by other belligerents. The Carrel treatment and all other modern techniques were employed. In regard to prosthetic treatments, the Italians were among the most adroit in reconstruction. Much had been read of the Roehampton Hospital in England, but the Marguerita Hospital in Rome far outclassed it in ingenious appliances. In Bologna a man was seen who had lost both hands, but was still able to eat with knife, fork, and spoon.

The cooking problem was dealt with as efficiently as the work of hospitalization. The Italian soldiers received hot food in the front line trenches, handled by means of fireless cookers; cooked at 8 A. M. and served at 11 A. M. The management of the work was perfectly marvelous.

These unfortunate people had recently suffered terrible reverses, but it could be said for them that they differed from the rest of the Allies in one respect, particularly—the English and the Americans were accustomed to boast of what they were going to do, and then go and do it; the Italian, on the other hand, went and did the thing, and then, perhaps, talked about it later.

From Verdun to Mannheim.—Dr. Simonin, a French medical inspector, taken prisoner at Verdun after having been wounded, and soon ex-

changed, has published an account of his sojourn in Mannheim, which is reviewed in the *Bulletin of Le Progrès Médical* for November 10. The battle in which he was injured occurred in August, 1914, so that the title of his book is somewhat misleading, the suggestion being the Verdun of 1916. As a wounded prisoner he would have been shot had he not called out to the German subaltern to "get special instructions" because he was not only a physician but a professor in the Military Academy at Paris. The officer instantly saluted and withdrew, and Simonin had managed to escape the infamous "Gommery massacre" as it will be known in history. Of 300 wounded French prisoners, all but 75 or 80 were killed in cold blood while the town was being fired. One doctor whom three fusillades had failed to kill was left to die in a burning house. It was thought that the massacre was over, but on the following day Dr. Maxence and three orderlies were assassinated. The former told the Prussian that he had killed a physician and received the reply "c'est la guerre." The murders ceased as soon as an upper staff physician, Zedler, had arrived and established a field hospital, which suggests that the alleged motive for the massacre was the total lack of hospital facilities. Zedler proved to be a "good boche," and as if to make amends for the acts of his countrymen treated his French colleague with the greatest courtesy. When Simonin was transferred to a base hospital the physician in charge, Dr. Prizel, continued these courtesies. By reason of the presence of the Frenchman they even refrained from singing patriotic songs on the anniversary of Sedan.

At the next transfer point things were not so pleasant. The hospital had been stripped of supplies and drugs and the physician in charge was not amiable. He was two days on the road and as provisions were scarce was asked to pay something. At Mannheim he was interned in a deaconesses' home, which he likened to a gilded cage. The deaconesses treated him with extreme consideration and the medical man in charge, Dr. Seubert, was unostentatiously kind. By steps which are not explained the prisoner was soon in Switzerland on his way home. The scrupulous observation of the Geneva Convention in some quarters with its total disregard in others was a source of mystery to the prisoner. In regard to the massacre the lack of insignia of their office on the uniforms of French medical officers and stretcher men could perhaps have been held responsible for their murders. The book has a preface by Abbé Wetterlé, who is noted for his activities in "getting the goods" on the German Army in connection with atrocities of all kinds.

Preparing to Care for War Cripples.—The Red Cross Institute for Disabled Men, which has its headquarters at 311 Fourth Avenue, New York, has issued an appeal to employers for suggestions as to the places to which cripples may be assigned. This information is for the use of the institute's employment bureau. The statement issued by the Institute declares that there have been 5,200 men disabled on the Italian front up to July, 1916,

and describes how Italy is caring for these men and reeducating them so that they will be self-supporting. Schools for the reeducation of cripples have been opened in seven principal Italian cities. In carrying out this campaign the institute announces that it does not want to place men on a charity basis or give them work for which they are not qualified. By obtaining information as to fields open for cripples reeducation can be more wisely directed.

Kings County Base Hospital to Mobilize.—The Kings County Base Hospital Unit 37 received orders to mobilize at the Twenty-third Regiment Armory, Brooklyn, on January 4. The unit was organized by Dr. Edwin H. Fiske, who is in command of the surgical staff. Colonel B. H. Dutcher of the Regular Army Medical Corps will command the unit. It is understood that the unit will undergo intensive training for a short time before being sent abroad.

Teuton Airmen Murder Hospital Inmates.—A report received at the War Office states that on the night of January 1 German airmen dropped bombs on Castelfranco, Veneto, striking two hospitals. Eighteen patients were killed.

Huns Torpedo Another Hospital Ship.—The British hospital ship *Rewa* was torpedoed in the British Channel while on her way from Gibraltar at midnight of January 4-5. All the lights and markings showing that she was a hospital ship were visible. Three of the crew were lost, but the wounded were all transferred to patrol ships before the *Rewa* sank.

Poets' Committee Reaches Goal.—This committee announces that it has succeeded in obtaining funds for the 100 ambulances for the Italian front. This was the main purpose of the committee, though as a by-product it has established five barrack hospitals and thirty-two tent hospitals at the request of the Italian authorities.

Offer of Sanatorium Declined.—The authorities at Washington have declined the offer of the use of the Otisville Tuberculosis Sanatorium for a medical depot recently made by the municipal authorities of New York. In the offer to the Government was a clause to permit its revocation "on thirty days' notice in writing to the Secretary of War."

Spartanburg Camp Has Low Death Rate.—According to a report sent by Major-General O'Ryan to Governor Whitman, there have been only nine deaths from disease among the 31,000 New York troops at Camp Wadsworth since the men arrived there last August. During this time there have been five deaths from railroad and automobile accidents.

New Red Cross Hospital Opened in France.—Another of the chain of hospitals which the American Red Cross is establishing in France for the care of the civil population was opened in Lyons on December 3, in the presence of the representatives of the American Red Cross, the Rockefeller Foundation, and the French authorities. The Ste. Eugénie Hospital at Lyons has been lent to the Red Cross by the hospital board of Lyons, which supplies the building with heat, light, water, and sanitation, without cost to the Red Cross. The food, linen, and disinfectants are supplied at cost,

and the Red Cross provides the doctors, nurses, and hospital supplies. This hospital will care for refugees suffering from tuberculosis.

False Teeth More Deadly Than Battle.—An instance of what chance may do is afforded by the case of Albert Crome, an English soldier, who enlisted two years ago and served fifteen months in France, where he participated in a continuous series of desperate fights. Becoming ill he was sent to recuperate. On his first night home he swallowed his false teeth, and died.

Deaths in Pershing's Army.—In a cablegram, under date of December 31, General Pershing reported to Washington that there had been fifteen deaths in his army. These mortalities were all due to disease except two. Pneumonia caused the largest number, with tuberculosis a close second.

Many Thousands of Nurses Wanted.—The United States Army is in need of nurses for immediate assignment to duty and for reserve. It is confronted by the task of increasing the enrollment nearly 1,000 per cent. to procure 37,500 nurses who will be needed for an army of 1,500,000. The present strength of the Army Nurse Corps is but 4,000. The need for nurses in army hospitals in this country and for duty overseas is urgent, but the enrollment has not met the demands by a large number. Hospitals of National Guard and National Army camps still need 290 nurses to bring the quotas up to the necessary minimum of 65 nurses to each hospital. Since the urgent need for more nurses was announced in December, over 2,000 requests for application blanks have been received, 400 nurses have applied for enrollment and many have been accepted. About 650 nurses have been obtained through the Red Cross during the same period. The call to duty is made to every one of the 80,000 registered and 200,000 other graduate and practical nurses in the United States. That the enrollment has not been larger is due, it is believed, to the lack of realization by American nurses of the immediate need of their services. The Army Nurse Corps impresses the profession in this country with the urgency of that need. Besides the number needed for immediate assignment to duty, there must be a reserve for call when American casualties increase. As soon as the immediate needs of cantonment hospitals have been cared for, a reserve of 100 nurses will be organized for emergency service in the United States. The Lakewood Hotel at Lakewood, N. J., has been leased by the government for use as a general hospital and provisions will be made for housing nurses there. Because of the immediate need of nurses and to encourage enrollments, a number of the requirements heretofore imposed have been waived. Requests for information, applications, and enrollment should be made to the Surgeon-General, U. S. Army—attention of Superintendent, Army Nurse Corps, Mills Building, Washington, D. C., or to the Director, American Red Cross Nurse Service, Washington, D. C.

Dr. Andrew MacPhail Knighted.—Among the New Year honors was the conferring of knighthood upon Dr. Andrew MacPhail, professor of the history of medicine at McGill University, Montreal. Dr. MacPhail is at present a captain in the Canadian Army Medical Corps.

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New York, January 12, 1918.

CONGENITAL HEMIATROPHY OF THE DIAPHRAGM.

THIS very rare congenital defect was first described by J. L. Petit in 1774 and afterwards confused with diaphragmatic hernia until 1829, when B  clard and Cruveilhier defined it as a diaphragmatic eventration. In 1894 J. Tennant recorded a case of partial atrophy of the diaphragm. He found at autopsy a laxity of the two posterior thirds of the left side of the diaphragm which had been pushed up as high as the second intercostal space. The diaphragm, which was otherwise normal, was lax and flabby at this point, the muscular fibers being very thin and scattered. Tennant looked upon the case as congenital in origin.

With the advent of the x-rays more cases were recognized. In 1900 Hirsch diagnosed a diaphragmatic hernia in a man named Schneider, who afterwards traveled from clinic to clinic in Germany and whose case gave rise to much prolonged polemic. Hilderbrand and Hess pointed out that the linear shadow in the form of a dome that Hirsch looked upon as the gastric cupola followed the respiratory movements in the same direction as the right costodiaphragmatic sinus; the shadow, therefore, in their opinion, corresponded to a thin diaphragm since it offered no solution of continuity, and for this reason they adopted the term of diaphragmatic eventration given to the condition sixty years previously by the French observers. Later on, Lotze upheld Hirsch's view of the case, while Hess replied that the famous Schneider was the possessor of an eventration, because electrization of the phrenic nerve caused a marked contraction of the much discussed convex shadow. Autopsy at length proved that Hildebrand and Hess were correct.

Quite as interesting as the case of Schneider was that of a patient studied by Widenmann and afterwards by Glaser. The diagnosis of diaphragmatic hernia was made because the patient had upon several occasions offered phenomena of gastrointestinal occlusion, but at operation K  rte simply found the diaphragm raised to the level of the left nipple. Autopsy showed that the left side of the diaphragm was thin and pale in color. The muscle fibers were the seat of a marked fatty de-

generation. The same anatomical condition was found by Doering in a man 60 years of age who died from cardiac collapse and who had never presented abdominal symptoms during life.

Of late such cases have been more frequently reported, the latest being by Betchov (*Revue m  dicale de la Suisse romande*, July, 1917). From examination of his own case and those more recently recorded, Betchov believes that they are instances of congenital hemiatrophy of the diaphragm, two cases in newly born children having been observed by Glaser. In the cases where the diaphragm was examined there was fatty degeneration of the few muscle fibers which still remained embedded in a fibrous tissue, and such changes cannot be attributed to the phrenic nerve.

This congenital defect, which does not appear to be frequently accompanied by other malformations, may be seated in either half of the diaphragm. It is uncommon on the right side and when occurring on the left this half of the diaphragm is forced up into the thoracic cavity while the stomach and other abdominal viscera become lodged in the area occupied by the heart, which in turn is pushed to the right. In these circumstances radioscopy shows that the involved half of the diaphragm is atrophied and offers a limited respiratory movement, while the right costo-diaphragmatic sinus follows an amplified inspiratory movement.

The affection may not cause any subjective disturbance during life, but in some cases it may result in gastric and peritoneal phenomena resembling strangulated hernia, these being probably due to the progressive torsion of the stomach which pivots around the fixed cardia. The infrequency of digestive disturbances is quite remarkable. Clinically, this affection may be mistaken for dextrocardia, either congenital or following a left pleural collection or hydropneumothorax.

TRINITROTOLUENE POISONING.

ACCORDING to an article by Hamilton in the *Journal of Medicine and Surgery* for September, 1917, there were 703 cases of TNT poisoning among munition workers in the United States during 1916, with 13 deaths. While the morbidity and mortality, as shown by these figures, are not very excessive in view of the large number of people now employed in munition factories, still the condition is sufficiently prevalent and important to warrant a much wider medical discussion than it has heretofore received on this side of the water. The probabilities are that during 1917 the incidence of TNT poisoning has been greater owing to the increased production of munitions consequent upon the entrance of America into the war. Aside from the actual number of cases recorded there is reason to believe that a considerable number go unrecognized, or are diagnosed as other diseases. The question then naturally arises as to what constitutes TNT poisoning. In this connection it might be stated that in Great Britain only cases which exhibit evidences of toxic

jaundice are reported to the health office. The series of 703 cases recorded in the United States last year include, in addition to the cases of toxic jaundice, those patients who displayed symptoms of toxic gastritis. A symposium on the subject, held before the Royal Society of England in January, 1917, brought out the fact that many munition workers suffer from mild symptoms of poisoning which may incapacitate them for a few days only, but that the severe form of the disease renders them unfit for further duty for a long period, if indeed they do not succumb to the pronounced toxemia.

There has been a great deal of discussion abroad anent the portal of entry of the poison. It is now conceded, however, that the skin and respiratory tract are the principal routes through which it gains access to the system. Which route takes precedence over the other has been the question in dispute. At one stage in the manufacture of the explosive, it occurs in a molten state, when fumes are given off that may be inhaled. The molten mass is poured into the shells and allowed to solidify. After this takes place the charge is planed and trimmed to the correct size and weight; holes are then bored to insert the detonators. These procedures lead to the formation of TNT dust, which settles on the skin or is rubbed into it, where the deleterious ingredients are readily absorbed. Oil on the skin facilitates absorption. It has also been shown that fumes are given off from the powder at temperatures as low as 32° C. (89.6° F.). These fumes are likewise susceptible of inhalation. It is interesting to note that cases of poisoning are most prevalent in the hot summer months. The weight of evidence so far adduced appears to be in favor of the cutaneous route over the respiratory as the chief portal of entry of the materies morbi. The gastrointestinal tract is said to play a role in absorption, but this channel is considered to be of secondary importance by the majority of authorities.

The early symptoms of TNT poisoning are often indefinite. Weakness, headache, unexplained cough, cramplike pains coming on suddenly in the legs, anorexia, nausea, and occasionally morning vomiting, are among the commonest met with. In severe cases the attack is ushered in by pain in the abdomen, jaundice, nervous manifestations, and coma. In some of the cases a progressive anemia of the aplastic type ensues. Dermatitis is relatively common, occurring in the form of a blotchy erythema with edema. Constipation is the rule, diarrhea being rare. The poison seems to have a cumulative action, and may show its toxic effects some time after the worker has left the factory. The largest number of cases develop in workers filling and finishing shells, as in these manipulations they are exposed to the dust and fumes to the maximum degree. The lesions found at post-mortem examinations are those of acute yellow atrophy of the liver, fatty changes in the kidneys and myocardium, petechial hemorrhages in the serous membranes and skin and in the yellow bone marrow. Frequently the blood is

bright cherry red in color and watery in consistency, with very little post-mortem thrombosis.

Treatment is purely symptomatic and chiefly eliminative. "An ounce of prevention is worth a pound of cure" is an adage which applies with particular force in this condition. The preventive measures employed are designed to minimize dust and fumes as far as possible by exhaust devices. Personal hygiene is important, especially attention to the skin and scalp. Gloves should be worn, and the scalp covered by a tightly fitting cap. Plenty of fresh air and good food are in order. Periodic alternation of shifts, so as to reduce the exposure to the poison, and prompt removal when toxic symptoms threaten, are essential.

WAR BREAD.

ALTHOUGH in this country there has been as yet no rationing and only suggestions as to the kind of bread that should be eaten, it is probably merely a question of time before certain rules will be laid down with regard to the consumption of food and to the best means for conserving the same. In Great Britain what is known as war bread has been in use for some months now, and it is interesting and instructive to acquire information regarding its effects on health. The composition of the war bread made in Great Britain differs from that of the ordinary bread manufactured from highly milled flour in that the latter contains only about 70 per cent. of the whole grain, the bran and germ being discarded. The milling regulations of the Food Controller of Great Britain make it compulsory for millers to extract 81 per cent. of the whole wheat grain in the form of flour; thus the inner layers of the bran or pericarp and some of the germ enter the flour. Dr. Robert Hutchison, writing in the *Practitioner* for December, 1917, points out that chemically the British Government regulation flour is undoubtedly superior to the old white flour. It is richer in protein, fat, mineral matters, and vitamins, but slightly poorer in starch. Experiments on the human subject have shown that there is no practical difference between the utilization of energy from "war flour" and the ordinary white flour, provided that the war flour is well milled.

However, the question of bread in Great Britain is still more complicated by the fact that in order to conserve the wheat supplies as much as possible millers have been empowered to add other cereals to the flour up to certain maximum limits. The cereals which have been chiefly employed for this purpose are corn, barley, rice, and oats. Of these, corn has come in for the most criticism, mainly no doubt because it is less familiar as an article of food than the others. Objections are made to corn on the grounds of flavor, which may be dismissed as unworthy of notice in wartime. Another objection which carries some weight is that corn is what is popularly spoken of as heating, that is, it tends to cause skin eruptions of an acneiform or urticarial nature. Hutchison says that the effect is appar-

ently not due to any chemical constituent of corn, and he believes that it is mainly a question of mechanical irritation of the stomach by particles derived from the husk of the grain, and that the skin lesions are produced indirectly through the vasomotor system, much as flushing of the face follows immediately in some people on the taking of alcohol. On the whole, then, Hutchison thinks that there is justification for the conclusion that there is nothing chemically injurious in the flour from which the war bread is made, and that any ill effects from it can be due only to imperfect grinding. Summing up the whole situation, Hutchison is of the opinion that it may be said with confidence that the only possible objection to war bread consists in its physical characteristics, lack of porosity, "doughiness," heaviness, etc., objections which exist to any important degree only in certain localities and in the bread produced by individual bakers, and which in any case can to a large extent be overcome by toasting the bread and by thorough chewing. It follows then that it is only in disorders of the alimentary system that the bread could produce any ill effects. Owing to its nourishing properties, and its chemical purity, it is inconceivable that disease elsewhere could be unfavorably influenced by it. Hutchison believes it to be a delusion that dyspepsia is caused by war bread. The author did not mention two points in which war bread is superior, from the dietetic standpoint, to white flour bread. These are that it does not tend to constipate as does the white-flour bread, and that on account of its consistency it requires more thorough mastication, thus promoting the action of the salivary glands and aiding the organs of digestion.

GENITOGLANDULAR DYSTROPHIES.

OF the various types of dystrophy and arrest of bodily and mental development it may be affirmed that in only a certain percentage is an endocrine factor surely present. Moreover, the majority of cases are not reported before the adult or at least adolescent period. These two facts confront us always when we attempt a close analysis of dystrophies. Any condition which can be termed infantilism cannot, of course, be studied in childhood nor can genital dystrophies be apprehended in advance of puberty whether normal or precocious.

In the notice of a Brazilian article by de Souza and de Castro in the *Revista de la Asociación Médica Argentina* for September, 1917, it is stated that 22 unpublished cases of genitoglandular dystrophy are reported, yet the reviewer does not mention the ages of the subjects. Whether it is proper to term such cases "glandular" in the absence of autopsy finds is a moot point.

By reason of their finds the authors isolate five types of dystrophy. In three of the subjects there was evidence of tumor of the hypophysis, but the exact complication of the glands does not enter into the classification beyond the fact that genital atrophy was constantly present. The arrangement

does not differ materially from that of ordinary classifications, the types comprising infantilism, gerodermia, eunuchoidism, and the adiposogenital and pleuriglandular syndromes. To these may be added the simple or uncomplicated type in which only the genital organs are involved.

The infantile type can be present only in those who have arrived at or passed puberty. The reviewer does not agree with the authors when they state that genital hypoplasia alone is sufficient to cause infantilism.

The senile and eunuchoid types are more or less mixed, and it is in these two forms—although the reviewer does not mention it—that the presence of an endocrine factor is often in doubt. In a series of cases of eunuchoidism recently published by Sterling, that author was very skeptical on this point. On the other hand, Froehlich's disease is always associated with the hypophysis. The pleuriglandular type is largely negative, residual, and comprises all cases which do not sort themselves under the preceding.

FECAL EVIDENCE OF GASTRIC INSUFFICIENCY.

THE stomach has the twofold office of protecting the segments of the gastrointestinal tract which lie beyond it and of preparing the food for further elaboration. Gastric juice is the only digestive fluid which can act upon the connective tissue of animal food and dissociate the vegetable cells with liberation of certain crystals. Whenever the stools show entire muscle fibers with their transverse striation, and fragments of potato or carrot along with crystals of oxalate of lime we may feel assured that there is present a state of gastric insufficiency consisting more especially of a defect in the production of hydrochloric acid. Other evidences of the same state of affairs are seen in a stool content of certain intestinal parasites in large numbers, such as *Ameba coli*, *Trichomonas intestinalis*, *Lamblia intestinalis*, etc. Still other evidences are visible in the color of the feces due to rapid oxidation of the bile pigment occurring upon exposure to air. Hence the stools, yellow on passage, become dark brown on the exposed surfaces, although fluid evacuations often occur. These observations of Goiffon in the *Archives des maladies de l'appareil digestif et de la nutrition*, 1917, No. 5, emphasize the extreme ease with which gastric insufficiency may be recognized with low powers of the microscope, although the treatment test of HCl in all suspicious cases is so readily available that the practitioner may spare himself the burdensome labor of fecal examination in many cases.

SURGICAL TREATMENT OF INTESTINAL STASIS.

THERE is still a good deal of difference of opinion as to the treatment of that condition known as intestinal stasis. Some believe that operative measures should be taken in a very large number of cases; some think that surgical intervention is almost always contraindicated, while others are of the opinion that strict conservatism should be the motto when dealing with intestinal stasis. In the *Annals of Surgery* for October, 1917, Dr. Albert J. Ochsner gives his views on the subject and discrim-

inates with regard to the cases requiring operation as follows: "After eliminating the very large number of patients suffering from intestinal stasis who are primarily neurotics and suffer from intestinal stasis only secondarily, who are practically never benefited by surgical treatment, and the still larger number of cases suffering from intestinal stasis who can be permanently relieved from this condition by exercise, hygiene, dietetic and carefully planned, long continued medical treatment, there still remains a very small class of cases in our experience comprising less than 5 per cent. of all cases suffering from intestinal stasis, which constitute a third and distinct class whose members are not primarily neurotics and who are in so intractable a condition of intestinal stasis that they cannot obtain relief from non-surgical measures." Ochsner is not in favor of the radical measures advocated by Lane and his followers and proposes an operation first described by him in 1916, with an additional step suggested by Dr. William J. Gillette of Toledo, Ohio. The point to which it is desired to draw attention here is that in Ochsner's opinion there are less than 5 per cent. of cases of intestinal stasis which call for operation, and, further, that when such intractable cases are met with, the operation performed should be as conservative as possible.

A GASTRIC TRIANGLE.

IT is somewhat curious, in these days, to learn that anatomists have overlooked, and consequently failed to describe, what is said to be a prominent and conspicuous triangle on the surface of the human body. Dr. George Elliott, who has traced the triangle, and who has described it in the *Dominion Medical Monthly* for December, 1917, terms it the umbilico-mammillary triangle. The base of the triangle is the line between the two mammillæ, its apex the umbilicus, its sides the lines connecting the umbilicus with the right and left mammilla respectively. The stomach can, therefore, be pictured lying behind the left half of the triangle; the fundus taking a sweeping curve up to and just below the apex of the heart; the lesser curvature, curving down to the pylorus, with its concavity to the right, and lying almost wholly in the left half of the triangle, the greater curvature curving to the left downward to or a little below the umbilicus, but running outside the left line.

As the pylorus lies under the liver, the lower border of the latter may practically be located at that point, one-third the height of the triangle up from the apex at the umbilicus. The pancreas may be pictured as lying deeper than the stomach, crossing the apical third of the triangle. Elliott points out that at the present time, in studying the landmarks of the apex of the heart, mitral and tricuspid valves, the cardia, the pylorus, fundus of the gall-bladder, as well as the locations for the incisions for the various operative procedures on the stomach, duodenum, and gall-bladder, the student is apt to become rather perplexed over these surface markings. If, then, all these organs can be grouped in relation to the umbilico-mammillary triangle, which is remarkably distinct, the student will have presented to him a clear clinical picture of the region in which these organs are situated.

News of the Week.

Street Fatalities Increase for 1917.—The National Highways Protective Association has issued its annual report showing that there were 837 deaths on the streets and highways of New York State, including New York City, during 1917, as compared with 729 deaths for 1916. In the State of New Jersey during 1917, 245 persons were killed by automobiles, an increase of only 20 over the preceding year. The increase in the percentage of deaths from street accidents was not as great in Massachusetts and Connecticut as in New York. Col. Edward S. Cornell, in commenting on the facts brought out by the report, states that there has been an increase of about 100 per cent. in the fatalities in New York, and points to the fact that there has been no legislation of importance enacted in New York State with a view to putting a stop to automobile accidents. In contrast to the large number of automobile accidents, it is noticeable that grade-crossing accidents do not increase at the same ratio as other highway accidents, there having been 98 persons killed at grade crossings in New York State in 1917, as compared with 82 in 1916 and 78 in 1915.

Office of Coroner Abolished in New York.—With January 1, 1918, the new law abolishing the office of coroner in New York and substituting that of chief medical examiner went into effect. Under the new law the police court, the district attorney, and the chief medical inspector do the entire work formerly performed by the coroners. Investigation will be made before the police magistrate in the district in which the case occurs, without jury. The chief medical inspector will receive reports from his deputies, these deputies taking the place of the old coroner's physicians. The deputies will take such cases as warrant it before the police magistrate. The new method of dealing with the cases that formerly required the services of a coroner will save time, energy, and money. Dr. Patrick D. Riordan, formerly a coroner, has been appointed chief medical examiner for New York City pending a new Civil Service examination of applicants for the position.

New York Health Department Regulates Laundries.—A report published some time ago by the Health Department gave the results of a sanitary and bacteriological investigation of the laundries of New York City. This study showed clearly that there was need of the adoption and enforcement of definite regulations in order to safeguard the health of those engaged in the laundry industry and of the public at large. Definite regulations were adopted by the Board of Health on December 19, 1917. These regulations relate to the character of the floors, light, and ventilation of the laundries, require the provision of suitable water closet accommodations, and of safety devices on all machinery. A part of the regulations deals directly with the methods of handling the clothing.

The Federation for the Support of Jewish Philanthropic Societies held a meeting at the home of Adolph Lewisohn, in New York, on January 4, at which several hundred directors and trustees of local Jewish institutions were present and discussed ways and means of conducting a campaign

to raise \$4,500,000 during the coming year. The fund hitherto has been supported largely by a few wealthy contributors. It was decided that the increasing burden should be more widely distributed, and to this end it has been planned to conduct a campaign to increase the membership of the federation. Mr. Lewisohn has agreed to increase the amount of his contribution from \$40,000 to \$50,000 provided the membership can be increased to 50,000. A campaign will be begun on January 14.

Dr. Edward F. Brush has been elected Mayor of the City of Mount Vernon, and assumed the duties of his office on January 1. The election will be contested, however, as Dr. Brush's majority was only seven.

Dr. Ellwood R. Kirby of Philadelphia has been appointed physician to the Eastern State Penitentiary of Pennsylvania.

Dr. Alvane C. Seely of Roseburg has been elected president of the Oregon State Board of Health.

The Harvey Society.—The fifth lecture of the series will be held at the New York Academy of Medicine on Saturday evening, January 12, 1918, at 8.30 p. m., by Prof. Henry C. Sherman of Columbia University. Subject, "Food Chemistry in the Service of Human Nutrition."

The Fourth Cuban Medical Congress was held at Havana December 16-22, 1917, with an attendance of over 1,400 members. The *President* of the executive committee was Dr. A. Agramonte; *Secretary*, Dr. Francisco M. Fernandez; *Treasurer*, Dr. J. P. Alacán. The congress was opened on December 16 by the Secretary of Public Health. On December 17 there was a general session. The official subjects treated were as follows: "A Study of the Blood Pressure in Cuba," by Drs. Albertini and Montoro; "Penetrating Gunshot Wounds of the Abdomen and Their Treatment," by Drs. Ortiz and Carrerá; "A Study of the Vital Statistics in Cuba," by Dr. Fosalba; "The Mouth and Diseases of the General System," by Dr. M. Weiss; "Conservative View in Cancer of the Larynx," by Dr. E. Martinez. In the afternoon all the sections of the Congress, eight in number, held their special sessions, a large number of papers being read and discussed. In the evening there was a special session in the Clinical Society, Dr. Aballí reading a paper on "Tuberculosis of Children." On December 18, the day was given to an excursion to the Vento water works, an address being given there by the Director of the National Laboratories, Dr. A. Recio, and a lunch being served afterward. In the evening the sections held their sessions. On December 19, the morning was dedicated to visiting the different hospitals and private clinics, where a series of operations were performed. In the afternoon there was held another general session, in which the following themes were discussed: "Heredity as a Factor in Heart Diseases," by Dr. Filomeno Rodriguez; "Cataract Operation," by Dr. J. Santos Fernandez; "A Comparison Between Excision and Gastroenterostomy in the Treatment of Gastric Ulcer," by Dr. R. Nogueira; "School Hygiene," by Dr. R. Carbonell, and "The Study of the Independent Circulatory Systems in Physiology," by Dr. F. Hernandez. In the evening over 800 members attended the formal banquet held at the Sevilla Hotel. On December 20 in the morning there was another

general session, the following papers being read: "Treatment of Gastrointestinal Disturbances of Infancy," by Dr. A. Aballí; "Obstetric Analgesia," by Dr. G. Cuervo; "On the Right of the Pharmacists Not to Dispense a Prescription," by Dr. G. Fernandez Abreu; "A Study of the Composition of the Blood in Cuba," by Dr. L. Plasencia, and "State Inspection of Animal Foods," by Dr. J. San Martin. In the afternoon several sections had their sessions and in the evening there was a musical recital. On December 21, after the sections had made their recommendations to the Congress, elections were held for the executive committee of the next Congress, the officials elected being: *President*, Dr. José A. Presno; *Secretary*, Dr. Francisco M. Fernandez; *Treasurer*, Dr. G. Fernandez Abreu. On Saturday, December 22, in the morning there was held the last general session of the Congress, at which a number of recommendations were adopted. In the evening the Congress was formally closed by the President of the Republic.

The St. Louis Medical Society has elected the following officers for 1918: *President*, Dr. Elsworth Smith; *First Vice-President*, Dr. P. G. Hurford; *Second Vice-President*, Dr. Rudolph Duhman; *Secretary*, Dr. Arthur Gundelach; *Council*, Drs. M. A. Bloss, P. Y. Tupper, A. H. Hammel, and F. C. Baldwin.

The Southern Surgical Association, at its meeting in St. Augustine, Fla., on December 20, elected the following officers: *President*, Dr. Isaac S. Stone of Washington, D. C.; *Vice-Presidents*, Dr. Legrand Guerry of Columbia, S. C., and Dr. Carey P. Rogers of Jacksonville, Fla.; *Secretary*, Dr. Hubert A. Royston of Raleigh, N. C.; *Treasurer*, Dr. Guy L. Hunner of Baltimore, Md.

The Cumberland County Medical Association, at its annual meeting in Portland, Me., on December 21, elected the following officers: *President*, Dr. C. B. Sylvester of Harrison; *Vice-President*, Dr. Nathaniel N. Marshall of Portland; *Secretary*, Dr. Harold A. Pingree of Portland; *Censors*, Drs. Daniel Driscoll, Frank Y. Gilbert, and George B. Swasey, all of Portland.

The Christian County Medical Society, at its meeting in Hopkinsville, Ky., on December 20, elected the following officers: *President*, Dr. L. R. Woodard; *Vice-President*, Dr. F. M. Stites; *Secretary-Treasurer*, Dr. J. W. Harned.

Ruling to Supply Milk to Children First.—The Local Government Board of England has formulated a ruling providing that local authorities throughout England be empowered to supply milk to nursing mothers, infants, and young children before supplying others. Legislation will be introduced at an early date to give effect to this ruling. In the meantime the board has given consent to local councils incurring reasonable expenditure in providing gratuitously or at cost price milk for infants and children attending welfare centers who are artificially fed and whose parents cannot afford to pay for their nourishment. Many of the large cities have decided to take advantage of the Government concession in the interests of the children. In some cases the loss on the sale of the milk will be met by a special fund and in others by a small addition to the rates.

New York Takes Count of Food Supply.—The

United States Department of Agriculture has designated the Health and Police Departments of the city to distribute and collect the schedules of the food supply in this city. An accurate accounting of all the food stuffs on hand in the 45,000 stores of the city was begun on December 31. This is part of a nation-wide inventory to determine the food supply on hand in this country at the present time.

Continuance of the Mayor's Committee.—Mayor Hylan has requested the Mayor's Committee on Hospital and Medical Facilities, which was organized last year for the purpose of coordinating the hospital facilities of the city for war purposes, to continue its activities, and has asked Dr. S. S. Goldwater to continue to act as chairman of the committee.

Gifts and Bequests.—Mrs. E. H. Harriman has donated the \$500,000 Eugenic Records plant at Cold Spring Harbor, L. I., to the Carnegie Institution at Washington, D. C. The gift includes eighty acres of land, fine buildings, and the valuable records already compiled. Mrs. Harriman has also provided a fund yielding \$12,000 a year to assist in the maintenance of the work. This conveyance is made to insure a permanent continuance of the work.

The Altoona Hospital of Altoona, Pa., is the recipient of a bequest of \$50,000 by the will of Mrs. Harriet Prevost of Philadelphia.

The Babies' Hospital of New York has received a contribution of \$4,000, the proceeds of a musical benefit.

Obituary Notes.—Dr. MOSES J. JACKSON died at his home in New York on January 1, 1918, aged 68 years. He was graduated from New York University in 1892 and served as coroner from 1902 to 1905. He was a member of the New York Academy of Medicine and the Medical Society of the County of New York.

Dr. GEORGE AUGUSTUS OSTRANDER, one of the oldest physicians and surgeons of Brooklyn, died at his home in that city, on December 26, aged 83 years. He was graduated from the College of Physicians and Surgeons, New York, in 1858, and was the first house surgeon of the Long Island College Hospital. He was a charter member of the Medical Society of the County of Kings.

Dr. PAUL S. KAPLAN of New York City died of pneumonia in Beth Israel Hospital, on January 6, aged 70 years. Dr. Kaplan was graduated from the University of Berlin in 1894. He was an exile of Russia, where he had been engaged in revolutionary work and was active in assisting other revolutionists who came to this country. He was greatly beloved on the lower East Side of New York because of the generosity with which he gave his medical services to the poor.

Dr. CHARLES WELLMAN MITCHELL of Baltimore died of pneumonia at his home in that city, on December 28, aged 59 years. He was a graduate of the University of Maryland School of Medicine, in 1881, and professor of pediatrics in that institution.

Dr. ISIDOR JUFE, a graduate of Würzburg University, Germany, in 1886, died suddenly at his home in New York, on December 28.

Dr. MASON LOCKE WEEMS, a graduate of the University of Pennsylvania, in 1890, died at his home in Columbia, Tex., on December 11, aged 50 years.

Dr. HUGO SUMMA, a graduate of the University of Munich, in 1884, died suddenly of heart disease at his home in St. Louis, on December 15, aged 68 years.

Dr. WILLIAM JOSEPH HEARN, emeritus professor of Clinical Surgery of Jefferson Medical College, died at his home in Philadelphia, on December 21, at the age of 75 years. He was graduated from Jefferson Medical College, in 1867.

Dr. WILLIAM L. GALLOWAY of St. Louis, Mo., died suddenly after a surgical operation at Barnes Hospital, on December 15, aged 57 years. He was graduated from the Boston University School of Medicine in 1888.

Dr. JOHN WEAVER LUTHER of Palmerton, Pa., a graduate of the University of Pennsylvania, in 1895, died suddenly in Jacksonville, Fla., on December 28, aged 42 years.

Dr. ALBERT HOLMAN, a graduate of Jefferson Medical College, Pa., in 1881, died of apoplexy at his home in Butler, Pa., on December 13, aged 64 years.

Dr. JOHN B. WILLIAMS of Sterlington, La., a graduate of the University of Tennessee Medical Department, in 1909, died, on December 6, aged 34 years.

Dr. THOMAS BAKEWELL HEGEMAN of Brooklyn, a graduate of the College of Physicians and Surgeons, New York, in 1890, died suddenly, on December 20, aged 59 years.

Dr. JOSEPH PRICE REMINGTON, dean of the Philadelphia College of Pharmacy, died on January 1 at the age of 70 years. Dr. Remington was a member of the revision committee of the United States Pharmacopoeia since 1880, president of the first international pharmaceutical convention in 1893, author of Remington's "Practice of Pharmacy," a Fellow of the Royal Microscopical Society, the London Chemical Society, the Linnaean Society, and an honorary member of twenty-eight foreign and American pharmaceutical and medical bodies.

Dr. CHARLES WINGATE BADEAU, a graduate of New York University Medical College, in 1869, formerly of Passaic, N. J., died at his home in Dunedin, Fla., on January 3.

Dr. AIME M. BLOSSOM died suddenly at the home of her daughter in Montclair, N. J., on December 29. She was a graduate of the Western Reserve Medical College, Cleveland, in 1893. She formerly practised medicine at North Adams and Nantucket, Mass.

Dr. SAMUEL W. TORREY of Beverly, Mass., died after a short illness at the Beverly Hospital on January 1, aged 74 years. He was graduated from the College of Physicians and Surgeons of Columbia University in 1868 and was one of the founders of the Beverly Hospital.

Dr. ALBERT DEXTER KINGSBURY of Needham, Mass., died suddenly while making a professional call, on December 26, aged 75 years. He was a graduate of the Georgetown University School of Medicine, Washington, D. C., in 1869, and a Civil War veteran.

Dr. EARL B. MAXWELL of Findlay, Ohio, died at St. Vincent's Hospital, Toledo, Ohio, of surgical shock following an operation for cervical adenitis, on December 25, aged 30 years. He was a graduate of the Boston University School of Medicine, in 1914.

Correspondence.

THE RED CROSS INSTITUTE FOR CRIPPLED AND DISABLED MEN.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR: The Red Cross Institute for Crippled and Disabled Men is organizing in New York City an institution to provide for the physically handicapped the special instructional opportunities which will make the cripple productive, and the special placement facilities which will secure for him the right type of employment.

We are anxious to have referred to us by physicians, particularly in the New York district, but in exceptional cases from other sections of the country, men who would profit by such opportunities as the institute may offer. Almost every medical man will be acquainted with some cases whose need is industrial rather than therapeutic; men who have reached the stage of medical finality, but who will require special training or adaptation to enable them to regain the status of self-support.

The cases which can profit by reeducational work are varied in character. The most obvious are amputation cases, but others readily suggest themselves: severe rheumatism, Pott's disease, paralysis of individual members. For all such cases the benefits of the specialized industrial educator should supplement the work of the surgeon.

We shall appreciate from members of the profession reference of any men to whom we might possibly be helpful.

DOUGLAS C. MCMURTRIE,
Director.

311 FOURTH AVENUE.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 27, 1917.

1. Report of Treatment of Carcinoma of Cervix at the Huntington Hospital for Period of Four Years. Edward H. Risley and George A. Leland.
2. Normal Weight. Horace Gray and K. M. Gray.
3. The Immoral Woman as Seen in Court: A Preliminary Report. V. V. Anderson.
4. The Differentiation of Psychotic from Neurotic Conditions. Donald Gregg.
5. The Urobilin Content of the Feces as a Measure of Rate of Blood Destruction. Francis H. McCrudden.
6. Pulmonary Puzzles. John B. Hawes, 2nd.
7. The Diagnostic Importance of Recognizing the Absence of the Epileptic Make-up in States Simulating Idiopathic Epilepsy. L. Pierce Clark.
8. The Use of the Hemostat in Tonsil Operation. Joseph Penn.

3. The Immoral Woman as Seen in Court: A Preliminary Report.—V. V. Anderson, in his work as Medical Director of the Municipal Court, Boston, has made a study of this type of woman for the purpose of securing facts for orientation. No other basis for selection was required than that each individual should have been arrested for an offense against chastity. An effort was made to examine each woman more or less in the order in which she appeared in court. In all about 100 women were examined. The group selected contained 56 first offenders, 25 second offenders and 19 recidivists. All told, 81 per cent. were either first or second offenders. The average age was 26 years. Alcoholism was found in 34 persons, and drug addiction in 12. Forty-nine per cent. had a mental level below 12 years; 51 per cent. were above 12 years. Forty-eight per cent. were suffering from serious mental handicaps, among which feeble-mindedness ranked highest (30 per cent.). Forty-four per cent. were in poor or bad physical condition from diseases other than venereal, and were in need of medical treatment. More

than three times as many persons who were regularly employed were found in good or fair physical condition as were found in poor or bad physical condition. Anderson considers the restoration of an individual's health might well be one of the most effective means for securing successful probation in her case; for the woman in bad health stood about one-third the chance of the woman in good health for regular employment. Syphilis and gonorrhea were found present in 61 per cent. of these cases. There is no satisfactory method of selecting the particular individuals among known immoral women in court who should and who should not have an examination for venereal disease, for the first offender is just as liable to be infected as the common prostitute. In these cases 66 per cent. of the first offenders were suffering from syphilis or gonorrhea. There is a very high correlation between the frequency of offense and the mental condition of these individuals. Thirty-nine and three-tenths per cent. of first offenders, 47.2 per cent. of second offenders, and 84.2 per cent. of recidivists were suffering from serious mental handicaps. Preventive criminology looks toward the ascertainment of the mental condition of such offenders in advance of their treatment. Taking the group as a whole, about 27 per cent. were in such good physical and mental condition as would enable them, under probation, to return to the community. Twenty-five per cent. were, from a mental point of view, capable of adjusting themselves under well-planned probationary supervision, but were physically in need of urgent medical treatment. Twenty-nine per cent. were suffering from such mental handicaps as to render it unlikely that they would conduct themselves normally in the community unless under very special probationary supervision—supervision suited to the peculiar needs of each case. Nineteen per cent. were in such poor or bad mental condition, and such poor or bad physical condition as to render any attempt at outside adjustment inadvisable, and were in need of prolonged treatment under detention.

New York Medical Journal.

December 29, 1917.

1. The Removal of Steel Particles from the Interior of the Eye by the Magnet. Frank Allport.
2. Care of the Eyes. A. Edward Davis.
3. Exophthalmic Goiter. Charles Scott Miller.
4. Childbirth and Its Ancient Customs. Joseph H. Marcus.
5. Lateral Sinus Thrombosis. A. Spencer Kaufman.
6. Report of Experimental Work in the Production of an Antituberculous Serum. Max Staller.
7. Physical Training and Hygiene for Busy People. Leonard Felix Fuld.

3. Exophthalmic Goiter.—Charles Scott Miller states that, statistically considered, diseases of the thyroid body are classified as exophthalmic goiter, No. 51 of the International Classification of the Causes of Death; tuberculosis, No. 34, classified as tuberculosis of other organs; cancer, No. 45, as cancer of other organs; and No. 88, or diseases of the thyroid body. Some conception of the relation of exophthalmic goiter to the other classifications may be gained by comparing the mortality registered for Philadelphia, 1906 to 1915, inclusive. Of all diseases of the thyroid gland from 1906 to 1915, inclusive, the proportion of exophthalmic goiter to other diseases of the thyroid is three to one. Inasmuch as the first class occupies a ratio of three to one to the other classifications, we may take it as an index of the relative mortality due to affections of this gland. Diseases of the thyroid are on the increase, as evidenced by a study of statistical tables. Miller submits a study of 5,230 deaths from exophthalmic goiter. The data cover three groups of statistics and vary somewhat in period of time because of lack of facilities for making a more extensive summary. As a result of this investigation Miller has found that diseases of the thyroid are on the increase for all areas considered. The age period of forty to forty-nine years gives the greatest mortality. The female sex is predisposed. Colored persons are not as susceptible as white persons. The rate for residents of cities is almost uniformly higher than for rural districts. Geographical location has no bearing in goiter prevalence. The water-borne theory of infection has not been satisfactorily demonstrated experimentally or statistically. The same applies to foodstuffs. Judging from the mortality rates, the density of population has little

or no effect on the prevalence of goiter. Geological formation does not affect the prevalence. Miller's conclusions are that the present indications show that goiter is noninfectious and is not caused by a foreign toxin introduced into the body either by food, drink, or other means. Inasmuch as it develops in persons subject to nervous strain, possibly due to their environmental influences and at a period of life when this strain is most acute, and from the indications of overactivity of this gland as presented normally in certain states of health, as pregnancy and menstruation, it is reasonable to infer that all causes point to the development of some poison within the body, due to faulty metabolism. In turn, this faulty metabolism of the body chemistry is influenced by the habits and life of the individual. Therefore the theory of nervous enervation or nervous control, as being directly responsible for the development of goiter in its various forms, and the nervous symptoms manifested in a well developed case are in turn secondary to the reflex effect of the goiter which constitutes a vicious circle.

Journal of the American Medical Association.

December 29, 1917.

1. Transfusion of Unmodified Blood: An Analysis of One Hundred and Sixty-Five Cases. Lester J. Unger.
2. The Biologic Classification in Pneumococcal Infections. C. C. Hartman and G. R. Lacy.
3. A Uniform and Generally Applicable System for Reporting Surgical End-Results. E. MacD. Stanton.
4. An Unusual Case of Acute Myelogenous Leukemia. H. Theodore Simon and Maurice S. Rosenthal.
5. Weber's Syndrome, with Report of a Case. G. B. Hassin.
6. Uterine Rupture Following Anterior Hysterotomy. Roscoe R. Kahle.
7. Frostbite as a Predisposing Factor in Carcinoma of the Ear. Richard L. Sutton.
8. A Statistical Study of Leprosy in the Philippine Islands from the Histories of Ten Thousand Cases Isolated in the Cullion Leper Colony. Oswald E. Denney.
9. Leiomyoma of the Appendix: Report of Two Cases. Laurence D. Redway.
10. Brachial Neuritis and Sciatica. Hugh T. Patrick.
11. Torula in Man: Report of a Case with Necropsy Findings. Philip H. Pierson.
12. The Toxicity of Neodiarsenol. Erwin P. Zeisler.

7. Frostbite as a Predisposing Factor in Carcinoma of the Ear.—Richard L. Sutton points out the fact that areas of skin that have been subjected to frostbite, and especially to repeated frostbite, are abnormally susceptible to cancerous involvement. The parts commonly involved are the ears, particularly the helixes, and the cheeks. A study of forty-six cases of seborrheic keratosis involving the ears and cheeks, occurring during the past year, elapsing Nov. 1, 1917, gives a history of frostbite in twenty-seven. Of this latter number twenty-one presented one or more malignant growths on the affected areas. The majority of the seborrheic keratoses were of the keratoid type. Almost 90 per cent. of the carcinomas were of the basal cell variety. In three instances both the basal and squamous cell varieties were represented. Sutton considers that repeated exposure to very low temperatures tends also to reduce local resistance to the progress of the malignant growth, and thus becomes a factor in prognosis as well as in etiology. He says that the most important prophylactic measure is, of course, adequate protection of the parts commonly attacked. Should keratoses develop, the frequent application of an ointment containing small amounts (from 1 to 5 per cent.) of salicylic acid may be tried. In some instances, double this proportion of sulphur may also be advantageously added. In more advanced cases, suspiciously or frankly malignant, radium usually serves admirably, and possesses the great advantage of leaving the skin in a practically normal condition. In attacking squamous cell growths of the ear, and especially if the associated lymph nodes are involved, radical excision is, in his experience, the method of choice.

The Lancet.

December 8, 1917.

1. A Consideration of Recent Serological Work on the Meningococcus. F. W. Andrews.
2. Two Cases Illustrating Plastic and Dental Treatment. H. D. Gillies.
3. A Few Notes on the Treatment of Gunshot Wounds of the Mandible and Maxilla. W. Kelsey Fry.

4. A Case of Traumatic Pericarditis Due to a Needle. Arthur J. Hall and J. B. Ferguson Wilson.
5. Diaphragmatic Hernia: With Report of a Case of the Acquired Condition. L. M. Murray, C. M. Gill, and J. D. Morgan.
6. Outbreaks of Plague on S. S. Sardinia and Matiana, 1917. W. M. Willoughby.

1. A Consideration of Recent Serological Work on the Meningococcus.—F. W. Andrews considers that one of the difficulties which beset attempts at the classification of bacteria is the fact that within the limits of what, on general biological grounds, would be deemed a good "species" there are often subspecies or races which differ only in their serological properties. One of the latest organisms to be submitted to close serological scrutiny is the meningococcus, because the recent outbreak of cerebrospinal fever has brought it into prominence. The state of definite knowledge on this subject when the outbreak of cerebrospinal fever in England began to assume epidemic dimensions was briefly as follows: That the causal agent in this disease and in the endemic posterior basal meningitis of infants was the meningococcus. No cultural distinctions could be made between the cocci found in these two affections, nor could any adequate or constant serological differences be established between them. That the meningococcus was divisible into certain subgroups by serological means, and notably by the absorption of agglutinin tests. The number of subgroups was ill-defined, but they appeared to fall into two main divisions, designated by Dopter "meningococci" and "parameningococci," respectively. That from the pharyngeal mucus, both of contacts and non-contacts, cocci could often be cultivated which had all of the biological characters of the meningococcus. In some cases complete serological identity with that organism could be established; in other cases it could not, and some writer stigmatized such unplaced forms as "pseudomeningococci." Andrews gives a résumé of the recent research work done in England, which was prompted by two immediate needs. The first was the provision of an adequate antiserum for treatment, and the second was the provision of means for recognizing the meningococcus, especially in the pharyngeal secretions. The work has been carried out by two independent groups of observers in England, a military and a civil. The military research was conducted under the guidance of Lieutenant-Colonel M. H. Gordon, at the Central Cerebrospinal Laboratory at Millbank. On the other hand, the Local Government Board turned the energies of its bacteriologists in the laboratories at Carlisle Place to a detailed study of the meningococcus from a more abstract point of view, but with special reference to the nature of such cocci from the pharynx of non-contacts. Their material came from the civil population, while that of the military investigators came from the army. Andrews states that the results of Gordon and his coworkers have the advancement in practical measures of diagnosis and treatment, including an improved culture medium adapted for general use and greatly improved methods for the cure of carriers. He refers, chiefly, however, to one branch of their work, that relating to the serological differentiation of meningococci. This was accomplished by means of the absorption of agglutinin method applied to a large number of spinal strains. By this means Gordon separated the strains into four groups, of which two were common and two comparatively rare, though sometimes numerous in certain local outbreaks: he termed them Types I, II, III, and IV. Later experience showed that substantially all the spinal strains met with in military cases of cerebrospinal fever could be referred to one or another of these types, which were very properly regarded as the "epidemic types" concerned in the existing outbreak. It was also shown that by mere agglutination tests, quantitatively carried out, a coccus could almost always be referred to its type, without the necessity for absorption tests. Certain results of much practical importance followed the application of this knowledge. (1) By supplying typical strains to those engaged in making serum for therapeutic use, sera were prepared of greatly increased efficacy in treatment. (2) It was demonstrated by several workers that the type of meningococcus invariably present in the pharynx early in the disease was always the same as that found in the cerebrospinal fluid. This

not only confirms the idea that the disease is spread by means of the nasopharyngeal secretions, but also suggests that every case of cerebrospinal fever arises in a person who is already a carrier. (3) It became possible in many cases to trace the spread of the disease by the identification of carriers bearing given types of the coccus, thus facilitating epidemiological investigations. (4) When the carriers in any locality became too numerous to deal with, a test was afforded by which the carriers of epidemic types of the coccus could be sorted out, as presumably the most dangerous, and separately treated. It will be realized that this serological work had a direct bearing on the immediate control of the disease among the military population, and it was remarkable for the energy and rapidity with which it was carried out. It has been supplemented since by further experimental observations supporting the more or less specific nature of the bodily reactions against the four types of meningococci. Andrews disagrees with Gordon because Gordon speaks of his four types as "species"—a claim which Andrews contends no biologist could support—and excludes from the true meningococci those pharyngeal strains which fail to agglutinate with his four type sera, calling them "pseudomeningococci." During the past two years Andrews submitted the cocci from all cases of cerebrospinal fever at St. Bartholomew's Hospital to agglutination with the four sera kindly supplied him from time to time by Major Hine at Millbank. Twenty-six cases have been in children under 5 years old, and 8 of these have agglutinated so poorly with the sera that he could not regard them as conforming fully to the types—one, indeed, failing to agglutinate at all. Although eighteen of the cases did conform to one or other of the four types, he believes that the meningococcus in the posterior basic meningitis of infants not rarely presents strains which differ from those of the epidemic form of the disease in adults. And if this is so the pharyngeal cocci from non-contacts cannot necessarily be excluded from the group of true meningococci on serological grounds alone. The most which we can legitimately assert is that such non-conforming or imperfectly conforming cocci are not examples of the epidemic types seen in adults during the present outbreak. The Local Government Board were unable to recognize more than two main serological groups of the coccus, and these they found connected by transitional and debatable forms. Andrews further states that so far as the number of groups is concerned the difference is apparent rather than real, for Gordon admits relationship between his Types I. and III., which are often brought down by the same serum, though unequally, and similarly between his Types II. and IV. Andrews offers the following working hypothesis drawn from the present state of knowledge of the meningococcus. The meningococcus is a single, definite species, recognizable by its cultural characters and fermentative reactions, and widely spread as a pharyngeal saprophyte—often a transitory one. In its most primitive form it is a relatively harmless organism, but even at this stage its protein presents two antigenic components. These two components are rarely evenly balanced, and from a serological point of view there emerge two primary races of the coccus—Group I. and Group II.—which correspond to the meningococcus and parameningococcus. The latter term is a misnomer since both are true meningococci. The term pseudomeningococcus is equally erroneous; so far as it has any meaning it signifies a meningococcus of primitive type and low pathogenic power. Under ordinary circumstances the bulk of the saprophytic meningococci of the pharynx are of this low type and mostly fall under Group II., though some are indeterminate. Even in non-epidemic times certain strains of these simple cocci possess sufficient virulence to attack the very young; hence we always have with us sporadic cases of cerebrospinal meningitis. For unknown reasons there is a tendency at times for certain strains to increase in virulence, and this is accompanied by an increased complexity in the structure of the antigen, taking different forms in different strains; it is not known whether the increased complexity is due to the increased virulence or vice versa. The phenomenon is seen in both primary groups, but, on the whole, more in Group I. than Group II., so that, whereas in the less virulent forms Group II. is

the commoner, in the more highly virulent ones the proportions become more equal. When cerebrospinal fever attains epidemic prevalence the virulent strains concerned stand out with relative but not absolute distinctness. The strains in question are possibly different in different epidemics: in the recent outbreak in this country four such strains are recognizable, two belonging to Group I. and two to Group II. The serological recognition of such epidemic types is of manifest importance, both for the preparation of suitable therapeutic sera and for the sorting out of the more dangerous types of carrier.

British Medical Journal.

December 8, 1917.

1. A Contribution to the Study of War Nephritis. J. Shaw Dunn and J. W. McNee.
2. On War Nephritis and Some Circumstances Incidental Thereto. Thomas Oliver. With a Report on the Solubility of Plain Lead and Antimonial Lead. T. Maltby Clague and A. J. Watson.
3. On the Hemagglutination Reaction as a Test of the Toxicity of Various Antiseptic Reagents. C. J. Bond.
4. Notes on Painless Childbirth. (Hyoscine, Scopolamine, and Morphine). W. A. Potts.
5. Observations on Painless Childbirth: With Notes of Fifty Consecutive Cases Treated by the Hyoscine (Scopolamine) and Morphine Method. Margaret Vivian.

1. A Contribution to the Study of War Nephritis.—J. Shaw Dunn and J. W. McNee made a study of the cases of acute nephritis met with in the English troops in France since the beginning of 1916. The work has been carried out entirely in the zone of an army, and all of the cases seen in field ambulances and casualty clearing stations have been men from the trenches or from the area within a few miles behind them. The cases have all been observed at an early stage, often within a day or two of the onset of symptoms. They state that severity of weather has had no effect on the returns. Their results show the following conclusions: (1) One of the most characteristic clinical features of war nephritis is the early occurrence of dyspnea, which, though often pronounced, may not be adequately accounted for by any pulmonary condition recognizable from physical signs. (2) The rapidity with which the initial symptoms of the nephritis may subside, after admission of patients to hospital, is remarkable. It is frequently so striking as to suggest that the mere transfer of the patient has brought about discontinuance of the circumstances which caused the disease. (3) From a consideration of the pathological conditions no direct conclusion has been drawn regarding etiology, but some important facts have been ascertained. The visible alteration in the kidneys which is most constant and distinctive is limited to the capillary blood vessels of the glomeruli. The absence of definitely inflammatory reaction in these structures, and the uniformity and selective distribution of the lesions, suggest that they are due to the presence, in the blood stream, of a mildly irritant agent with a special effect on the smaller blood vessels. The edema of subcutaneous tissue, and the vascular lesions in the lungs and the brain are probably due to the same factor. The renal glomeruli may suffer especially by virtue of their specific function in excretion. So far no positive evidence has been obtained which would point to organisms as the primary source of the damage of vessels.

Archives Médicales Belges.

November, 1917.

Renal Eliminations.—Ambard of "coefficient" renown, now on the Belgian front, writes upon this subject along the lines followed in a recent Paris thesis, which he doubtless inspired (*Chabamer Étude sur les lois numériques de la sécrétion rénale*). Physiology still contradicts itself as to the concentrating function of the kidneys, for some substances appear in the urine in a concentration lower than that of the blood. In other words, there are substances eliminated which the kidneys are unable to concentrate. In this class, the kidneys behave as an inert membrane. The author terms this form of elimination *diffusion* in contradistinction to secretion proper, in which there is concentration. In order to understand what is meant by this

term, let us ponder upon the normal urea content of the blood, which is 0.35 per 1,000, in contrast with the urea content of the urine, which is say 25 per 1,000. We shall then realize that the kidneys concentrate urea eighty fold. Or let us take a foreign substance, iodine, when given in a dose of 1 cgm. Since the drug reappears in the urine to the extent of 0.35 per cent, the kidneys have concentrated it thirty-six fold. With a substance like sodium chloride, which is an essential part of the plasma, this mode of reckoning is of course inapplicable. Of the 6 per 1,000 parts of salt in blood plasma, only a small fraction can be thought of in connection with concentration of the kidneys. Substances like glucose and albumen are still more difficult to consider. When the former reaches a blood concentration of 3 per 1,000 there is an immediate entrance of glucose into the urine. May we postulate that when the blood albumen exceeds a concentration of 80 or 90 per 1,000 by a certain margin the excess enters the urine? Suppose this margin ends at 110 per 1,000 and that leakage begins at 111. This view seems plausible under certain conditions, but we know that heterologous albumen is excreted not on these grounds but because it is something alien to the blood. In the albuminuria of cardiacs we have a right to think of the elimination of an excess; while in the albuminuria in nephritis we are doubtless dealing with albumen foreign to the economy—excrementitious albumen. The reader will have noted an apparent discrepancy in dealing with the two substances urea and NaCl. Both occur in the blood as constants, yet we have spoken of the entire urea as concentratable, while only a modicum of sodium chloride can be thus spoken of. The differences are obvious for the normal residual urea is not essential to the integrity of the blood. Urea is all excrementitious, yet owing to the conditions under which it enters the blood some of it must always be present therein. On the other hand, NaCl is an integral portion of the blood and only a certain excess can be regarded as excrementitious.

La Presse Médicale.

November 22, 1917.

Some Recent Researches into the Functions of the Suprarenal Glands.—Roger calls attention to the old belief that the importance of an organ bears a relation to its size. Galen recognized that so large an organ as the liver must have other functions than the mere secretion of bile. But not until after Addison's time was it fully understood that a small, obscure organ could be of vital significance, although Brown-Sequard showed that extirpation of the adrenals was promptly followed by death. The discovery of this great pioneer was overlooked and years elapsed before it was taken up in earnest. After Oliver and Schaefer had experimented with suprarenal extracts Takamine isolated adrenalin which later was made by synthesis. Trendelenburg showed that the blood normally contains only one one-thousandth of a milligram per liter of this substance, yet this mere trace maintains the blood pressure, and whenever the content is reduced the adrenals contribute a reserve supply. Thus the paralyzing effects of fear are short lived. The author causes embolism in animals by injecting an insoluble powder (lycopodium) into the vessels and shows that the resulting fall of pressure is quickly compensated. Thus in a given rabbit the injection caused a fall of pressure from 100 to 68, but this was succeeded in six seconds by overcompensation to the extent of 164. In fourteen seconds it was down to 146 and fell slowly from this level for about half an hour when it attained an equilibrium of 120-124. Thus the embolism causes a permanent pressure-rise. Roger has sought more light on this phenomenon by extirpating the capsules. With proper technique this either does not affect the blood pressure or at most sends it down to about 80 or perhaps 70. Injection of lycopodium causes a fall of pressure as in intact animals, but this is slight and transitory, as is also the compensatory rise of pressure. The actual result is a progressive lowering without further attempts at compensation. This line of experiment shows that adrenaline acts not only on the peripheral vessels through the vasomotor system but

also upon the myocardium. Studied from all angles from the viewpoint of the double innervation of the heart the author is forced to the conclusion that in nature the adrenal excretes a second substance antagonistic in its activity to adrenalin. Hence injections of pure adrenaline in experimental work are not necessarily analogous to hyperadrenalemia. Alcohol extracts only the adrenalin from the gland while aqueous extracts contain the antagonist substance, which is a constituent of the pigment. The subject has always been an obscure one. Numerous data which bear upon it have not yet been coordinated, and the problem is replete with interest.

Berliner klinische Wochenschrift.

October 17, 1917.

Volhynia Fever.—E. Mosler has studied this affection in a hospital located in French territory occupied by the German army [again demonstrating the defective hygienic control of the German medical staff in the spread of contagious disease]. This disease should be suspected when an affection commences with chills, frontal headache, cramps in the thighs and calves of the legs, and pain in the joints. Pain may likewise be complained of over the tibiae. The clinical picture does not undergo any changes during the evolution of the process with the exception of the temperature chart. The writer insists particularly on the hyperalgesia of certain cutaneous areas, whose distribution would seem entirely radicular in nature, the points the most constantly sensitive being the glabella and tibial crests. The fever may occur in paroxysms of a few days' duration, or on the other hand it may be quite atypical. Treatment by quinine does not give any marked results. Arsenic seems to act more as a tonic than as an antimicrobial agent.

Miner's Nystagmus.—J. Ohm relates the history of this phenomenon and gives some personal charts taken on the nystagmograph. He interprets this nystagmus as an imperfect tetanization of the various ocular muscles. According to the writer's view, this phenomenon would appear to result from a kind of autonomy of the labyrinth from cortical inactivity. The influence of darkness resides precisely in an absence of cerebral stimulation.

Münchener medizinische Wochenschrift.

October 15, 1917.

The Clinical Aspects and Etiology of Volhynia Fever (Werner-His Disease).—F. Munk and H. da Rocha-Lima publish the first part of their paper on Volhynia fever, which is devoted to the clinical aspects of the affection. This disease was first described by Werner and His in January, 1916, and still bears the name of "five-day fever." The symptoms are, roughly speaking, those pertaining to any general infection, but incline more to those offered by malaria. The blood changes are quite insignificant. The specific anatomical lesions belonging to Volhynia fever are as yet unknown. The Weil-Felix reaction (agglutination of Weil's proteus 19) is negative, a fact sufficient in itself to establish the differential diagnosis from typhus fever. No matter what may be the nature of the affection, the writers are of the opinion that it is distinctly different from any other morbid process. The temperature curve is at times paroxysmal; at others it assumes the plateau type. It is not certain that these varieties of temperature belong to one and the same morbid process. The causal factor of the affection, which some writers have believed to be certain organisms transported by lice, is not in reality known. The presence of lice may not be proved, hence the propagation by lice is a questionable matter; the disease occurs quite as often in camps in occupied territories and hospitals as on the Oriental fronts.

[This paper, as well as a multitude of others published in the German and Austrian medical press since the beginning of the war, affords evidence of the enormous number of epidemics which have smitten Germany and Austria and demonstrates the inferiority in hygienic measures taken by their medical staffs.

Typhus fever has been rampant in some of the German concentration camps since as early as the latter part of 1914, when the Germans employed French captive physicians for the care of the patients, in order to escape infection themselves.]

Malaria on the Oriental Front and the Changes It Has Undergone under the Influences of War.—H. Werner considers several points on this subject which occurred to him from experience derived in this domain. Thus the occurrence of successive waves of the infection would seem to indicate transmission of the disease by direct heredity from the progenies of one generation of the anopheles to the following one. The anopheles has a marked predilection for a sojourn in the latrines. It is most resistant to cold, being able to withstand a temperature of 28° to 17° F. The best treatment is the combined exhibition of quinine and salvarsan.

Deutsche medizinische Wochenschrift.

October 18, 1917.

Ethyl Chloride in the Surgery of Warfare.—D. Kulenkampf is of the opinion that 18 per cent. of cases for operation should be anesthetized by this product. An injection of 0.02 centigrams of morphine should be given beforehand, as it shortens and quiets the first stage of the anesthesia by ethyl chloride. The dangers of this anesthetic are of two kinds, to wit: (a) Excitation. This is due to too large initial doses of the drug. When it occurs the narcosis should be stopped and then recommenced, the anesthetic being administered progressively. (b) Deep narcosis is responsible for the great majority of fatal accidents. The writer prefers to continue the narcosis with ether, but generally speaking, every narcosis is advantageously begun with ethyl chloride. Kulenkampf does not employ this anesthetic in cases of cranial injury, in which circumstances local anesthesia should be resorted to, if only on account of hemorrhage.

The Active Treatment of the Neuroses of War.—C. H. Spranger has resorted principally to suggestion during the waking state, combined with the use of the faradic current of sufficient strength to cause some pain. After a period of preparation by a specially trained personnel and the examples offered by subjects who have been cured, the morbid symptoms such as contractures, trembling, paralyses, loss of speech, deafness, etc., may be cured in a single séance. Several treatments have been required in only 9 per cent of the cases. Complete cure has been obtained in 95 per cent of cases out of a total of 322 subjects treated by the writer.

Wiener medizinische Wochenschrift.

October 13, 1917.

Disinfection of the Hands, with Special Reference to War Surgery.—R. von Baracz has noted the divergence of opinion in regard both to the action of alcohol *per se* and to the concentration at which it should be employed. Mechanical antiseptic means destined to remove bacteria on the cutaneous surface are hardly any longer employed. The writer has employed for fourteen years the technique that he saw in use by Weir of New York, which consists in mixing hypochlorite of lime with sodium carbonate (see von Baracz, *MEDICAL RECORD*, April 3, 1897, and *Wiener medizinische Wochenschrift*, 1904, No. 13 and following). The intense bactericidal action is due to the presence of nascent oxygen, which arises from the transformation of hypochlorites into chlorides. The technique recommended by the writer is as follows: A handful of calcium chloride is placed on a plate, and on another some crystals of ordinary soda. After careful cleansing of the hands with soap and brush, a soup-spoonful of calcium chloride and a crystal of soda are placed in the hands. The lime is crushed by the soda with the addition of a little water. A paste then forms on the hands. All this requires about three to five minutes. The hands are next rinsed in sterile water. The odor of the chlorine can be removed by ammonia water, 1 to 5 per cent. The writer recommends this method not merely from the standpoint of surgical asepsis, but also from that of protection of the surgeon himself.

Wiener medizinische Wochenschrift.

October 20, 1917.

The Signification of the Weil-Felix Reaction in the Diagnosis of Typhus Fever.—Schwarzkopf, from the study of thirty-nine cases of typhus fever, comes to the conclusion that a positive Weil-Felix reaction should always cause one to suspect typhus fever as it is only very infrequently negative in cases when the disease is confirmed. Besides, the usual quarantine of twenty-one days seems to the writer insufficient to assure the complete disappearance of the lice and their ova from the clothes. The writer believes that a quarantine of at least four weeks should be imposed.

The Influence of Intragluteal Injections of Protein Bodies on the Evolution of Acute Middle Ear Disease.—M. Rauch, having noted the successful therapeutic results obtained in acute miliary tuberculosis, iritis, and secondary syphilis by this means, has resorted to it with much success in middle ear disease, this being all the more marked the more virulent the infection. Five c.c. of milk injected into the muscles of the buttocks was found sufficient in all the cases treated, the injections being repeated more often in the more serious cases. The mechanism of the action of the milk appears to reside in a stimulation of the formation of the proteoclastic bodies, which results in an elevation of the temperature and at the same time a sedation of the pain. The parenteral administration possesses no prophylactic immunizing action. Out of a total of 41 cases of acute otitis media treated by the writer by means of these injections into the gluteal muscle, operation was necessitated in only 3.

The Treatment of Serious Cases of Polymorphous Erythema with Neosalvarsan.—F. Fischl has noted the excellent effects of this treatment, which he thinks are to be attributed more to the formaldehyde than to the arsenic liberated.

Norsk Magazin for Laegevidenskaben.

November, 1917.

Function of the Liver in Pathological Conditions.—Dedichen divides his long report into sections, each of which has a summary. The first refers to the symptomatic value of urobilinuria in defective cardiac compensation with hepatic stasis. In a series of cases cited by the author urobilin was constantly present in the urine, and also, in one case of ascites, in the peritoneal transudate. Alimentary levulosuria has only a relative diagnostic significance, being more frequent in some hepatic affections than in others. Alimentary mellituria is a very common symptom in hepatic affections, or rather in diseases which present hepatic symptoms. While there are notable exceptions (febrile affections, nervous affections, menstrual disorders) alimentary mellituria implies hepatic insufficiency; although a small quantity of sugar has no diagnostic significance. While levulosuria has little diagnostic value in catarrhal jaundice, notable mellituria is of considerable significance in this connection. Marked galactosuria occurs often in hepatic cirrhosis and in hepatic disorders due to alcohol abuse. From what has been said the author believes that the occurrence of levulosuria is of no value for the diagnosis of obstruction in the ductus choledochus.

Case of Atonic (?) Placental Hemorrhage.—Arnesen relates a case of a primipara aged 26, who up to gestation had been strong and healthy, while gestation had been normal save for initial severe vomiting. Labor was normal and the placenta was expressed by Crédé's method. Blood and blood clots followed the placenta, and there were absolutely no uterine contractions, death seemingly impending from acute anemia. The author was forced to compress the abdominal aorta. Massage accomplished nothing and pituitrin was not available. At the risk of infecting the woman the author inserted his hand into the uterus, and having found no retained placental debris resorted to bimanual compression as recommended by Brandt. After 15 minutes benefit was apparent. The patient also received supporting injections of camphor and gave no further trouble. She had lost from 1.5 to 2 liters of blood. The puerperium was afebrile.

Book Reviews.

GENERAL MEDICINE (VOL. VI OF THE PRACTICAL MEDICINE SERIES, ETC.). Edited by FRANK BILLINGS, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago; assisted by BURRELL O. RAULSTON, A.B., M.D., Resident Pathologist, Presbyterian Hospital. Series 1917. Price, \$1.50 per volume. Chicago: The Year Book Publishers.

The present volume deals with progress in infectious diseases and affections of the gastrointestinal tract, liver, and gall bladder and pancreas. Beriberi is placed under the infectious, although the only abstract on this subject considers it purely a deficiency disease. Trichinosis, which might be regarded as a general infection, is covered under diseases of the intestine. Exotic and endemic infections are not separated. The abstracts are not always so chosen as to represent the advancement of our knowledge. Progress is intimately associated with statistics, and few of the papers quoted have a solid foundation in figures and demonstrations.

ELEMENTS OF FIELD HYGIENE AND SANITATION. By JOSEPH H. FORD, B.S., A.M., M.D., Colonel, Medical Corps, U. S. Army. Approved for Publication by the Surgeon General, U. S. Army. With 152 illustrations. Price, \$1.25. Philadelphia: P. Blakiston's Sons & Co., 1917.

NATURALLY the war has been made the occasion for the publication of a vast war medical and surgical literature. In no branch of medicine has greater progress been made than in that of field hygiene and sanitation. There has been on the French front, at any rate, comparatively little disease and the result has been due to the increased knowledge of the laws of hygiene and their application. Several useful works on military hygiene have been published, but none more useful than the one now being noticed. It deals with all the features pertaining to military hygiene and sanitation and in an especially clear manner. The illustrations and diagrams greatly add to its value.

A TREATISE ON REGIONAL SURGERY. By Various Authors. Edited by JOHN FAIREARN BINNIE, A.M., C.M., F.A.C.S., Kansas City, Missouri. Volume I. Price, \$7.00. Philadelphia: P. Blakiston's Sons and Company, 1917.

EVEN a cursory examination of the first volume of this treatise is enough to convince the reader that the complete work will be one of exceptional value to the progressive surgeon. The aim of the work is to present short treatises on the injuries and diseases of the different regions of the body; and in order that each division might be handled in an authoritative manner, various surgeons specially qualified for the discussion of the subjects assigned to them have been called to the aid of the editor. Thus we find contributions from surgeons in America, Britain, and Australia in the first volume. The work has been under Binnie's general direction; but we learn from the preface that he "has not presumed to interfere in the slightest degree with the material contained in the various chapters." Perhaps it would have been better if Binnie had not held quite rigidly to that position; for while the various chapters contributed by Binnie himself are open to but little criticism, and that generally of the petty variety, those contributed by some of the other authors would undoubtedly have been improved by a little friendly editing on his part.

This first volume was designed to cover the head, bronchial system, thorax, and breast; but a publisher's insert tells us that the section on the thoracic walls, lungs, and pleuræ will be in Volume III, which was intended to cover only the upper and lower extremities. The section on the breast, however, is included in this volume and was contributed by Bloodgood. It is well written and well illustrated, so far as pathology is concerned, but there are no illustrations of operative technique, nor are any operative methods discussed other than that employed by the author. The mere fact that the sections on the thyroid, parathyroids, and thymus are contributed by Charles H. Mayo is sufficient recommendation for this part of the book; and the same may be said for the section on the larynx.

trachea, and bronchi, contributed by Chevalier Jackson. The section on the heart, pericardium, and diaphragm is somewhat disappointing, principally because the author has been accorded insufficient space. The section on traumata of the skull and contents, by Pringle, is of great interest; and it seems a pity that the editor, as he says in the preface, had so much difficulty in securing a suitable authority to write a chapter on diseases of the brain that that subject has been omitted entirely. In the section on injuries and diseases of the face and jaw the reproduction of Murphy's plates showing the technique of operation for organic fixation of the jaw would have added much to the value of the discussion. The sections on diseases of the buccal cavity, and diseases, injuries, and neoplasms of the tongue, by Sir H. L. Maitland, are, in general, admirable; but many will reprobate his advice to excise a piece of a doubtful ulcer of the tongue and submit it to microscopical examination, since this implies waiting for days before radical operation can be performed, if the ulcer is found to be malignant, and practically condemns the sufferer to an early death.

It is impossible to devote sufficient space to criticize or even mention all the various sections; and the reviewer certainly does not wish that failure to mention specific sections be construed as condemnatory. There is considerable overlapping of material, but this is far from being detrimental, since it is so often an advantage to get various methods and viewpoints. The book as a whole is very satisfactory; and since each chapter has been written by a surgeon particularly qualified in that field, it is certain that the methods employed in diagnosis and the technique of operation is such as would be approved by the majority of expert surgeons.

BLOOD PRESSURE, ITS CLINICAL APPLICATIONS. By GEORGE WILLIAM NORRIS, A.B., M.D., Assistant Professor of Medicine in the University of Pennsylvania; Visiting Physician to the Pennsylvania Hospital; Assistant Visiting Physician to the University Hospital; Fellow of the College of Physicians of Philadelphia; Member of the Association of American Physicians, etc. Third Edition, Thoroughly Revised. Illustrated with 110 Engravings and 1 Colored Plate. Price, \$3.50. Philadelphia and New York: Lea & Febiger, 1917.

THE second edition of this work was reviewed in the MEDICAL RECORD barely a year ago, and thus little remains to be said of this the third edition. However, a good deal of new material has been incorporated, and additions of an important nature have been made to those sections in which the functional testing of cardiac efficiency, blood pressure in disease, the effects of drugs, and physiology are dealt with.

The book in its present form is in conformity with all recent advances in the study of blood pressure, and in consequence will serve as a valuable work of reference. It may be said that the illustrations are excellent.

NEW, OLD AND FORGOTTEN REMEDIES. Papers by Many Writers. Second edition. Collected, arranged and edited by Dr. EDWARD POLLOCK ANSHUTZ, Author of "Elements of Homeopathic Theory, Materia Medica Practice and Pharmacy," "Guide to the Twelve Tissue Remedies," etc. Price, \$3.50. Philadelphia: Boericke & Tafel, 1917.

THIS volume is evidently intended in part for the non-homeopathic practitioner, who will find matter of some interest quite apart from Hahnemannism. Thus in some drug provings blood pressures are recorded with sphygmograms, while the drugs were tested upon laboratory animals. The provers are, before some experiments, carefully examined and if unsuitable for experiment are rejected. Those who examine the provers are ignorant of the nature of the drug to be proved. While controls are not mentioned, we understand that they are often used in proving. Along with numerous concessions to scientific medicine, we find plenty of high potency therapy and mental drug pictures, with occasional patronizing flings at the benighted allopaths. Thus the volume has an appeal to both factions of homeopathy, conservative and progressive, and along with the latter to the practitioner of nonhomeopathic affiliations who wishes to have an understanding of Hahnemannism.

Society Reports.

THE AMERICAN CONGRESS ON INTERNAL MEDICINE.

Second Scientific Session, Held in Pittsburgh, December 27 and 28, 1917.

DR. REYNOLD WEBB WILCOX, PRESIDENT, IN THE CHAIR.

Thursday, December 27—First Day.

Address of Welcome.—Dr. JOHN A. LICHTY greeted the Congress in behalf of the Medical Profession of the City of Pittsburgh. He said that they were conscious of the honor conferred by the presence of the distinguished members of the American Congress on Internal Medicine. It would be a pleasure to recount the aims and accomplishments of this congress as well as to speak of obligations to those of its members who had done pioneer and advanced work in Internal Medicine, but he would leave that to be spoken of by others, and would devote the few allotted moments to introduce things medical which were characteristic of the great city to which the visitors had come. The city of Pittsburgh could well be called the industrial center of the world. The present great world crisis had only emphasized this the more. Its mills and manufactories were well known. An inland town, its river harbors received and sent out vessels whose tonnage was equal to that of London and Liverpool combined. To Pittsburgh this was a well-worn, but agreeable expression, and while it might not at present stand the statistical test, it, at least, as Mark Twain says, "sounded well." The city was centrally located. Some one—perhaps a member of the National Geographical Society, or perhaps a statistician of a large insurance company—had said that Pittsburgh was only a night's ride from all the great cities of the United States. The railways and waterways had made its transportation facilities unsurpassed. With such resources and facilities this city, with its surrounding community, had become a veritable workshop for the whole world. The relation of the medical profession to such an important geographical and industrial center had, up to the present time, been largely one of surgical repair, and the city as a result could boast of an amount and quality of surgery which could scarcely be surpassed in any other city of the world. It would be a pleasure to recount the names of men who had made themselves famous in Pittsburgh in the practice of surgery during the past fifty years. It would include such men as Walters, known for his conservative surgery; Sutton, known for his early introduction of the principles set forth by Lister, Pasteur, and Lawson Tait; the McCanns; the Dixons; and the brilliant, beloved, and lamented Stewart. While internal medicine had, in a way, kept pace with surgery, it was only recently that it had come into its own as in the way of preventive medicine, as well as in other well-recognized activities. Pittsburgh formerly had the highest typhoid morbidity and mortality of any city in the United States. Through the direction of the late Eugene Matson, Bacteriologist and Director of the Department of Public Health, the city had laid unsurpassed filtering beds so that the water of the city was now clean, and typhoid had been entirely eliminated. The laboratories of the city were now directed toward the prevention of diseases which were likely to occur in the industries which were here represented. Internal medicine had given valuable assistance in the elimination of the smoke nuisance. Diseases of the lungs in relation to smoke and soot had been particularly studied in the laboratories of the University of Pittsburgh School of Medicine, and in many other ways internal medicine had set about to bring to pass a prevention of diseases, accidents, and calamities which heretofore have prevailed in this community. In conclusion, Dr. Lichty said that the internists of the city as well as the profession at large, would appreciate the benefits which would accrue from the meeting of such a body as was represented by the Congress on Internal Medicine.

Dr. THOMAS REILLEY of New York, in response to the Address of Welcome, said that members of the Congress were all glad to be there. Three or four months

ago it was feared that they would not be able to meet, as the conditions that the war had brought about had made it necessary for many learned societies to close their doors and therefore they were not able to meet. Their president was in the army and matters had gone so far that they were even warned by Dr. Richards that men had better stay at home and help to conserve matters by so doing, and they had also been warned by the Pennsylvania Railroad that it was better to stay home. The railroad even refused to sell return tickets. However, in spite of all this discouragement, the members felt that this meeting was a necessity and that the men who had gone to the expense and trouble that travel in these times entailed were earnest in their desire to attend. The members felt glad to be in Pittsburgh, to show that their interests were not parochial; that these meetings belonged to the East and to the West. Dr. Reilley said that every society that moved out West moved toward progress. Every progressive movement lay toward the West. The very spirit of terrestrial magnetism that was in evidence in Pittsburgh, the fact that they were surrounded by so much iron and steel, must have a physical effect, and therefore, indirectly, a mental effect upon them. Dr. Lichty had pointed out that Pittsburgh was a suburb of Philadelphia, so far as scientific matters were concerned. It could be said that there are numerous large foundations developing, in scientific matters, so that Pittsburgh was awakening to new scientific life. The names of Lichty, Mercur and Johnston were evidences of this. They had made the name of Pittsburgh, in connection with science, a household word. It had been said that there are three classes of millionaires—millionaires, multimillionaires and Pittsburgh millionaires. He felt sure from study of matters in this city that one might also say that there were three classes of internists—internists, great internists and Pittsburgh internists.

Dr. R. W. WILCOX of New York said that last spring when he took service as an officer in the U. S. Army, he feared that it would be impossible for him to come to the meeting. He wrote to Dr. Bartley to prepare a presidential address. Fortunately he was able to be present at the meeting and would have thought it very unfortunate not to be there. However, Dr. Bartley had provided a much better address than he himself could have done.

Vice-Presidential Address.—Dr. E. H. BARTLEY of Brooklyn said that he was very glad that the society had been able to hold this interesting and instructive session. They could not, of course, help a feeling of loss in remembering the thousands of brother physicians who were called away to serve their country. It had been expected that the attendance at this meeting would be much decreased, but it was to be hoped that the interest of the program would counterbalance that possible lack of enthusiasm, due to reduced numbers, which might be felt. It had been deemed best to carry out the program, in spite of difficulties. The membership of the association had been increased by more than one hundred since the previous meeting. It could have been doubled, but the greatest care had been exercised in choosing members whose qualifications should be above reproach. Circularization had been deemed undesirable and the Council had decided to depend upon the judgment of its fellows in presenting the names of suitable men in their localities, so that the best and most representative men should be chosen from every place. In selecting a Council on Internal Medicine, who should study internal and pathological questions, it was felt that members should only suggest the best physicians of their acquaintance—men who had done something for the advance of scientific medicine or for the public. Everywhere internists were scarce on account of the war; but many, because of age or other factors, could not go to the front, and these must do their bit at home—no less loyal and no less willing to serve their country. The work of these internists was of supreme importance to the lives and health of those left behind. In the examination of recruits, statistics had shown that as high a percentage as 60 were unfit for service. This came as a surprise and should be the cause of concern for the future of American manhood and womanhood. When the maimed and shattered wrecks of American manhood began to come back, new problems would arise. There would be a large field for correction of defects in

those who had been found unfit. Those soon liable to be called, those approaching the draft age, would be best treated for correction of defects, when young. Boards of Health and of Education had taken up this question as a function of the State. Labor organizations also had taken the matter up. The medical profession had been remiss in not taking the initiative. It was time now to take some concerted action for the improvement of the health of the masses. There should be more supervision of the young before they came to school age. Statistics showed that in New York there were 20,000 children with more or less serious lesions of the heart. This matter could be handled. There were also various conditions, such as defective nutrition, deformities, endocrinal gland affections, etc., that demanded the attention of the internist, who was the man who usually saw these cases first, before they were sent to the pediatricist. Important discoveries had been made in biological chemistry on the effect of food-stuffs on different animals, but the human animal was not so well studied in this respect as the farm animal. Diseases of nutrition, such as beriberi, pellagra, and scurvy were far from being completely mastered. Poor heredity had often to be overcome in dealing with many children, and in this line much had been accomplished by the use of internal gland substances. It was computed that 8 to 12 per cent. of children needed supervision as regards nutrition. That this was not entirely due to the high cost of living was proven by the fact that the condition was worse in 1916 than in 1917. Many poorly nourished children grew up inefficient. The hope for the country was not in the children of the rich, the unprolific class, but in the children of the masses. Whether these children would be able to maintain the traditions of American life, would depend on how well the medical profession shouldered its patriotic duty. Would America be equal to the task of reconstruction after the war? Efficiency depended upon good health. The great work of reconstruction of the men returning from the trenches would depend upon the efforts of the medical profession and that work would be to a large extent unremunerative. In that national duty the physicians must not be slackers. The medical men who had enlisted had done so at great personal sacrifice and the man who stayed at home was now on trial.

Dr. HEINRICH STERN of New York, the Secretary-General, said that he came to Pittsburgh to show his interest in the Society and because he thought it necessary to push the organization along. He was told that there would not be a meeting, but he had insisted upon it, although the men who were on the committee were in some trepidation. However, he felt that the meeting was necessary at this time. America was only beginning to be involved in the war and next year would be much more deeply in, and physicians ought to be prepared to see it through. This year it might appear that they had not done much, but the Council had had ten meetings. They had added to their list 125 to 130 new members, and he felt that that was very encouraging for a new organization. They mustered about 450 members now. That of itself showed that the Congress of Internal Medicine was a necessity. The work last year was left to individuals, and he might say that Drs. Pottinger and Aaron did the bulk of the work in getting members for the organization. Dr. Pottinger, a born agitator, had seen a great number of people, and the internists had not had to advertise as the College of Surgeons had. Dr. Aaron had made great personal efforts and had got the very best men of the profession. During the past year the Secretary had taken upon himself to publish the transactions. Dr. Cornwall had rendered the most loyal and effective assistance, and thanks were due to him for the results.

Necrology.—Dr. CORNWALL said that deaths that had occurred among members were: Dr. Claude L. Wheeler, editor of the *New York Medical Journal*, a man of delightful personality and very well known in the profession; Dr. Henry L. Coit of Newark, whose name was intimately associated with movements in regard to infant welfare, and who was one of the first of those to advocate and insist upon certified milk; Dr. Le Roy Satterlee was also widely known and much esteemed. He practised as an internist for many years and was one of the teaching staff of the New York Dental Institute.

Election of Officers.—The following were the officers elected to serve during the ensuing year: *President*, Dr. Butler; *Vice-President*, Dr. E. H. Bartley of Brooklyn; *Treasurer*, Dr. Augustus Caillé of New York; *Secretary-General*, Dr. Heinrich Stern of New York; *Assistant Secretary*, Dr. Edward E. Cornwall of Brooklyn; *Councillors*, Drs. Wilcox, Tuley, Sajous, Satterthwaite, and Teish.

Dr. CAILLÉ then moved that a vote of thanks be tendered to Dr. Wilcox for the efficient and dignified services he had rendered to the members as their President. He felt personally that he would very much miss Dr. Wilcox. Dr. Satterthwaite seconded this motion and a rising vote of thanks was tendered.

Dr. R. W. WILCOX said he wished to thank the members for their expression of thanks. He came into this organization at the instigation of the Secretary-General and esteemed it a great honor. Whatever energy he had put into the task he had regarded as only what the organization well deserved; whatever talents he had shown in the execution of his duties he had been glad to devote toward making a success of the society. He felt in this way he had been of service to his city and country.

Symposium on The Roentgen Rays in Internal Medicine: Roentgenology and the Internist.—Dr. CHARLES D. AARON of Detroit read this paper, in which he stated that in his opinion the days of experimentation with the roentgen ray were very far from passed. No sooner was one instrument or one method of technique perfected than a new current of ideas set in and displaced the former ones. Thus, it might be said that the science of roentgenology was still in the phase of active evolution, and would be so until no further advance was possible or until some genius should discover the actual nature of the rays themselves. This was a matter that was still hidden from knowledge. The rapid advances that had been made in this new science had given it the quality of positiveness; thus many of the claims that used to be made for it had been disproved in the light of larger knowledge. At the present time its positive claims could command for it the universal respect of the medical profession. The x-ray diagnosis might be said to be an essential part of the procedure in all the modern and well-equipped hospitals. Not only that, but the office of a modern scientific physician had also its roentgen-ray equipment. The practical value of the x-ray as an aid to diagnosis was thus assured. There were, however, some serious drawbacks to be considered in connection with this subject. Better technique was needed and the necessity of much more thorough correlation between x-ray work and the practice of medicine. A great stumbling block to further progress along this line was the lack of uniformity of details in technique. Take, for instance, the standards in regard to test meals. Not only had different authorities, in different countries, various standards for test-meal procedure, but also different laboratories in the same country were using entirely different methods. Thus no standard of comparison between the work of two men could be set up, as each individual practitioner followed his own ideas in this matter. This want of uniformity was one of the greatest drawbacks to real scientific progress. Laboratories had set up individual standards and were unwilling to compromise or to modify their ideas, and specialists adhered to their own methods and refused to experiment with others equally good. Real progress would only be made when men were willing to sink their individual proclivities and agree upon a universal procedure in order to further scientific knowledge. The claims of roentgenographic specialists at the present time were only to render supplementary service. For instance, in early cases of tuberculosis, before the disease could be detected clinically; or in cases of osteitis fibrosis cystica, the roentgen-ray could aid in diagnosis before a definite clinical picture was found. It should be remembered with regard to the roentgen-ray that the pictures were shadows, not actual pictures of substances, and roentgenologists could not claim that this evidence took the place of clinical facts. Not only was it necessary for the roentgenologist to know clinical data, but, to be well equipped for his task, he must have a knowledge of histology, of pathology and of microscopical anatomy. Without this knowledge he would be unable to

interpret the plates. It should be further stated that roentgenography had two separate and distinct sides. The expert roentgenologist interpreted the findings, but he had also to have expert technical assistants to make the plates. Very few physicians were able to interpret the plates properly because they lacked the technical knowledge. An hour-glass stomach was easily discoverable at autopsy, or at operation; but there were conditions, such as cholecystitis, appendicitis, or stomach conditions, which gave the same symptomatology. In these cases the roentgenogram could make the differentiation. The roentgen diagnosis had its limitations as well as its possibilities. In interpretation the details of the position of the patient and of the tube should be taken into account. If standardized technique were employed, it would do away with many uncertainties, as at present the personal equation was largely a deciding factor in *x*-ray interpretations. When the work was once placed on a standardized basis, results could be compared and reported. The object of the paper was to call attention to general principles, rather than to details. It was felt, no doubt, by practiced workers that their experience was not matured enough at the present time to formulate irrevocable plans; and this could only be done finally by the universalization of technique in the practical application of the art.

The Roentgen Rays in the Diagnosis of Diseases of the Thoracic Cavity.—Major GEORGE C. JOHNSTON of Pittsburgh read this paper. He said that the subject had been "wished" upon him without his choosing it. It was one upon which many books might be written. He felt that in making examination of the chest it was wise to proceed according to certain routine, which should be followed in every case. The roentgenologist must not be misled by the history of the case. The surgeon could open up and find out what was there, but not so the medical man. Routine examination should comprise: (a) heart: size, shape, position; (b) aorta: size, shape, position; (c) lungs: condition of apices, etc.; (d) diaphragm: degree of excursion; (e) mediastinum: tumors, adenopathy. In regard to the heart, this should be examined by the internist first. The *x*-ray was of use in showing the condition of the aorta, and in diagnosing pericarditis with effusion. Difference should be noted between the hypertrophied heart and the dilated heart; the former was working while the latter was simply taking up room. The drop-heart was often shown by the roentgenogram. This was simply an indication of a general visceroptosis and was common in the individual with the long trunk. It had no pathological signification. The "transverse heart," on the other hand, was a menace. It was seen in "stomach athletes" who did wonders at banquets and those in whom the abdomen was larger than the chest. Displacement of the heart was often found. Attention to aortitis could be called by the *x*-ray, and then fewer aneurysms would occur if this were done. With regard to the lungs (b), there were many characteristic signs to be noted. An increased radiability suggested tuberculosis. A decreased radiability, surrounded by area of increased, denoted abscess cavity. In pneumonic conditions there was first shown a light shadow over one lobe, then increase in pleural shadow; in later stages the diaphragm excursion visibility was lost. This latter sign gradually returned as resolution took place. In bronchopneumonia, on the other hand, the excursion of the diaphragm was unaffected. In pulmonary edema a very unusual appearance was noted; all the chest landmarks were lost. In lung sarcomata, globular masses were seen invading the lung tissue; the appearance was very striking. Carcinomata of the lung resembled lung suppuration; it might be noted that carcinomata of the lung were never primary. Primary foci were always to be found elsewhere in the body. In considering the pleuræ it might be stated that a *visible pleura was always pathological*. Normal pleuræ were never seen. If seen, there existed either pyo-, hydro- or pneumothorax. As the pleura filled up with the fluid, the lung retracted. With pus the shadow was darker, as pus was more opaque than water. The diagnosis between complete unresolved pneumonic consolidation and pleural effusion was impossible to make by the *x*-ray. In regard to pulmonary abscess, this rarely reached the thorax. The dark shadow of pyopneumothorax changed shape with the position of the

patient. Knowledge of pathology was a necessity to the roentgenologist, because in all roentgenography of the chest the differentiation was to be made in terms of pathological entity. The more experienced the radiographer, the less he would care to attribute the findings shown by the *x*-ray to invasion by the bacillus of Koch. The speaker said he would care to make a positive diagnosis of tuberculosis only in the most advanced cases. He did not think that one could recognize any particular pathognomonic signs attributable to the bacillus of Koch, but there were certain characteristic changes which radiographers had learned to expect to see and which were attributable to the pathology of the disease. One of these was the "fan," described by Dunham; in early and slight lesions, where a low-grade inflammation was spread by continuity of the mucosa, the fan appeared wide open and distinct. Areas of active tuberculosis, on the other hand, appeared smoky, foggy, and indistinct. The patient was not necessarily very sick in tuberculosis. He could have many tubercle bacilli and not know it; but when lung suppuration was present the patient was very ill indeed. Foreign bodies usually appeared to get behind the shadow of the right bronchus, with the physical "cussedness" of inanimate objects (Newton's fourth law) so that they could not be seen. A *unilateral* bronchial asthma, however, was invariably the sign of obstruction by some foreign body. The speaker had detected in one patient a paper clip, which had been imbedded for 20 years. Such obstruction by foreign bodies was apt to produce in the first few hours an emphysema, but in later stages an atelectasis was present. In conclusion the speaker said that radiography should be correlated with internal medicine, with the object of obtaining all possible evidence in any given case, before making a definite diagnosis.

Roentgen-Ray Diagnosis of Abdominal Diseases.—Dr. WILLIAM A. EVANS of Detroit read this paper. Dr. Evans said that he felt that the present methods of roentgenology were far from perfection and that he addressed the meeting in a spirit of humility. He would speak of general principles rather than deal with one particular organ. In radiography both the fluoroscopic and radiographic methods should be used and the patient should be rayed in the upright as well as in the horizontal position. In some cases reflex irritation was produced from abdominal conditions and the patient could not be put in the upright position. In regard to various organs, pancreatic disease was difficult to study on account of the structure of the pancreas; it was often confused with gallstone disease. In regard to the liver, enlargement of this organ could be detected by the roentgen ray. With the gall-bladder, until recently, only clinical evidence was considered positive. The *x*-ray often gave negative findings even when gallstones were present. This was found to be due to the fact that unless the stones contained 2.5 per cent. or more of lime they were not shadowed by the *x*-ray. In regard to other organs, the distended spleen could be detected, pathology of the stomach shown, and adhesions of the small intestine, colon, and other viscera studied. In the study of the urinary tract, the *x*-ray was not of as much use in the detection of calculi as in delineating the general condition of the tract. In this case the clinical symptoms of pain were not reliable, as frequently with bilateral calculi the pain was only felt upon one side. In the condition of subphrenic abscess the kidney outline was not present. In conditions of urinary disturbance the plates of the mid-ureter region should be examined for spinal changes. These were often associated with urinary calculi. Any pathology of the spine which would cause inflammation of the urinary tract would produce reflex symptoms. In regard to roentgenology of the gastrointestinal tract, radiographers should come to some agreement in order to standardize the opaque meal. Some authorities felt that there was no objection to a single meal, but that the double meal containing salts interfered with functional results and tended to affect the reflex. There was perhaps good ground for this contention. The two-meal advocates, however, stated that the terminal ileum should not be emptied. If, however, the examination could be made within 12 to 14 hours, this difficulty would be overcome. The surgeon had an easier opportunity for examination than the internist in these cases.

The physician, however, was used to questions of diagnosis. The radiographer should report his findings to the internist and make suggestions, but should not attempt diagnosis unless familiar with all the data in the case. In some cases perhaps, such as carcinoma of the stomach, the radiographer could make the diagnosis before the internist. He could differentiate between carcinoma of the stomach and syphilis. Writers were disagreed as to whether bismuth retention in the appendix was pathological or not. However, disease of the appendix was often merely a complicating symptom of colon involvement. The association of the two conditions was very common. In such a short paper it was impossible to do justice to such a wide subject, but a point to be emphasized was that the roentgenologist should learn to correlate his findings with the clinical data of the internist. The roentgen examination should not be postponed, and in this way the best results could be obtained.

The Value of the Roentgen Ray and Radium in the Treatment of Internal Disease.—Dr. RUSSELL M. BOGGS of Pittsburgh read this paper. Dr. Boggs stated that only lately had the internist come to a realization of the valuable help afforded by this agency. It could be stated that in 90 per cent. of the cases of tuberculous adenitis a cure was effected by this means. In exophthalmic goiter and in lymphosarcomata the symptoms were relieved and did not tend to recur. Thus these agents were well worth the study of the internist. They took an important place in treatment of internal disease. They could be applied to blood and blood-forming organs with equally good results. It could be said that today the internist was taking the most important position in medicine. He was beginning to realize the possibility of radiotherapy, which hitherto had been relegated to the surgical side of the hospital. Lately, however, radiotherapy had become a specialty and tended to be handled by experts, instead of, as was unfortunately formerly done, by beginners. Dr. Boggs went on to say that the x -ray affected different tissues differently. Diseased tissues reacted to its influence more quickly than normal tissue. The selective properties of the rays from epithelia formation were shown to be more active on proliferating cells. The cells were affected in proportion to their vitality—embryonic cells being more easily affected. The white blood cells of the body were more susceptible than the red blood corpuscles. The severity of the reaction could be varied according to the amount and type of the rays employed. In exophthalmic goiter an enlarged thymus was often an accompanying symptom, and it was found that 90 per cent. of these cases did not stand operation well. X -raying of the thymus, therefore, should be a preoperative procedure, and it should not be delayed, as very frequently many of the symptoms tended to disappear under medical treatment. These patients were very easily discouraged, and a thorough understanding with them should be arrived at. Raying was not dangerous, or attended with shock, as was surgery, and considerable relief might be obtained before operation. Care was necessary in the raying treatment of exophthalmos, as the patient often passed from the state of hyper- to that of hypothyroidism, and heavy raying was here contraindicated. Results with radium, the writer said, were about the same as with the x -ray, but radium could be easier employed without moving the patient. One of the first symptoms of amelioration was the decrease in pulse rate, and as stability of the pulse was very important, considerable help had been given. Nervous symptoms tended to disappear entirely. There was reduction of the gland in one-half to two-thirds of the cases. After the secretion was reduced to normal, treatment must not be carried to the point of producing myxedema. Often psychic improvement, in symptoms attributed to character, was noted. Exophthalmos was the last symptom to show improvement. There was need for competent knowledge of the physiology of the ductless glands on the part of the physician treating these cases. In regard to other glandular involvement, tuberculous, syphilitic, sarcomatous or that of Hodgkins' disease, the gland in Hodgkins' cases tended to disappear, and also to recur more quickly than others under this treatment. The glands in all these diseases could be controlled for a long time. Large glands

were more easily affected, as the tissue was of lower vitality. Perhaps, in these cases, an autogenous vaccine was set free and tended to effect a cure. In tuberculous adenitis the glands often improved so much that operation was unnecessary. In leucemia, the end results were often unfavorable, though at first the treatment appeared to be beneficial. In all cases treatment must be persistent, and the most successful were those in which it was carried out with thoroughness. As a general rule the x -ray was applied more successfully to cases with bone involvement and radium to those attended with involvement of the spleen and glands.

Dr. E. H. BARTLEY of Brooklyn said that he noted a remark of Dr. Johnston to the effect that he had never come across a case of primary carcinoma of the lungs. Dr. Bartley said he himself had come across a case, some two years previously, which, in spite of all investigations for a primary focus elsewhere, appeared to be a primary sarcoma originating in the bronchial gland. A thorough examination was made at autopsy and no other point of involvement was discovered. He could not say whether this was very rare, but it seemed worth while to mention it in connection with the paper read by Dr. Johnston. In regard to the question of the x -ray in the diagnosis of pneumonia, Dr. Johnston had mentioned central involvement. Dr. Bartley said he was interested in cases of pneumonia occurring in children. In this type the disease certainly did begin at the periphery and extended to the hylus, though the speaker was not prepared to say that it did so in adults. In children the physical signs occurred only when the disease reached the bronchi. There was no such thing as central pneumonia. The x -ray showed that the disease began at the pleura and extended inward. Dr. Bartley said he did not know why, in these so-called central pneumonias of adults, there appeared evidences of delirium and toxemic conditions. Often these cases ended fatally without diagnosis, but were supposed to be central pneumonias. The x -ray should be of aid in determining pneumonia when physical signs were absent.

(To be continued.)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Joint Meeting with the Philadelphia Roentgen Ray Society, Held Wednesday, December 12, 1917.

DR. MOSES BEHREND, VICE-PRESIDENT, IN THE CHAIR.

Our Preparation for the X-Ray Work of the War.—Major ARTHUR C. CHRISTIE said that more than one-tenth of the total number of physicians in this country have received commissions in the Medical Officers' Reserve Corps. The American Roentgen Ray Society had been one of the first of the national societies to prepare its members for the inevitable struggle, having carried on a propaganda in military roentgenology months before war had been declared. From information from those returned from active service the Surgeon General's Office had decided that the x -ray work in all military hospitals should be directly in charge of medical roentgenologists. To this end schools for instruction in military roentgenology had been organized in nine different cities. Instructors had met in New York for conference and formulated a course of instruction to be followed in all schools. The instructors were all commissioned in the Medical Reserve Corps and assigned to duty for this special work. Selected students, also commissioned in the Reserve Corps, were ordered to report for instruction. Special training in military roentgenology had been found to be invaluable. About 200 men, it was stated, had finished their training at these schools, and some of them were already in France; others at the base and general hospitals in this country. At the school in New York City, where the work of instruction had been concentrated, all of the various types of apparatus adopted for use in the Service had been assembled and were being operated. The present plan for the instruction included a preliminary course at one of the Medical Officers' Training Camps, located at Fort Oglethorpe and Fort Riley. Roentgenologists would now enter the Service through these training camps, and after one month's instruction in

the general training would take another under an experienced instructor sent for such purpose. Those then considered eligible would be sent for final training to the school in New York. In the absence of precedent for guidance, it had been deemed wise in the course of instruction to standardize the methods of *x-ray* men of considerable experience in general *x-ray* work. With the present established curriculum it was believed that a sufficient number of men could be prepared for the *x-ray* work of the war. Major James T. Case, who was in charge of *x-ray* work with the American expeditionary forces, it was said, would be in conference with the instructors in this country in order that the methods adopted might be made applicable to conditions at the front. The work of instruction would now also be greatly facilitated by the publication of a Manual of X-Ray Work. It had been found necessary to train, in addition to the medical men, those engaged in the purely technical part of the work. For this duty men had been drawn from the enlisted personnel of the medical department and given a course of training at the Army Medical School in Washington. Men with factory experience to do the work of installation and repair of highly specialized apparatus had been commissioned in the Sanitary Corps. An important addition in the perfection and standardization of apparatus was said to be the "bedside unit" for the *x-ray* examination without removal of the patient from the bed. This was particularly applicable in fractures of the hip, thigh, and chest. This unit had been developed by Major J. S. Shearer, S.C., Professor of Physics at Cornell University, who was now at the head of the teaching force at the School for Instruction in Military Roentgenology in New York City. A special radiator type of Coolidge tube developed by Dr. Coolidge for use with the army portable apparatus had been made use of by Major Shearer for the bedside unit. The necessity for a readily portable and reliable *x-ray* apparatus had been met by Dr. Coolidge, and a description of the outfit would be published shortly by him. Other developments in accessory apparatus included the construction of a table, the top of which was made of "bakelite," a substance made in connection with the construction of aeroplanes; also a stereoscopic fluoroscope, designed by Captain Caldwell. This, Major Christie said, they expected to be one of America's great contributions to the work of the surgeon in the alleviation of the wounded of the war.

Dr. LAWALD presented the lantern slides of a case of congenital dilatation of the colon in a child of seven years. From a roentgenological standpoint he asked Major Shearer to explain why the shadow of the liver could not be seen through the gas area, although that organ was in its normal location.

Major SHEARER said that the presence of gas in any considerable amount displacing denser material always made it possible to have local overexposure, so that this portion of the negative on full development would be so black as to exclude vision of all details. In these cases it was quite desirable to have the fluoroscopic examination, in which it is generally possible to determine the presence and mobility of gas, which then shows as a very bright spot on the screen.

Pyeloscopy and Pyelography in the Differential Diagnosis of Renal Conditions, with Special Reference to Calculi.—Dr. WILLIS F. MANGES, President of the American Roentgen Ray Society, used the term, pyeloscopy, to describe the fluoroscopic observation of the flow of the opaque solution into the kidney pelvis and calices. By the combination of pyeloscopy and pyelography it was hoped to show the importance of differential diagnosis in renal conditions, and especially in the case of renal calculi. The radiologist, he said, must depend upon the cystoscopist to catheterize the ureters and manipulate the apparatus for the injection of the opaque solution. Pyeloscopy and pyelography were to be regarded as supplementary to clinical and other laboratory methods of diagnosis, including radiography, and as especially valuable in cases in which the different phases of diagnosis are not clear. One of a number of interesting lantern slides showed an unusual point in differential diagnosis. The case presented a mass in the right upper abdomen having the size, shape, and firmness of a kidney. Many of the symptoms, especially those of pain and tenderness in the loin, were referable to the

kidney. With one hand on the abdomen and the other on the back the mass could be felt by both hands and was rather freely movable. A definite shadow appeared on the radiograph, having a shape similar to that of the lower pole of a kidney, but perhaps more dense. During the pyeloscopy examination the mass could be felt and its shadow seen on the screen, so that with an opaque solution in the renal pelvis visualizing the kidney, it was possible to observe the mobility of the mass and also that of the kidney pelvis. The kidney could not be displaced by palpitation, whereas the mass could be moved more or less freely; it was clearly on a plane anterior to that of the kidney and moved toward the median line to such an extent that the outermost point of the kidney calices appeared beyond the mass. The last mentioned observation was clearly demonstrated on the slide. At operation in this case a pendulous and greatly distended gall bladder had been found. In the author's opinion, pyeloscopy should be practised whenever the kidney pelvis was to be injected for pyelographic purposes. Among the advantages of the process were removal of danger of over-distention, visual control of the flow of the solution, and the possibility of making the pyelogram at the proper time.

Treatment of Epithelioma with Roentgen-Ray and Radium, Showing End Results.—Dr. GEORGE M. MCKEE of New York City presented this communication, which was illustrated with lantern slides.

Major WILLIAM H. STEWART of New York gave a lantern slide demonstration of obscure conditions in the epigastrium. A case of special interest was one of syphilis of the stomach.

Major JAMES T. CASE, returned from his work with the American expeditionary force, expressed his satisfaction at the progress made by the roentgenologists of America. The needs emphasized by his work in France he had found to be met beyond his expectation. The Manual of X-Ray Work was as nearly ideal as it was possible to be. The relationship between the roentgenologist and the surgeon brought about by the war had made possible a very admirable type of team work. Such adaptation of roentgenology to medical cases he thought would also be brought about.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

INJURIES OF THE FACE AND JAW AND THEIR REPAIR, AND THE TREATMENT OF FRACTURED JAWS. By P. MARTINIER, DR. G. LEMERLE, and translated by H. LAWSON WHALE, M.D., F.R.C.S. 345 pages. Illustrated. Price, \$1.75. Published by William Wood & Company, New York.

THE FUTURE OF THE DISABLED SOLDIER. By C. W. HUTT, M.D., Cantab.; D.P.H., Oxford. 199 pages. Illustrated. Price, \$2.00. Published by William Wood & Company, New York.

NERVE WOUNDS. By J. TINEL. Preface by Professor J. DEJERINE. Authorized Translation by FRED ROTHWELL, B.A., Lond. Revised and Edited by CECIL A. JOLL, M.B., B.Sc., Lond.; F.R.C.S., Eng. 317 pages. Illustrated. Price, \$4.50. Published by William Wood & Company, New York.

TECHNIC OF THE IRRIGATION TREATMENT OF WOUNDS BY THE CARREL METHOD. By J. DUMAS and ANNE CARREL. Authorized Translation by ADRIAN V. S. LAMBERT, M.D., with an introduction by W. W. KEEN, M.D., LL.D., F.R.C.S. 90 pages. Illustrated. Price, \$1.25. Published by Paul B. Hoeber, New York.

TREATMENT OF INFANTILE PARALYSIS. By ROBERT W. LOVETT, M.D. Second Edition, Revised and Enlarged. 171 pages. Illustrated. Price, \$1.75. Published by P. Blakiston's Son & Co., Philadelphia.

THE SURGICAL OPERATIONS ON PRESIDENT CLEVELAND IN 1893. By W. W. KEEN, M.D. 52 pages. Published by George W. Jacobs & Co., Philadelphia.

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Original Articles.

THE NATIONAL DANGER FROM DEFECTIVE DEVELOPMENT OF GROWING CHILDREN IN TIME OF WAR.*

By HENRY DWIGHT CHAPIN, M.D.,

NEW YORK.

THE widespread effect of war upon all the component parts of society is manifest to all. Some of these effects are temporary, but others threaten to become permanent. Among the latter the influence of war upon children forms a most important factor. Already in European countries such condition as a marked increase in illegitimacy, juvenile delinquency and dependency are causing grave concern to thinking statesmen. The most immediate danger probably falls upon growing children, who, from actual poverty or scarcity of food, may fail to secure proper nourishment. Under-nourishment is here liable to result in an undevelopment that may be permanent. As the child is the best and most lasting asset of the State, this is unfortunate both in time of peace and war. As for the latter, we must remember that children form the great second line of defense in case of future trouble. For all the exigencies of life, strong, well-nourished children are required and everything possible should be done to secure their normal development.

Public attention is called to this problem from time to time and sensational or alarming statements are occasionally made. During the year 1905 a writer and student of poverty made some disquieting reports as to the extent of destitution.¹ Shortly afterward, a government official was reported to have said that 70,000 public school children in New York went breakfastless to school. This alarming statement created a sensation and was published through the country as an ascertained fact. So great was the desire to get at the truth of the matter that a special committee was formed for this purpose. This committee made an intensive study of the life conditions of 1,400 school children in the poorest sections of the city. The homes were visited and all possible means of investigation were utilized by experts. As far as the breakfast was concerned the following facts were ascertained:

No breakfast	0.7 per cent.
Tea or coffee only.....	1.2 " "
Bread and water.....	0.6 " "
Tea or coffee with bread or cake	48.9 " "

*Read before the Pediatric Section, N. Y. Academy of Medicine, Dec. 13, 1917.

The remaining 48.6 per cent. seemed to have had an adequate breakfast, as 14.8 per cent. were reported as having milk and bread or cereals and 33.7 per cent. as having cereal with either meat or eggs. It was thus learned positively that half of these 1,400 children started the day with an inadequate meal. A certain number were improperly fed during the rest of the day as 2.8 per cent. had no meat or eggs, 12.1 per cent. had tea or coffee three times daily, and 28.1 per cent. had these beverages twice daily. The important point, however, was found that poverty alone was not responsible for this defective diet, as only 8.4 per cent. of the families reported earning less than \$10 per week, 5.9 per cent. had more than \$15, 4.3 per cent. had more than \$20, and 1.5 per cent. had incomes of over \$30 per week. Of the children, 10.4 per cent. showed marked malnutrition, but enlarged tonsils and adenoids, bad teeth and swollen glands were very common. Thus 45.5 per cent. of the children had enlarged glands and 74.9 per cent. bad teeth.

Although the food given these children was often unsatisfactory from the dietitian's standpoint, it was only one of the contributing causes of the unsatisfactory physical condition of many of these children. Poor housing, bad street environment, ignorance and faulty management were all factors entering into the problem. Incidentally, it was found that all of the families paid more than one-fourth of their income for rent, thus exhibiting a fundamental economic error.²

A careful study of most social problems shows them to be complex, often depending on very diverse factors. How much physiological ignorance, faulty economic practice or pure poverty enter into the problem of under-nourished children must be studied at each epoch under investigation. In this study of 1905, parental ignorance and lack of proper oversight were more important factors than lack of ability to procure food.

At the present time the rapidly mounting price of all kinds of food due to the war seems to be assuming a more important place in this problem and thus overtopping other factors. Ignorance may still be with us, but if to this is added an exorbitant rise in the price of food the outlook for the badly nourished child of the poor is indeed unfortunate.

A glance at the extent of this rise and then comparing it with the relative increase of wages may throw some light on the present difficulty. The following has been estimated as the increase in price of common foods from 1916 to 1917: Beef, 48 per cent.; lard, 74 per cent.; cheese, 50 per cent.; peas, 104 per cent.; potatoes, 88 per cent.; beans,

55 per cent.; wheat, 76 per cent.; corn, 57 per cent.; oats, 60 per cent.; flour, 85 per cent.; cornmeal, 51 per cent.²

The Association for Improving the Condition of the Poor has found that the actual daily expenditure for food for an adult now calls for 35 cents, with less for a child under 14 years. Their average expenditure at present prices for a family of 2 adults and 3 children amounts to \$8.10 a week. The dietitian of this society has worked out the comparative cost of food representing 65,000 calories for a family of 5 from 1915 to 1917 as follows:

	Total Cost
November, 1915	\$5.84
November, 1916	7.41
March, 1917	8.24
May, 1917	8.40
November, 1917	8.97

This shows a weekly increase of \$3 in two years. The increase in the price of milk in the past year from 9 to 15 cents a quart has already had an influence on the nutrition of many poor children and will have still more effect in the future if steps are not taken to remedy this evil. A survey was recently made under the joint auspices of the Department of Health, the Association for Improving the Condition of the Poor, and the Mayor's Committee on Milk to collect information on this question from 2,200 families, each containing two children under six years of age. In the whole number there were 5,438 children under six years and 2,534 from six to thirteen years. It was found that 1,480 families were getting from 25 to 50 per cent. less milk this year than last owing to the increase in price; 120 families had dropped milk entirely, 73 were substituting canned condensed milk and 1,213 of the 1,480 families were beginning to substitute tea and coffee for milk. The investigators further found that 2,143 children under six years were drinking tea and coffee.⁴ It is not difficult to foretell what will happen to the nutrition of most of these children.

Another way of approaching this question is to institute a comparison between the increase in the price of foods and the increase in wages during a series of years. In the ten years from 1907 to 1916 there was a gradual increase in wages amounting to 16 per cent. in 1916. In the same period there was an increase in the retail price of foods, slow at first, but rapidly increasing to 19 per cent. in 1912, 25 per cent. in 1914, and up to 39 per cent. in 1916. In January, 1917, this increase had reached 56 per cent. and in February 62 per cent.⁵

According to Dunn's Index figures, from April 1, 1914, to April 1, 1917, dairy and garden products increased 84 per cent., meat 46 per cent., and clothing 49 per cent.

Whichever way we approach this question we are confronted by the great disparity between income and increased cost of living. This is unfortunate for all, but bears especially hard on the growing child. We must also remember that increase in wages does not always mean steady or continuous work. Among 372 working men, with a possible yearly income of \$500, only 38 per cent.

of the maximum possible annual income was received and 25 per cent. of these showed bad nutrition; among 566, with a possible income of from \$500 to \$700, 48 per cent. of the maximum income was received and 15.02 per cent. exhibited bad nutrition, and 456 with income of \$700 or over received 61 per cent. of maximum income and only 12.72 per cent. of those had bad nutrition.

It seems to be a rule of all ages that small incomes and poor nutrition usually go together. The Federal Children's Bureau reports that for all live babies born in wedlock the infant mortality rate is 130.7 in a thousand; it rises to 255.7 when the father earns less than \$521 a year or less than \$10 a week and falls to 84 when he earns \$1,200 or more.

Let us now inquire how war prices have affected many of the children in New York. In a report to the Mayor made by the Bureau of Personal Service, the minimum on which a family of five can live in New York is \$980 in 1917, as compared with \$840 in 1915. In 1915, Dr. F. H. Streightoff stated that one-half the married men in New York were receiving less than \$15 a week, while \$17 was the minimum requirement. There is no doubt that the effect of all this upon the nutrition of many children has been marked.

In 1916 there was an attempt at a nutritional grading of 95,030 children by inspectors of the Bureau of Child Hygiene, New York Department of Health. The children were in grades A, 3A and 6A in schools in the Borough of Manhattan and were classified according to the Dunfermline Scale. This scale is divided into four groups, distinguished as follows:

1. "Excellent" means the nutrition of a healthy child of good social standing.
2. Children whose nutrition just falls short of this standard are "good."
3. Children "requiring supervision" are on the borderland of serious impairment.
4. Children "requiring medical treatment" are those whose nutrition is seriously impaired.

The following were the conclusions from this study:

	Per Cent.
Nutrition 1—Superior condition.....	30
2—Passable condition.....	59
3—Poor condition.....	8
4—Very poor condition.....	3
	100

As the enrollment in the New York City Public and Parochial Schools is approximately 1,000,000, if this ratio were general the following figures would be obtained:

1. Superior condition	300,000
2. Passable condition	590,000
3. Poor condition	80,000
4. Very poor condition	30,000

This would show that 110,000 children require attention on account of defective nutrition.

According to the Board of Education the following is an approximate classification of the child population of New York City:

Percentage of
Total Population

Under 2 years of age.....	4.0
Pre-school age, 2 to 6.....	8.0
School age, 5 to 18.....	24.0
In public schools.....	15.0
In parochial schools.....	2.5
In public and parochial schools..	17.5
Elementary schools	16.0
Secondary and vocational schools.	1.5

It will be seen that any percentage referring only to elementary school enrollment will need to be doubled in order to include the pre-school age and the post-elementary school children who are making the transition to industry.

In a recent report by Mr. Frank Manny, all the pupils of Public Schools 40 and 50, 2,538 in number, were examined and classified according to the physician's diagnosis in the Dunfermline Scale as follows:

	Boys	Girls	Both
Nutrition 1.....	13	31	21 per cent.
2.....	49	35	43 " "
3.....	24	24	24 " "
4.....	14	10	12 " "

These are not among the worst conditioned schools, but if further study shows the same relative proportion among the four nutritional grades, 120,000 cases would call for immediate attention and 240,000 would be on the borderline for careful observation.

An interesting study was also made as to the number of children in the families represented by these pupils in connection with their nutritional classification:

BOYS.

	Foreign Born	Native Born	Both
Nutrition 1....	4.5	3.5	3.8
2....	4.2	3.9	4.0
3....	4.5	4.3	4.4
4....	4.3	4.6	4.5

GIRLS.

Nutrition 1....	3.9	3.5	3.6
2....	4.3	4.3	4.3
3....	4.9	4.5	4.6
4....	4.3	4.7	4.6

This shows what would be expected, that the poorer nutritional cases are apt to be found in the large families. The foreign born children, however, give rather a better showing than the native born.

While the exact number of under-nourished children in any locality can after all only be estimated, the study thus far made shows this number to be very large, with a tendency to increase under the present conditions. It seems to be a world-wide condition and will form one of the most disastrous by-products of the great war. Mr. L. Haden Guest says that one in every ten of the children in the English elementary schools are under-nourished.⁷ Sir George Newman concludes that not less than 10 per cent. of the children of England and Wales are under-nourished.⁸ Doubtless the same condition, if not worse, exists in all the warring countries.

It would seem that immediate steps should be

taken to deal with this serious situation. The first effort should consist in an attempted standardization of medical examination records so that data from various sources can be compared. This could be added to the nutritional scale already in use. All possible defects might thus be collected in four groups. The degree of under-nourishment, together with the kind of defects discovered, and the type of care required, would afford an indication as to how the case should be handled.

After a careful study of the number of under-nourished and defective children in any locality, the local authorities should correlate all the existing relief agencies to see that every growing child has sufficient food—if necessary helping and supplementing these agencies. In every case a campaign of education must precede and accompany relief.

REFERENCES.

1. Poverty. By Robert Hunter.
2. American Statistical Association, Vol. X, June, 1907.
3. Alexander Hamilton Institute, Letter, April, 1917.
4. Weekly Bulletin Dept. of Health, Nov. 3, 1917.
5. U. S. Bureau of Labor Statistics, April, 1917.
6. Frank A. Manny: School and Society. Vol. III, No. 56.
7. The Nation of the Future, 1916.
8. Report of Chief Medical Officer Board of Education, England and Wales, 1916.

51 WEST FIFTY-FIRST STREET.

HISTOPATHOLOGICAL STUDIES ON
BRAIN ABSCESS.*

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A BRAIN abscess may be looked upon as a foreign body lodged within the brain tissues, and as such it must evoke in them various reactive changes.

Those portions of the brain which are occupied by, or transformed, into pus are, of course, entirely gone, appearing on gross examination as holes, cavities, etc. In such cases the abscess may be walled off from the unaffected brain portions by connective tissue, or a membrane, which is the ultimate result of the reactive phenomena. In other cases, the suppuration does not become localized, is rather diffuse, is not walled off by a membrane, the brain tissue being, so to speak, flooded with pus. In such cases, the reactive phenomena, the defense put up by the brain, will be different and somewhat more complicated than in the former variety. A brief description of the histopathological changes to be met with in either of these types, based on careful pathological study of five cases, will, I think, be of some interest.

To avoid undesirable repetitions I will report but two cases which I consider very typical.

CASE I.—Man, 59 years old, entered Cook County Hospital November 6, 1915, where he died six days later. He took sick suddenly on November 1, 1915, with chills, fever, and headache, accompanied by drowsiness. Five days afterwards paralysis of the right leg developed, followed the next day by paralysis of the right arm, right half of the face and tongue. The hemiplegia was associated with loss of speech and hearing, rigidity of the neck, and severe pains in various joints.

*From the pathological laboratory of Cook County Hospital, Chicago.

The left big toe showed an embolic suppurative focus on November 12, 1915, when the patient died. The temperature ranged between 100.8° and 104°, and the spinal fluid was cloudy with 2800 cells (92 per cent. polymorphs.) per cubic millimeter. The cultures from the blood showed a streptococcus infection, the source of which could not be ascertained. The postmortem examination revealed a chronic suppurative mastoiditis, a chronic otitis media, a septic purulent meningitis, an abscess in the temporoparietal region of the left hemisphere, one in the middle lobe of the right lung, scattered mycotic emboli in both lungs, and numerous intracerebral and meningeal hemorrhages, some of which covered also the cerebellum, pons, but spared the large basal ganglia, the frontal and occipital lobes. The anatomical diagnosis may be briefly summed up as brain abscess, brain hemorrhages, and purulent meningitis.

Various portions of the brain were hardened in 96 per cent. alcohol, formalin, Weigert's mixture (copper acetate-fluor chrom-formalin), and stained with toluidin-blue, Bielschowsky (silver nitrate), methyl green-pyronin, Weigert's fibrin stain and Mann's mixture (Alzheimer's method V).

The pia over the involved areas of the brain appeared even macroscopically thickened and covered with pus. The microscopical examination showed a purulent meningitis, a detailed description of which, together with that of other forms of meningitis, will be reported in a separate contribution. The microscopical changes in the brain tissue proper varied according to the localization of the hemorrhages, pus foci, etc. Those parts that were infiltrated with pus showed under the microscope a great number of pus cells which mainly consisted of polymorphonuclear leucocytes. Where the pus cells were not numerous, where they did not form dense masses, there could be seen large round bodies containing, as a rule, numerous vacuoles separated from each other by delicate, thin, trabeculae and an eccentrically located usually flattened pale nucleus.

The majority of these mononuclear vacuolated bodies were round in shape, of large size, and mostly devoid of any contents. They have been described in many diseases, as all kinds of meningitis, encephalitis, paralytic dementia, etc., under various names, but are commonly known as Mechanikoff's macrophages.¹ Some of the latest observers, as Cerletti,² Fulci,³ call them "vesicular" bodies ("Blasencellen"). These macrophages were to be found, on my specimens, in large numbers *outside* the pus zone, though they were scattered, in small numbers, also *among* the pus cells, from which they could be easily differentiated by their large size, round form, and vacuolated cell body with an eccentrically located nucleus (Fig. 1).

Besides the macrophages, there were quite numerous other mononuclear round elements, much smaller in size than the macrophages and without any vacuoles in their cytoplasm and which appeared pale and homogeneous. The nucleus is often very irregular, biscuit or kidney shaped, contains a network of chromatin threads, and light in appearance.

Some of these mononuclear cells have a cystic protoplasm which may be represented by one large vacuole with a misplaced flattened nucleus. Such cells much resemble a mononuclear leucocyte and were described and thoroughly studied by Maximow,⁴ in septic and aseptic inflammatory processes, under the name of polyblasts.

"These," he says, "are mononuclear round cells described by some observers either as mononuclear leucocytes, in case they are small, or, in case they are large, as tissue wandering cells, or as fibroblasts reduced to their embryonic state. * * * They originate from lymphocytes, may proliferate and show progressive changes. They are active phagocytes, may be round, polymorphous, large or small, may stain dark or light, may show granules in their bodies, are very numerous in inflamed young connective tissue in whose formation they play an enormous rôle." Maximow considers also the macrophages as polyblasts where he includes the fourth variety of elements to be found near the pus area, the so-called plasma cells (Fig. 1).

The latter, on my specimens, could be seen only outside the pus area, between the latter and the pus free zone. They are very typical in appearance, on account of their chromatin rich nucleus,

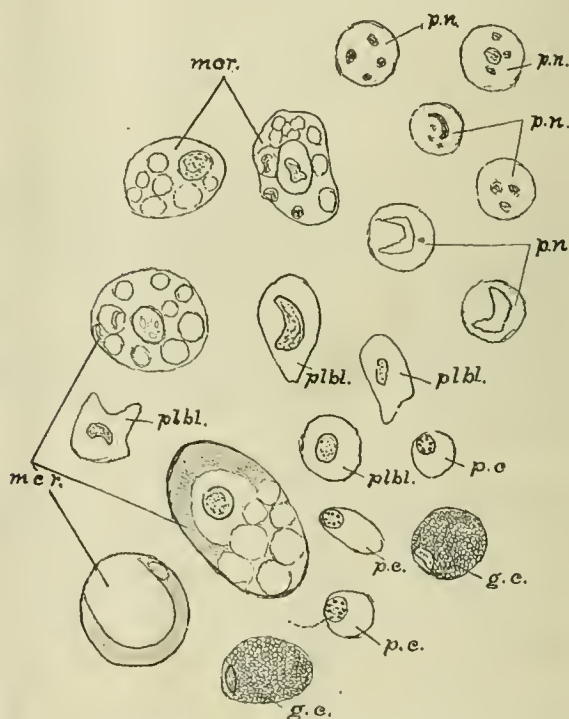


FIG. 1.—Various cells in the inflammatory area, *p.n.*, polymorphonuclear cells; *plbl.*, polyblasts; *p.c.*, plasma cells; *g.c.*, "gitter cells"; *mcr.*, macrophages.

where the particles of chromatin, occupying its periphery, radiate spoke-like towards the center. The nucleus shows a distinct membrane and is surrounded by a rich protoplasmic metachromatically stained cell body, where it is usually eccentrically located but frequently occupies the center of the cytoplasm and shows a light unstained space, a halo.

The size of the plasma cells was unusually large, the form round or oval, often there were two nuclei, and the latter's chromatin was not in the form of spoke-like arrangement of its particles but in the form of solid lumps. The chromatin particles could be seen in some nuclei breaking through, as if oozing through their ruptured membrane. In many instances, the plasma cells were represented by a mere nucleus, deprived of any vestige of protoplasm, and then hardly could be distinguished from an ordinary lymphocyte. In

some plasma cells the cytoplasm appeared unusually pale, granular, vacuolated, or cystic. In short, the plasma cells showed numerous regressive changes, though the majority of them, as I said, were unusually large and frequently contained two nuclei.

Finally a fifth type of cells must be mentioned, also mononuclears, round or oval in shape, consisting of a network of minute vacuoles, honeycombed in appearance (Fig. 1), with a pale, always eccentrically located nucleus. These cells much resemble macrophags; but their vacuoles are much smaller, are either empty, on alcohol hardened specimens, or packed with fat granules on formalin specimens. Such cells are known as "Gitter cells." They are very numerous around the vessels, are usually gathered in great numbers, pus cells or any other elements being absent near or around them.

These five types of hematogenous elements—polymorphonuclears, macrophags, polyblasts, plas-

The latter could also be found within, in the lumen of the blood vessels, together with erythrocytes, leucocytes, and lymphocytes. The adventitia was not only dilated, infiltrated, but, as a rule, was also hypertrophied, *i.e.* it showed a considerable increase in the amount of connective tissue fibers, which frequently formed bundles, bands, etc. The vessels themselves were very numerous, tortuous, wounded and formed numerous anastomoses. The capillaries were also numerous, many of them showed a scarcity of endothelial cells, were empty, and surrounded by connective tissue cells, spindle-like in shape, with an oblong, flattened nucleus, and processes emanating from the opposing poles, so-called fibroblasts.

Other capillaries exhibited so-called "Sprossen," protrusions of the endothelial wall, and hardly showed any infiltration. These evidently are new formed capillaries.

The vascular changes are very typical, striking, and much more in evidence than those of the neuroglia tissue, of the ganglion cells, and of the nerve fibers. The ganglion cells in the pus area did not show the usual layers of Brodman; in fact, exceedingly few ganglion cells were left, and those that escaped complete destruction were so changed that it often required some diligent search to notice them. They were very pale, homogeneous in appearance, mostly devoid of their processes. Sometimes the cell body was granular, or even transformed into a shapeless mass of minute granules and without a nucleus. The sole sign of a former ganglion cell was, in some instances, the presence of glia nuclei, or glia cells, so-called "Trabantenzellen" occupying the remnants of a former ganglion cell.

Many ganglion cells showed the so-called "Wasserzustand" of Nissl, when the destroyed cytoplasm of the ganglion cell contained a large empty space around the nucleus. The latter was exceedingly poor in chromatin, pale, and rarefied. In short, the ganglion cells showed all possible pathological changes described by Nissl as "acute" and "severe" cell disease and marked neuronophagia.

In contrast with such profound destruction of the nerve cell bodies, the nerve fibers appeared quite well preserved, even in the most damaged areas. They showed a preserved axone surrounded by myelin, though both the axone and the myelin sheath were greatly tumefied and occasionally covered with varicosities. The glia tissue was represented by so-called protoplasm-poor glia cells, also known as "glia nuclei" ("Gliakerne"). The latter were very poor in chromatin, round, with a well preserved membrane, and very pale. Other glia cells showed the well-known ameboid type, and the glia fibers were transformed in the so-called Alzheimer's "füll" bodies. In other words, like the ganglion cells, the glia exhibited marked regressive changes.

Portions of brain that were not directly involved in the suppurative process appeared cribriform, areolar, contained more or less preserved ganglion cells, proliferated glia nuclei, vessels infiltrated with plasma cells, and a great number of newly formed capillaries. In short, they showed an encephalitis. The pathological changes thus involved the ectodermal and mesodermal tissues. The

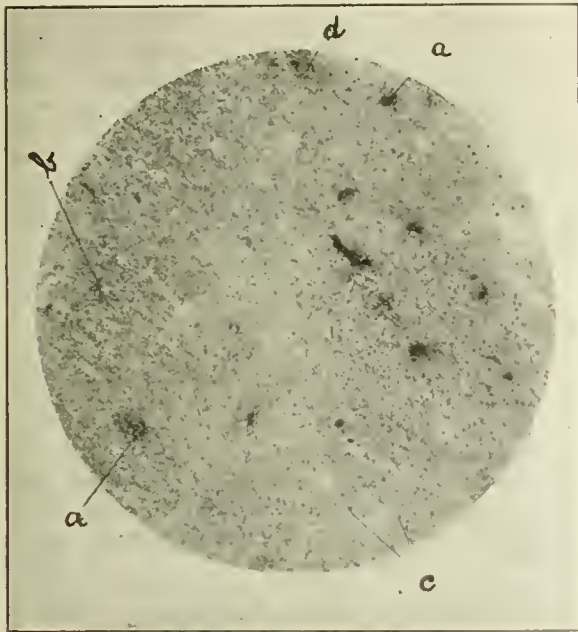


FIG. 2.—An inflammatory area with thrombosed vessels (a); b, hemorrhagic foci; c, glia cells; d, perivascular fibrin exudation; no membrane formation (microphotogram).

ma cells, Gitter cells—were very numerous in those portions of the brain which were more or less affected by suppuration.

Any other elements, as ganglion cells, glia cells, nerve fibers, either could not be encountered at all, or on suitably stained specimens appeared greatly changed. Thus, frozen sections from the suppurative or purulent zone, stained with Mann's mixture (methyl blue eosin), were instructive.

As the microphotogram (Fig. 2) shows the visual field is covered with hemorrhages and a large amount of vessels in the form of dark islands. The vessels were uniformly thrombosed and enveloped by a more or less extensive network of fibrin, whose meshes, in many instances, could be seen scattered over the larger part of the visual field, and containing a great number of red blood cells. Some of the vessels did not show the perivascular fibrin exudation, but always had dilated adventitial spaces, filled with infiltration cells, which exclusively consisted of plasma cells.

former, *i. e.* the nerve and glia tissues, exhibited marked regressive phenomena that resulted in almost total destruction of the brain tissue and in ameboid transformation of the glia, while the mesodermal tissue showed progressive changes, like neo-formation of capillaries, hypertrophy of the adventitia and proliferation of fibroblasts. In addition, there was a pronounced perivascular infiltration, chiefly with plasma cells, in the presence of numerous leucocytes, macrophags and polyblasts.

The predominance of progressive mesodermal changes was much more in evidence in the next case, where they resulted in a formation of a solid connective tissue membrane.

CASE II.—G., aged 29 years, entered Cook County Hospital March 3, 1916, complaining of headache, weakness and cough. A good history could not be obtained. He claimed having been suffering from a severe headache for nine months. Two weeks after his stay in the

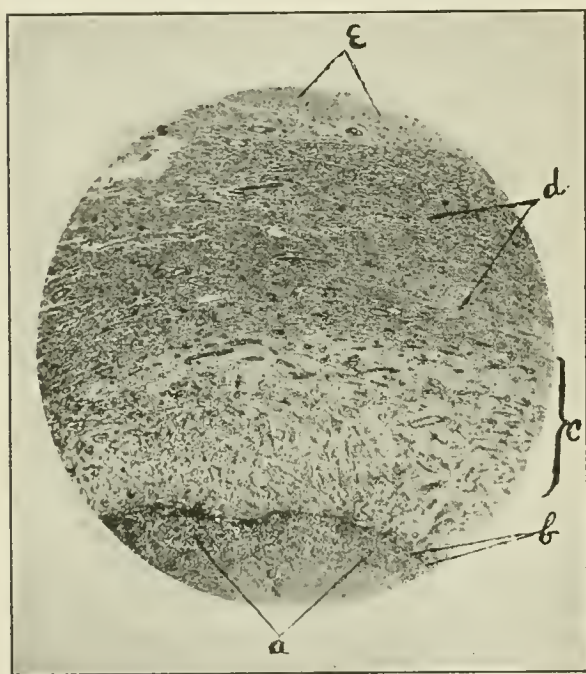


FIG. 3.—An abscess membrane with three distinct layers. *a*, the abscess; *b*, the inner layer of fibrous tissue; *c*, the middle layer; *d*, the external layer; *e*, brain tissue (microphotogram).

hospital he became irrational, toxic, developed a septic state in which he died 18 days after his admittance.

The spinal fluid showed 120 cells per cubic millimeter. The post mortem records were as scanty as the clinical ones. They did not give any information relative to the microscopical brain changes, the location of the abscess, its possible origin, etc., and for microscopical studies there were available but a few pieces of brain tissue, one of which contained an abscess the size of a quarter. The microscopical changes around the abscess proved to be so striking, so typical, that I thought it worth while studying and recording them, regardless of the deficient clinical and gross pathological records.

Between the abscess and the retained brain tissue there could be discerned, even with the naked eye, especially when stained with Marchi, a band of tissue enveloping the abscess and thus separating same from the rest of the brain (Fig. 3). Of nu-

merous staining methods tried the best one proved to be that of Van Gieson (iron hematoxylin of Weigert with fuchsin—picric acid) after previous hardening of the tissues for 24 hours in Zenker's fluid. Frozen, celloidin, and paraffin sections were used, and all of them gave very beautiful and instructive pictures. The pus of the abscess cavity consisted of granular bodies and very few polymorphonuclear leucocytes. The membrane showed three distinct layers. The innermost, adjacent to the pus cavity, was represented by a thin strip of collagenous fibers, running parallel to each other and forming dense, compact bundles of fibrous tissue, without any interspaces, and with very few, mostly obliterated, blood vessels. Very few of the granular pus cells could be found among the inner fibers of this layer, which was followed by a much broader zone that was rich in capillaries, plasma cells, polyblasts, fibroblasts, and peculiar protoplasmic rich cell bodies covered with black granules and a well stained nucleus—probably so-called clasmatoocytes.

A remarkable feature was the presence of numerous transitional forms among all these elements, which commonly appeared unusually large in size. The plasma cells were as a rule quite typical. Scattered around the vessels and among other cells they could be easily recognized by their peculiar chromatin rich nucleus and a large protoplasmic body. Some contained two nuclei which sometimes appeared elongated, rod-like, peripherally located and filled with small chromatin particles, while the protoplasm showed spindle shaped form, resembling the cell body of a fibroblast (Fig. 4).

Other plasma cells while retaining their typical nucleus exhibited an unusually well developed protoplasm with dull branched processes, ameboid-like, with a kidney, or biscuit shaped or slightly elongated nucleus. Such cells much resembled Maximow's polyblasts. The fibroblasts were all well developed, contained sometimes an enormous nucleus, a cell body that also was very large, often reticular in appearance, filled with minute black granules, and provided with distinct processes.

The fibroblasts were scattered singly, or in groups, especially around the capillaries. Their processes sometimes were very long, making an impression of connective tissue fibres, which, however, in this layer were totally absent. The vessels were quite numerous, with very thick, hypertrophied walls, infiltrated with lymphocytes, plasma cells and thickly covered with fibroblasts.

The fourth variety of cells were represented by large cell bodies (Fig. 4) emitting small pseudopodia, granular in appearance, thickly covered with minute granules and a light excentrically located large nucleus. These cells were lying free among the meshes formed by the process of the fibroblasts, seemed to be enveloped by them, fewer in number than the plasma cells and fibroblasts, and were usually seen near the vessels. On my specimens, they appeared much larger than the fibroblasts which, as I said, were very numerous and of great size, with two or three nuclei.

The described fourth type of cells to be found in the second layer of the abscess membrane strikingly resembled the clasmatoocytes as depicted by Maximow in his classical work on inflammatory neo-

formation of connective tissue. The clasmatocytes were first described by Ranvier in 1891⁶ in the femoral aponeurosis of frogs, in thin connective tissue membranes of various vertebrates (frogs, rabbits, guinea-pigs, rats, etc.) and originate according to Ranvier from leucocytes which emigrated from the blood vessels into the interstitial spaces of connective tissue, where they remain as permanent elements and possess secretory properties. Together with the leucocytes they furnish material for pus material. They possess numerous processes which branch, but do not anastomose. Toward the end of their evolution, the protoplasm filaments break up or become dissolved, and "the grains of the secreted material are discharged into the meshes of the connective tissue," where they remain. Maximow proposed to name them "resting wandering tissue cells." On my specimens they appear much larger than ordinary so-called lamellar-flat connective tis-

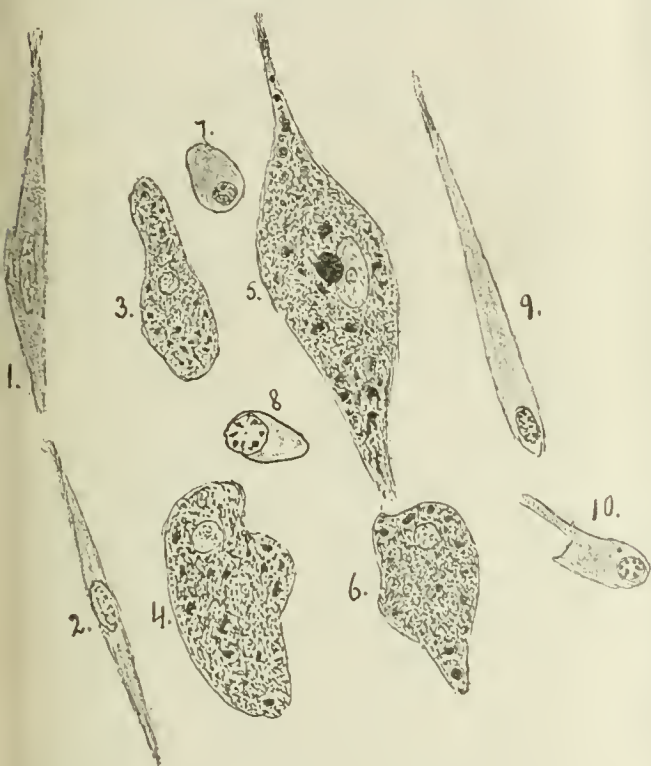


FIG. 4.—Various cells in the second and third layer of the abscess membrane. 1-2, fibroblasts; 3-6, clasmatocytes; 7-8, plasma cells; 9-10, plasma cells forming fibroblasts.

sue cells and somewhat resemble the "epitheloid and connective tissue" cells as reproduced by Harris.⁸

Ranvier's clasmatocytes were also described by Maximow, as well as by Doinikow⁷ in lower animals, but I could not ascertain whether they were found in normal or pathological human tissues. Therefore I hesitated somewhat in classifying the fourth type of the above described cells among clasmatocytes of Ranvier. Yet, their general appearance is so different from the rest of the elements to be seen in the second layer of the abscess membrane, they so much resemble the ones reproduced under this name by Maximow, that I must consider them as clasmatocytes, and thus admit their possible occurrence at least in *pathological* human tissue.

Especially numerous are they in the third layer of the membrane, the one that borders with the brain tissue proper. This layer shows a well-formed, ripe,

so to speak, connective tissue consisting of fibres. These form meshes filled with the clasmatocytes, large hypertrophied fibroblasts, plasma cells and polyblasts. The plasmacells and polyblasts are less numerous than in the second layer, but still present, mostly around the vessels which showed a well-formed, but infiltrated adventitia. There are to be seen in the layer numerous plasma cells that partly resembled fibroblasts, being evidently in the process of transforming in the latter and connective tissue fibers. (Fig. 4.)

Another peculiarity of the third layer is the presence of enormous amount of black granules, some of which were composed of hemosiderin, and some, as Marchi specimens counterstained with Ehrlich's hematoxylin showed, were fat. The black granules were very numerous around the vessels, but frequently could be found also in the fibroblasts and the clasmatocytes. Glia, nerve fibers, ganglion cells were anywhere absent in the membrane which wholly consisted of mesodermal elements that replaced the brain tissue.

The question arises whence did the mesodermal tissue develop and what produced such powerfully developed fibroblasts, polyblasts, plasma cells, etc.? That the plasma cells are of hematogenous origin, are modified lymphocytes, is at the present admitted by the majority of investigators (Fulci, Cerletti, Maximow, Schaffer⁹); the polyblasts are definitely established by Maximow to be also modified lymphocytes or plasma cells and capable of producing connective tissue. That the clasmatocytes are also of hematogenous origin was already pointed out by Ranvier and admitted by Maximow, but Ranvier denied their ability to form connective tissue which, however, was proven by Maximow to be a fact. In short, the connective tissue develops from leucocytes or lymphocytes and their modified states—plasma cells, polyblasts and clasmatocytes, which elements can be looked upon as embryonic connective tissue. The study of membrane formation around a cerebral abscess, thus, affords excellent opportunities of following up the evolution of connective tissue growth—its embryology. So far, such studies have been carried on experimentally (Ziegler, Maximow, and others). Especially remarkable were the investigations of Maximow, who succeeded in obtaining poor cultures, as it were, of connective tissue elements, by inserting glass cameras, celloidin plates, and tubes, etc., in various animals, as rabbits, pigeons, dogs, etc. He chose places commonly poor in connective tissue, as peritoneum, intermuscular tissue of the abdominal wall, where very little fat and very few vessels are present.

The brain seems to be still more favorable for such studies, and, as the findings in my second case show, the connective tissue does originate from the hematogenous elements—lymphocytes, or mononuclear leucocytes (they are according to Maximow a modification of lymphocytes), plasma cells, polyblasts, and clasmatocytes—as advocated by Maximow, though he did not admit that plasma cells may produce connective tissue.

As neither time nor space would permit of further discussion of this highly interesting and difficult subject, I will have to limit my remarks to what I said, but would like to point out that the three distinct layers with distinct and characteristic micro-

scopical structure do not show in every case. In some cases, there is no distinct membrane to be seen, but a mass of plasma cells, leucocytes, polyblasts, and fibroblasts scattered among congested and infiltrated blood vessels, any collagenous, well formed connective tissue fibers being absent. Much, of course, depends and must depend upon the stage of the membrane formation, upon the severity and the duration of the fundamental disease process.

As the above-mentioned elements, lymphocytes, plasma cells, etc., undoubtedly originate from the vessels, the latter must be looked upon as the source of the new formed membrane, or of the cells that are instrumental in building up a defense for the remaining brain tissue. This defense is here evidently of a character different from that usually to be met with in various other organic nerve lesions (tabes, amyotrophic lateral sclerosis, multiple sclerosis, subacute cord degeneration, etc.). In all those central nerve lesions, where the parenchyma alone is involved, the active rôle in replacing the damaged nerve substance is accomplished by the glia as described by me elsewhere.⁹ The progressive glia changes finally lead to a glia scar formation which scar in brain abscess is formed, not by the glia, but by the connective tissue, or rather by the vessels that furnish material for it in the form of mononuclear leucocytes, or lymphocytes, plasma cells, polyblasts, and clasmatocytes.

Further studies along these lines are absolutely desirable as the subject of histology of brain abscess is the most neglected one in the entire neuropathology. There are but few contributions on this subject available, the best of which are those by Westphal,¹⁰ Kölpin,¹¹ Oppenheim-Cassirer,¹² and Homén.¹³

REFERENCES.

1. Metchnikoff: *Leçons sur la Pathologie Comparée de l'Inflammation*. Paris, 1892.
2. Cerletti: *Die Histop. Veränderungen der Hirnrinde bei Malaria Perniciosa*. Nissl-Alzheimer's Arbeiten, 1910, Vol. IV.
3. Fulci: *Die akute hemorrhagische Leptomeningo-Encephalitis bei der Milzbrandinfektion des Menschen*. Nissl-Alzheimer's Arbeiten, 1913, Vol. VI.
4. (a) Maximow, A.: *Experimentelle Untersuchungen über die entzündliche Neubildung von Bindegewebe*. Jena, 1902. Ed. Fischer.
- (b) Weiteres über Entstehung, Struktur und Veränderungen des Narbengewebes. Ziegler's *Beiträge zur path. anat. u. allg. path.*, 1903, XXXIV, p. 153.
- (c) Zur Frage der entzündlichen Gewebsneubildung. *Centralbl. f. Allg. Path.*, 1903, XIV.
- (d) Ueber entzündliche Bindegewebsneubildung bei der weissen Ratte und die dabei auftretenden Veränderungen der Mastzellen und Fettzellen. Ziegler's *Beiträge*, 1904, XXXV.
- (e) Beiträge zur Histologie der eitrigen Entzündung. Ziegler's *Beiträge*, 1905, XXXVIII, p. 301.
5. Ranvier, L.: (a) Des Clasmatocytes. *Comptes Rendus des Séances de l'Académie des Sciences*, Paris, 1890, Vol. 110.
- (b) Les Clasmatocytes, les cellules fixes du tissu conjonctif et les globules du pus. *Comptes Rendus Hebdom. des Séances de l'Académie des Sciences*, Paris, 1893, Vol. 116.
- (c) Des Clasmatocytes. *Arch. d'Anatomie Microscopique*, 1900, III, p. 122.
6. Harris, H. F.: Histology and Microchemic Reactions of Some Cells, etc. *Philadelphia Med. Journal*, April 7, 1900.
7. Doinikow, B.: Beiträge zur Histologie u. Histopathologie der peripheren Neuritis. Nissl-Alzheimer's Arb., 1911, Vol. IV.
8. Schaffer, S.: Die Plazmacellen, Jena, 1910.

Abstr. *Zeitschr. f. die gesamte Neurol. u. Psychiatrie*, Vol. I, p. 81.

9. Hassin, G. B.: (a) Histopathological Changes in a Case of Amyotrophic Lateral Sclerosis. *MEDICAL RECORD*, Feb. 10, 1917.

(b) Histopathological Findings in Two Cases of Subacute (Combined) Cord Degeneration. *MEDICAL RECORD*, May 26, 1917.

10. Westphal, A.: Ueber Gehirnsabszesse. *Arch. f. Psych. u. Nervenkr.*, 1900, XXX, p. 206.

11. Kölpin: Zur Symptomatologie u. path. Anatomie des Hirnsabscesses. *Deut. Zeitschr. f. Nervenkr.*, 1904, XXV, p. 465.

12. Oppenheim u. Cassirer: *Der Hirnsabszess*, 1909, Wien.

13. Homén, E. A.: *Experim. und pathol. Beiträge zur Kenntniss der Hirnsabszesse*. Arb. aus dem path. Institut d. Universität Helsingfors, 1913.

31 N. STATE STREET.

THE SURGICAL SIGNIFICANCE OF ABDOMINAL PAIN IN CHILDREN.

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AMONG the most common sources of abdominal pain in children should be mentioned the following:

Intestinal disturbances due to indiscreet dieting or to constipation.

Intestinal disturbances due to appendicitis.

Intestinal disturbances due to peritonitis, the etiology of which may be (a) pneumonia, (b) surgical conditions the site of which is elsewhere in the body, (c) empyema, (d) subphrenic abscess, (e) the tubercle bacillus, (f) the infectious diseases, (g) typhoid perforation.

Intestinal disturbances due to volvulus or intussusception.

Intestinal disturbances due to pyelitis.

The attacks of abdominal pain from indiscreet dieting are the most frequently seen and most easily diagnosed. They deserve but little discussion from the surgical standpoint. Associated with frequent vomiting and a high temperature, they respond almost immediately to the proper medical treatment. Another type, however, is that which owes its origin to chronic constipation. The onset is insidious. The pain is constant in character, not very severe, but just sufficient to keep the patient in continuous distress. As is common in childhood, the character of this pain is difficult to elicit except that the parents will usually state that the patient is unable to sleep nights and that the pain has continued over a number of days, being of an intermittent variety, sometimes located in the region of the umbilicus, at other times more general in character. The child is restless, is losing weight and looks poorly. On physical examination there is noted a moderate degree of abdominal distention. The percussion note is tympanitic in character. On palpation there is general abdominal tenderness with perhaps slight spasm of the right rectus over the region of the appendix. Rectal examination is negative. It is very important to make this in the case of children, as tenderness here or the presence of a mass is often sufficient to establish a diagnosis. The tongue is coated and somewhat dry. The facial expression is indicative of a general toxemia. There is a slight daily rise in temperature, intermittent in character. There is a small increase in the leucocyte count with but little increase in the poly-

morphonuclear cells. The examination of the lungs is negative.

A high enema properly given associated with the use of laxatives at once relieves the symptoms. The difficulty in these cases is that the bowels have not been properly evacuated, though there may be a history of frequent enemas given by the parents. The importance of the high enema properly administered is one not thoroughly appreciated. Parents must be instructed definitely how this should be given, otherwise results will not be obtained. At times these intestinal attacks are very severe and difficult to diagnose. This is well illustrated by the following case:

The patient, four years of age, became suddenly very ill. The temperature was 105 deg. There was frequent vomiting. The abdominal pain was of a severe type. It was general in character and at no time localized. There was constipation. The child appeared to be suffering from an infection of a very active character. No improvement occurred even after the bowels had been moved several times and high enemas freely administered. A small amount of reddish material of a foreign character was evacuated, when the temperature at once subsided and a rapid convalescence followed.

To distinguish between the simple intestinal disturbances noted, which are purely medical, and those of surgical significance is often very difficult and puzzles the internist as well as the surgeon. The two extremes are well illustrated by the type of infection which, starting as a pneumonia, develops later abdominal pain considered by the attendant to be due to a pneumococcus peritonitis, but which is really appendical in its origin, with a sequel of a too-long-delayed operation followed by the death of the patient; and those cases of appendicitis which are operated on by the surgeon with the result that a normal appendix is found and the child after the operation runs a typical pneumonia with the added postoperative complications which develop after even the most simple operative procedures in children. In a case of this kind we find that the added strain of the operation is at times just sufficient to turn the scale in the direction of an unfavorable outcome. This is especially true where the pneumonia is of central origin. In both it must be remembered that a high leucocyte count prevails, the amount of this varying with the severity of the attack.

To illustrate, the writer calls to mind a case in which for several days a child seven years of age had suffered from abdominal pain. The temperature range was neither high nor typical. The leucocyte count was low. The pain, though generalized, seemed to focus more in the region of the appendix than at any other point. A number of careful examinations of the lungs by internists on different days failed to reveal any definite or even suspicious signs of pneumonia, and yet at the operation a normal appendix was found and the child shortly developed a pneumonia, central in character, which ran a mild course with a typical temperature and crisis. Fortunately, the patient was at no time in a critical condition. Evidently the administration of the ether was sufficient to light up a process in the lungs which had previously been more or less quiescent.

This case well illustrates the fact that appendicitis in children is difficult to diagnose. It is very rare in infancy. The proportion of cases increases gradually with the age of the child. The greatest care must be exercised in establishing a diagnosis. So many other conditions of a pathological nature in

children may cause abdominal pain that this point must be emphasized. A pleurisy in which the lower intercostal nerves are involved may simulate appendicitis, acute attacks of colic, the distress of intestinal indigestion characterized by a dull aching pain which involves the right lower quadrant of the abdomen, intussusception, which will be reviewed later, and pyelitis, all must be considered and carefully ruled out. Appendicitis is an insidious disease and appears associated with so many different clinical pictures in children that unfortunate mistakes are sure to be made. Every case of acute pain with tenderness localized in the region of the appendix should be classed as appendicitis until this diagnosis is absolutely ruled out by the development of a primary focus elsewhere. If, in addition to this localized tenderness, there are a high differential leucocyte count with an excess of polymorphonuclear cells to the extent of 80 per cent. or over, rigidity of the right rectus, which is real rigidity and not simply spasm, and a mass felt on palpation, the diagnosis can be assured only after the administration of high enemas in order to relieve a possible fecal accumulation in the cecum. It should also be borne in mind that enlarged and inflamed inguinal glands at times complicate the picture.

Operative procedures in children under 2 years of age are not borne well; up to the age of 6 or 7 not so well as in the case of older persons; after this age rather better than in adults. In fact, some remarkable recoveries are seen in children suffering from ruptured appendices associated with peritonitis. One instance is called to mind in which a boy of 12 was admitted with the entire abdomen rigid, having been treated for typhoid fever for eight days. The pelvis was filled with pus, more than 300 cc. being evacuated at the operation; there was also an extensive spreading peritonitis following the rupture of the appendix. The recovery was complete without an unusually long convalescence. The point to be emphasized is the danger of rash operative procedures. Many children do not take ether well, especially if the slightest irritation of the lungs is present. There is a tendency to cyanosis during the anesthesia and the accumulation of a large amount of mucus in the throat and bronchi. This frequently presents a very serious complication, and most careful preoperative examinations should be insisted on. If chloroform is administered while the patient breathes with less effort, there is the constant danger of cessation of respiration and the need of a watchful attitude on the part of the operator which detracts from the concentration on the operation that is so essential to the surgeon. In children, the use of morphine before operation should be avoided as it inhibits the respirations to a dangerous degree and has practically no effect on the accumulation of mucus. Nitrous oxide is not well taken, unless judiciously mixed with oxygen and should be administered only by an expert. In empyema it should not be used, a local anesthetic being far preferable.

Peritonitis in children presents itself in many different phases. It is associated with varying degrees of pain. Primary peritonitis is rare. In the secondary form it is comparatively common. The origin of the infection must be carefully traced. Appendicitis is the most common cause. The colon

bacillus, staphylococci, streptococci and pneumococci are frequently found in cultures taken from the peritoneal content. In cases of perforation from typhoid ulcers, typhoid bacilli may be discovered. Infection of the peritoneum may follow systemic conditions of a pathological nature, such as tuberculosis and syphilis. The acute infectious diseases, such as scarlet fever and influenza, also form the basis for an extension to the peritoneum. The female genital tract offers a not infrequent source of contagion, and occasionally it may follow a meningitis or otitis of pneumococcic origin. Whenever it occurs in children it should not be considered primarily a cause for surgical intervention. Subsidence often follows improvement in the primary infection, though the condition may at the time present a surgical picture of a very acute character.

The symptoms of peritonitis vary in different cases. As a rule, when secondary, its onset is suggested by a gradual abdominal distention accompanied with pain of a general character. This stage may be preceded by much more acute phases, such as acute colic with a temperature of 104° or 105° and a rapid increase in the pulse rate. In this case, the abdomen soon becomes distended and tympanitic. There is considerable spasm of the abdominal muscles. The legs may be drawn up and the facies pinched. This type of case usually runs a comparatively short course and ends fatally.

Peritonitis due to pneumococci is a frequent complication of various systemic infections. Its onset is often somewhat typical. It is usually accompanied with general pain commencing in the epigastrium. This is followed by distention and difficulty in securing a movement of the bowels, owing to the stasis caused by the inflammation of the peritoneum. When this occurs in the latter stages of a severe pneumonia it is often of serious import. At times, however, it is the first symptom of the systemic infection, the actual inflammation of the lungs following this and developing after free catharsis has relieved the abdominal condition. The point to be emphasized is that a careful examination of the respiratory tract should be made a matter of routine when abdominal symptoms of an obscure character appear in children.

A case recently seen illustrates this point. The patient, a child of eight years, began to complain of abdominal distress. Active movements of the bowels did not relieve this and his condition continued to become worse. There was considerable abdominal distention. Careful examination failed to show any localization of the pain. There was no muscular spasm or rigidity. The general condition was excellent. The temperature was ninety-nine. The urine examination was negative. The leucocyte count was 12,000. The tongue was coated, but not dry. The facial expression was practically normal. A careful examination of the lungs revealed rales at the left base which suggested a bronchial pneumonia. This developed later and ran a mild course, the child eventually recovering.

Almost any general practitioner can remember in his experience cases of a similar nature. Often these are so puzzling that the aid of a surgeon is called, and very wisely, to eliminate a possible surgical condition.

Attention at this point should be called to tuberculosis peritonitis. It may be secondary to a general tuberculosis infection or to a localized focus such as the mesenteric lymph nodes; this in turn

may follow Pott's disease of the spine. Primary foci such as a tuberculous knee joint or hip should also be mentioned. The development of this type of peritoneal infection is often insidious. The clinical signs are frequently not clearly defined. The onset is often indicated by a slight daily rise in temperature with gradual loss in weight. The abdominal pain complained of is indefinite in character and is not usually a marked symptom. A physical examination may give no positive signs in the lungs but the abdomen shows a moderate degree of distention. With this distention there is associated the accumulation of ascitic fluid. Diarrhea rather than constipation is apt to be present, or there may be alternating attacks of diarrhea and constipation. As the disease progresses the fluid content of the abdominal cavity markedly increases; this pictures the miliary type. In the fibrous or ulcerative form, the coils of intestines are bound together by adhesions forming masses which can be palpated, indicating the extension of the infection to the intestines, mesentery and omentum. These cases usually run a very unsatisfactory course. There is intermittent pain of a dull aching character with exacerbations as the obstruction of the intestines by fibrous bands or adhesions gradually increases. In the fibrous or ulcerative type, operative procedure is of little avail, except to relieve the obstruction. In the miliary type with ascites section of the abdomen with drainage of the fluid usually gives temporary relief.

Peritoneal infection at times follows as one of the many complications of scarlet fever. Sometimes the pain associated with these attacks is localized and a differential diagnosis between a simple peritoneal infection and that due to actual appendicitis is very difficult. To add to this difficulty, it should be remembered that in scarlet fever there is usually a high leucocyte count. This varies from ten to forty thousand, depending on the severity of the infection, and persists often into the later stages of convalescence. The increase in the polymorphonuclears is relative to the increase in white cells.

A patient recently seen had run a typical scarlet fever infection associated with an arthritis of the larger joints, especially the elbows and knees, during convalescence. A sudden rise in temperature was noted about two weeks after the subsidence of the acute symptoms and the rash. This was accompanied with acute abdominal pain, at first general and later fairly well localized in the right lower quadrant of the abdomen. At the same time there was noted an exacerbation of the joint symptoms. A leucocyte count showed 18,000 leucocytes with 80 per cent. polymorphonuclears. This made the diagnosis a difficult one, as the patient was in a rather septic condition and the prognosis following operative procedures would have been poor. On examination of the abdomen there was noted slight distention of a general character with distinct fullness in the right iliac fossa. There was not, however, rigidity of the right rectus and only slight tenderness on palpation over the appendix. No mass could be felt in this region. The pain in the joints was of such a character that during the examination, when the elbow was inadvertently raised by the examiner, the patient cried out in pain. Suspecting that the abdominal pain was a secondary manifestation of the general septic infection and remembering that a high leucocyte count is at times persistent in the convalescence of scarlet fever, cathartics and high enemas were advised with the result that when seen next morning the fullness in the right iliac fossa, as well as the pain, had largely subsided, and the patient made a recovery which was complete.

so far as the abdominal condition was concerned, though she later developed cardiac complications of a most serious nature and finally died of septicemia.

There is little doubt that in this case the pain in the abdomen was due to the scarletinal infection with associated extension to the appendix and that the added strain of an operation would have speedily caused a fatal outcome.

Abdominal pain following typhoid perforation in children presents similar features to that which occurs in adults. It is acute in character and readily diagnosed, as in addition to the clinical picture of typhoid fever there are the signs of a rapidly spreading peritonitis with its attendant serious complications, a sudden drop in temperature and collapse on the part of the patient.

Empyema, abscess of the lung and sub-phrenic abscess may be complicated with extension to the peritoneal cavity. This is usually indicated by a varying degree of abdominal distention associated with comparatively little pain, except in the case of the sub-phrenic infection, which is always extremely difficult to diagnose and rather rare in children. The pain and tenderness low down near the costal border associated with a septic temperature and the presence of pus, when the exploratory needle is used, clearing up the diagnosis.

The pain of volvulus or intussusception is paroxysmal in character and in the case of the latter associated with the presence of a tumor-like mass of varying size. With volvulus we of course get the symptoms of obstruction. In addition to this in intussusception there is usually present a discharge of mucus and blood from the rectum and in the more severe cases the protrusion from the anus of a portion of the involuted gut. Difficulties in diagnosis are often experienced, as instanced in the following case:

A patient eleven years of age had complained during a full year of constantly increasing abdominal distress. Onset of the present acute attack occurred two weeks previous to the consultation. It was the most severe she had suffered from. The temperature was 103° at the time of the onset and continued for four days, when vomiting commenced. Intermittent pain was complained of throughout. Constipation was the rule from the onset of the symptoms. The patient was unable to secure a satisfactory movement of the bowels after the last attack of pain. A general physical examination did not reveal a lesion in the lungs, and the patient was in very good condition considering the difficulties of the past year through which she had passed. Examination of the urine was negative. The blood count was low. The cervical glands were not enlarged. Examination of the spine was negative. The abdominal examination presented the following picture: There was considerable distention. In the region of the umbilicus was a mass 20 cm. in diameter, which occupied the mid-abdominal region and was especially prominent above the navel. It was not especially tender on palpation. It was apparently firmly fixed. The percussion note was slightly dull. The abdominal region below the midline was somewhat tender to pressure. Palpation over the kidneys was negative. Rectal examination showed no mass or tenderness. It was finally decided to operate, but only after several days had elapsed during which every effort had been made to move the bowels by means of high enemas. The result obtained from these was simply mucus and a small amount of blood. The preoperative diagnosis was intussusception. At the operation it was found that the tumor consisted of coils of intestines firmly adherent to a mass of inflamed glands with a focus which suggested that the source of the infection might be the appendix. This, however, was not found. The

adhesions were broken up, thorough drainage of the infected area was instituted, and the patient made a successful recovery. Sections made from portions of the glands removed, which were somewhat cheesy in consistency, did not reveal the presence of tubercles, neither were the intestines studded with areas suggesting the miliary type. There was no fluid in the abdomen.

The abdominal pain associated with pyelitis in children is quite characteristic. Particularly is this true of that caused by the pyogenic infections whatever their type. A routine examination of the urine should be made in the case of any child suffering from a general infection. The importance of this cannot be over emphasized.

A young girl of 14 years seen recently illustrates this point. For several weeks she had presented symptoms suggesting typhoid fever with a somewhat typical temperature. Suddenly abdominal pain of a dull aching character developed in the region of the right kidney, with a very marked distention of the abdomen. This pain was centralized in the right lumbar region. The Widal test was negative. The differential leucocyte count was low. The patient's general condition was excellent, though she was still running an afternoon temperature, which at one time was 102°. Examination of the abdomen showed on inspection considerable distention without the appearance of a tumor-like mass. On percussion the note was distinctly tympanitic. On palpation there was tenderness localized over the right kidney. The urine was found to be filled with pus cells. The general physical examination was negative. Diagnosis pyelitis.

Pyelitis should be one of the first things thought of when the physician is called to see a sick child with somewhat obscure symptoms. Its onset is often sudden and insidious. It is associated with local pain over the affected kidney, chills and a marked rise in temperature. There is often present abdominal distention. A careful examination of the urine revealing pus cells and the caudate type characteristic of the disease are sufficient to establish the diagnosis. Acute pyelitis may exhibit exacerbations and recurrences or may develop into the chronic type with retention of pus in the pelvis of the kidney leading to pyonephrosis. Pains stimulating renal colic of a recurrent character with septic temperature are often present, relief being obtained when the pus is discharged into the bladder.

Abdominal complications and intestinal stasis suggest peritonitis. The extreme pain and tenderness on palpating the region of the kidney present the clue to the diagnosis. Care must be taken to give the patient the benefit of medical treatment in these cases, as they usually clear up and rarely require surgical intervention. Pyelitis should be constantly borne in mind in all cases developing an erratic temperature without the physical examination revealing a definite pathological process.

The possibility of lead poisoning should always be considered in the case of a child as well as in that of an adult.

The cause of abdominal pain in children is often very difficult to determine, and it is to be hoped that a review of its etiology will serve to emphasize anew this important fact. It is a symptom of the greatest importance and always points toward a diseased condition which must be carefully investigated in each case.

PHYSIOLOGY OF AEROPHAGIA.*

By S. J. MELTZER, M.D..

NEW YORK.

ON account of the many references to my own work which are contained in Dr. Kantor's paper, I shall try, in spite of the lateness of the hour, to make the following few remarks which may be of some value to those who are working in that line.

To my mind, a fundamental error crept into the conclusions drawn from the observations made in the studies by means of x-rays of the physiological movements of the gastrointestinal canal, especially those of the esophagus. In these studies the *progress and regress of the substances within the canal*, observed by means of x-rays, were erroneously taken as an expression of the *physiological movements of the corresponding part of the canal itself* which is to accomplish these movements. Soon after the first communication of Cannon and Moser, which was based on x-ray observations made on the esophagus of animals after administering a bolus containing bismuth, I made *ocular* observations of the behavior of the peristaltic movement of the esophagus when the animals swallowed a bismuth-containing bolus. I found that in not a single instance was such a bolus brought down to the cardia by a *single* act of deglutition; the peristaltic wave regularly runs its normal course while the bolus remains in some part of the esophagus, either being separated into several particles or remaining connected in an olive-shaped mass; in the latter case, the peristaltic wave, when reaching the lower part of that olive-shaped bolus, produced rather an upward movement of the latter, which in an x-ray picture would appear as an *antiperistaltic* movement. At any rate, it required a greater number of regular peristaltic waves to bring the entire mass down to the cardia and into the stomach. The x-ray picture then did not show the physiological course of the peristaltic wave of the esophagus which follows each initial act of deglutition, but presented merely the progress of the bismuth containing bolus.

I wish on this occasion to emphasize the practical and important value of the deglutition sounds which were described by me in 1883. But from a long experience I can say that not many made a proper theoretical study and practical use of these sounds. I have seen several physicians who even specialize in gastroenterology and who have never heard the so-called first sound; they confounded it with a dull, short sound which is sometimes heard immediately after the initial act of deglutition, and which is similar in character to the sound which can be heard at the back of the individual (Hamburger). From personal experience I know that Ewald was one among them; nevertheless, most of the statements in the literature are based upon Ewald's later discussion of the subject (1884). One who ever heard a characteristic so-called first sound would never forget it; it produces a sensation as if the swallowed fluid ran into one's ear. Ewald also is responsible for the terms "first" and "second" sound, which gives an erroneous impression; that is, that during every single act of deglutition there is a first and a second

sound. The so-called first sound is a rare phenomenon, and it occurs only when the tonus of the cardia is considerably reduced. In my original description of these auscultatory phenomena I designated the so-called first as a "squirting sound" and the second as a "pressing sound." I wish to emphasize that if several deglutitions follow one another within two or three seconds the press sound (second) is heard only after the last swallow, because the primary act of each deglutition causes an inhibition of the peristalsis of the esophagus. However, if a good many swallows follow one another in short order, the deglutition sound in the epigastrium makes its appearance irregularly, and often has the character of the squirting sound (first).

I would ask Dr. Kantor to be good enough, in closing the discussion, to give an exact definition of the meaning of aerophagia. In the literature I find that various writers include under that caption the accumulation of gases in the stomach and eructation, belching of gases. Now, in most instances, the accumulation of gases in the stomach has nothing to do with aerophagia; the gases may be there by some pathological conditions developed within the stomach itself, or may enter there from the duodenum through a patulous pylorus. To my mind, neither of these conditions has anything to do with that which I am inclined to understand under the term aerophagia. Aerophagia, I believe, is due to the pathological ability of voluntarily swallowing air without any food or drink, or with a mixture of very little of them. I have been interested in the physiological process of deglutition for nearly forty years, and during the time of my active practice I saw a good many patients, but I have to confess that I never saw a case which I would have designated as aerophagia. This does not prove that such a pathological phenomenon does not exist, but it is probably a very infrequent phenomenon. I have formed a conception of the physiological nature of the etiology of aerophagia, and I shall try to state it here very briefly. The pharynx when at rest contains a small quantity of air. The deglutition is initiated by raising the larynx and the posterior, fleshy part of the tongue, which then reflexly is suddenly pressed into the pharynx, working like a piston, thus sending the contents of the pharynx into the esophagus, which becomes relaxed by means of the accompanying inhibitory impulse. The following peristaltic wave sweeps down anything present in the esophagus into the stomach, thus bringing there a small quantity of air. When the swallowing is "empty," the amount of air is, of course, larger than when any food or liquid is swallowed. Normal individuals are capable of accomplishing "empty" swallows not more than four times in succession. The quantity of air in the stomach is, under these circumstances, larger than after swallowing food or drink. A part of this air escapes backward, without producing any noise. But, as I found some years ago, even this slight eructation is followed by that which I have described as *secondary peristalsis*; that is, a peristalsis of the esophagus without being preceded by the initial act of deglutition. There are individuals who are capable of accomplishing a larger number of "empty" swallows in succession. This, of course, may produce a considerable distention of the cardiac part of the stom-

*Remarks made at a meeting of the Section on Medicine of the New York Academy of Medicine, December, 1917, in the discussion of Dr. Kantor's paper.

ach, which in turn may rather increase the tonicity of the cardia and thus prevent the ready escape of the air from the stomach. The ability of accomplishing many "empty" swallows in succession is probably based upon the lowered reflex threshold of these individuals. In some instances the lowering of the reflex threshold is peculiar to many functions of the body of these individuals; we may designate them as hysterical. In other persons the lowering of the threshold is, for some reason or another, confined to the reflex of deglutition. In short, *Aerophagia is produced by a succession of "empty" swallows in individuals whose threshold for deglutition reflexes is abnormally low.*

13 WEST 121ST STREET.

A STUDY OF HISTORY AND SYMPTOMS AS BEING OF MORE VALUE TO THE GENERAL PRACTITIONER THAN PHYSICAL AND LABORATORY FINDINGS IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

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THE general practitioner will always be a most important factor in the fight against tuberculosis. He is the one who first sees the patient and has the opportunity to make an early diagnosis. He is the one the patient has probably known for many years and in whom he has the utmost confidence. He is the one whose advice and counsel a patient will follow quicker than that of any one else. He is the one who holds the power to direct the patient at a time when advice and proper instruction may save him. All this, however, will go for naught unless he is able to make a diagnosis of tuberculosis when the chances for recovery are good and before the disease has become so far advanced that the patient is a source of danger to those with whom he associates.

Any one doing tuberculosis work will tell you the most important thing for the good of the patient and the safety of others is an early diagnosis. This not only gives the patient a chance to recover, but he can be taught to take precautions before he has become a source of danger. Rightly may the general practitioner say, "Why, most of these cases are well advanced before they consult us." I am willing to give the patient the blame that is due him and know there are many who harbor well advanced disease before ever consulting a physician. On the other hand, there are many who see the physician in the earlier stages, but without a diagnosis. In taking the histories of a large number of patients, as is done in sanatoria, one cannot help being impressed at the time the patient has suffered from the disease and the number of physicians consulted before a diagnosis is made. They often give a history of having consulted four or five physicians, even when presenting such symptoms as blood spitting, digestive disturbances and severe cough without getting a diagnosis. Unfortunately for the profession, these patients never blame them-

*Read before the Oil City Medical Club, Oil City, Penn., October 11, 1917.

selves for the failure of diagnosis. The same patient who will discharge the first physician who tells him the trouble and hold to the one who tells him he is "as sound as a dollar" will knock all the physicians who have seen him and blame them for not making an early diagnosis, when the real nature of the disease is known and the patient has reached the incurable stage. Although hopeless as far as complete recovery is concerned, they often live a long time and can do a lot of knocking, which sometimes makes it uncomfortable for the physician. It is to the advantage of the physician to make a diagnosis as early as possible and when he has done so to tell the patient the exact condition. The importance of informing the patient as soon as a diagnosis has been made cannot be over emphasized. No physician can get results in treatment or the cooperation of patient in carrying out instructions and taking precautions unless he first convinces him he has the trouble and impresses upon him the seriousness of the situation. The idea of a physician saying "I can't tell the patient, for I feel that he will give up as soon as he knows his condition," is absurd. I have yet to see the patient who died because of being told he had tuberculosis, but on the contrary it is the only way to get his cooperation. The physician who fails to tell the patient cannot be condemned too strongly and should be made to live with open cases of tuberculosis, as he is having the patient's family do, until he is thoroughly impressed with the importance of having him take the proper precautions.

You have seen the importance of an early diagnosis not only for the benefit of patient and family but for that of the physician himself. Now how best can a diagnosis be made? If I had to depend on only a part of the means at hand in making a diagnosis and could choose those I prefer in their relative importance, I would take first the history of the patient, second the symptoms, third physical signs, and fourth laboratory findings. Apparently this is just the reverse of the views held by the general practitioner. Only too often he feels he has done his duty when he has gotten a specimen of "something" the patient expectorates, it matters not whether it comes from mouth, throat, nose or lungs, and sent it to the laboratory to be examined. If the report comes back negative he does not have tuberculosis, and very likely another specimen is not sent. He does not stop to think of the many things that might prevent the finding of germs although they may be present. The finding of germs is absolute proof of the disease; if they are not found it is no proof of itself that the disease is not present. Only about one-third of the incipient cases of the larger sanatoria, where most careful sputum examinations are made, show bacilli in their sputum at any time. Are you going to wait for the patient to pass the incipient and curable stage of the disease only to find the germs?

The chest examination is practically worthless in itself. The more expert the examiner the less apt he would be to rely on this alone. This, together with other means at the physician's disposal, becomes of great importance, especially when carefully done by one experienced in a study of chest conditions. As stated above, the most important things we have at our command are a carefully

taken history and a study of the symptoms; these alone when properly taken will give us sufficient information to arouse our suspicion when tuberculosis is present, and if it is not possible to make an absolute diagnosis it will give an opportunity to refer the patient to one who can, and before it is too late.

The history which is of the greatest importance in the study and diagnosis of any disease can be obtained by all physicians, although some may be decidedly more expert than others. Anything so valuable to a physician should be carefully studied and used to the fullest extent. History taking is an art in itself and one well worth cultivating.

The symptoms likewise can be obtained by all physicians who will take a little time to ask questions and listen to the patient's answers. These are of secondary importance only to the history in the hands of the general practitioner and should be studied in every case, whether tuberculosis or measles. Obtaining either history or symptoms is comparatively simple for the physician, since it should be their routine practice with every patient which consults them.

A chest examination is different and would naturally fall to one who confines his study to this line of work. It takes experience and constant practice to be efficient in interpreting the earlier changes in the lungs. The medical colleges of ten years ago gave a very limited course in physical diagnosis and practically nothing which would be of value in detecting incipient tuberculosis. Many physicians are graduated even to-day who have never had an opportunity to study an incipient case. It is, therefore, not to the discredit of the general practitioner not to be able to detect early tuberculosis by means of physical findings. It would be decidedly more to his discredit to rely on this method and neglect what is more important, the history and symptoms of the patient.

The expert would not think of making a diagnosis on physical findings, but would use these only with all other means available, if the case was at all an early one and required any skill in ascertaining the nature of the disease. The purpose of this paper then is to bring out the importance of the study of the history and symptoms of patient in the diagnosis as being of greater value to the general practitioner than physical signs and laboratory report in the diagnosis of tuberculosis.

In proof of the above statement I will say that some of the earliest cases I see are those referred by physicians who have never made a chest examination of the patient, but by a study of history and symptoms felt that tuberculosis was present.

History.—Nothing is of more importance than a carefully taken history; it should go into the most minute details and nothing should be taken for granted. The family history is carefully taken, not on account of the old idea that tuberculosis is hereditary, but to find out if there has been any intimate exposure. To ask if any relative has ever died of tuberculosis is not sufficient. Begin with grandparents and study each individually, learn the cause of death in each instance. If the nature of the disease cannot be ascertained, endeavor to learn if they had a chronic cough, suffered from asthma, bronchitis or a run-down condition; if any

of the family died of a disease simulating in any way tuberculosis; ascertain if the patient was intimately associated with said member. It is important to learn all about the grandparents and whether any of them living in the home of the patient ever had chronic bronchitis or other chronic conditions resembling in any way tuberculosis. A great many of these dear old souls suffering with what is considered chronic bronchitis have chronic tuberculosis, and although they may have reached an advanced age before death they are among the most frequent causes of infection in the grandchildren. I want to emphasize the fact that these so-called cases of chronic bronchitis are our most fruitful sources of infection, for many of them are open cases of tuberculosis which seem apparently healthy with the exception of a slight "bronchial trouble." If any member of the family has died of tuberculosis it is important to know whether patient was intimately associated with the victim during the time when the disease was active. It is also well to find out age of patient at time of exposure. Children are very much more susceptible than adults, and it must not be forgotten that although a child may be infected during early life he does not necessarily show symptoms until he becomes an adult, and many infected in childhood never show any signs of the disease.

Having carefully studied the family history the next is to get that of the patient. The first is to learn what the home conditions were from earliest childhood, then a study of the childhood diseases; only measles and whooping cough are of importance, and the patient should be most carefully questioned regarding his health following either of these, especially if he did not contract them until adult life. Learn what you can of the patient's general health, ascertain whether he had any glandular involvement during early life, ever suffered from pleurisy, fistula in ano, ischio rectal abscess or discharging ears; these are often forerunners of active pulmonary tuberculosis. Ascertain what diseases the patient has had, such as frequent colds, grippe, pneumonia, typhoid fever, or any injuries of the chest, also if he made an uneventful recovery. It must be remembered that any condition which lowers patient's resistance predisposes to tuberculosis, and one should be suspicious of typhoid, pneumonia or other disease when the patient is slow recovering.

Habit and occupation of patient should be carefully gone into. It is more important to find out the condition under which the patient works and lives rather than what he does. It is much safer for one doing a work considered predisposing to tuberculosis and live under the best conditions than it is to do something considered safe and live an irregular life in unfavorable surroundings. One's habits are worthy of careful consideration. Learn if possible whether patient leads a regular life, smokes, chews, drinks or indulges in other dissipation to excess. The past history of patient being carefully considered, his present illness should be fully studied. Ask him how long it has been since he felt perfectly well rather than how long he has been sick; go back to the beginning and find out all that is possible between that time and the time patient consults you. It is often necessary to go over certain parts and help the patient to remember

how his symptoms developed. It requires skill and patience to bring out a complete and valuable history.

Having obtained a full history of the patient, the next step of importance is to study each symptom or to find out just what symptoms the patient has developed.

In a study of the symptoms of tuberculosis it will be necessary for the physician to turn the old Hippocratic picture, emaciation, cough, night sweats and high temperature, to the wall and study the earlier symptoms if he is to make an early diagnosis. There is no pathognomic symptom of tuberculosis; what one patient will complain of first and most constantly the next patient will never have. Tuberculosis, like syphilis, can run the most obscure symptoms, and these two diseases should always be kept in mind when considering a disease of obscure nature, since they are among the commonest, yet often the last to be thought of in making a diagnosis. For a study of the symptoms I will group them according to Pottenger¹ under three headings:

Group 1 Toxemia	Group 2 Reflex Origin	Group 3 Tuberculous Involvement per se
Malaise	Hoarseness	Frequent and Protracted Colds
Lack of Endurance	Tickling in Larynx	Spitting of Blood
Loss of Strength	Cough	Pleurisy
Nervous Instability	Digestive Disturbances	Sputum
Lack of Appetite	Loss of Weight	Fever
Digestive Disturbances	Circulatory Disturbances	
Loss of Weight	Chest and Shoulder Pains	
Rapid Pulse	Flushing of Face	
Night Sweats	Apparent Anemia	
Fever		
Anemia		

Some of these symptoms fall in two groups. Those of group 1 may all be due to some other cause than tuberculosis and must be studied with symptoms of groups 2 and 3; on the contrary, active tuberculosis may be present without any of the symptoms of this group.

The first symptoms of the group, malaise, feeling of being run down, lack of endurance and loss of strength are very common and are often the symptoms which first brings patient to physician. The patient does not seem to have the usual amount of energy, does not take the usual interest in things he formerly did. This is a very suspicious symptom and especially if the patient states that he feels as tired or more so after a night's sleep than before retiring. Nervous instability is a condition often diagnosed as neurasthenia. This is only the giving of a name for a symptom which in a vast majority of cases is due to tuberculosis. The physician should not be satisfied until a satisfactory cause rather than a name is found for this condition.

Digestive disturbances are common in tuberculosis; often the food is not properly digested. Again the patient complains of loss of appetite. He often feels hungry until food is placed before him, then all desire for it disappears. This is especially true when the patient is tired. I make it a rule to notice a patient's appetite very closely when first placing him on exercise; if it declines one can be quite sure patient is doing too much. Tuberculous patients often have a good appetite, however, when running quite a high temperature, which is of value in differentiating it from other diseases when the patient has no appe-

tite with a high temperature. I have seen a number of cases treated for stomach trouble a year or longer when the real cause was tuberculosis, when a diagnosis was made and patient treated accordingly an improvement was noted.

Loss of weight is frequently met with in tuberculosis, and many physicians seem to think a patient has to be greatly emaciated before he can have the disease. While it is well to investigate the condition of patient's weight, on the other hand it must not be forgotten that a patient can look fleshy and not lose any weight and still have tuberculosis. One should ascertain the patient's greatest weight, present weight and estimated normal weight, for often one weighs himself too infrequently to tell whether he has lost recently. On the contrary, a person sometimes notices he is steadily losing weight and consults a physician on this account; when this is the case the cause should be ascertained if possible, for it is too often tuberculosis. When the disease is suspected the patient should be weighed once a week.

An increased pulse rate is considered by some a most important symptom. Certainly a pulse higher than normal without a definite reason for same should be looked upon with suspicion. A case of tuberculosis running a high pulse and practically normal temperature has a rather unfavorable prognosis.

Night sweat is often the first symptom which causes a patient to consult a physician, and it is one of the symptoms looked upon by the laity as proof of tuberculosis. The sweats are due to a toxemia which may be produced by other conditions than tuberculosis; still it should always be looked upon with suspicion until the real cause is ascertained. The physician should not wait until the advent of night sweats to make a diagnosis, for it is a sign of extreme toxemia and advanced disease when present in tuberculosis.

A careful study of a patient's temperature is most important. To take a temperature once a day or when patient calls at office is decidedly worse than not taking it at all. A temperature to be of any value should be taken every two hours for one week, and no matter what kind of thermometer is used it should remain in the mouth for at least five minutes. Only too often have I had patient's temperature reported by a conscientious physician as being below 100° only to find on arrival at the sanatorium he is running a temperature of 102° or higher. This was not because the physician wished to report an incorrect temperature, but because it was taken under the wrong conditions or the thermometer was not allowed to remain in the mouth long enough to register. Do not look for a high temperature in an early case; an afternoon temperature of 99.5° which cannot be explained should cause one to be suspicious of tuberculosis. A temperature decidedly subnormal in the morning is of equal significance and calls for a careful study and explanation.

Symptoms of Group 2.—As you will notice, the symptoms of this group direct one's attention to other parts than the lungs. Some of these, digestive disturbances, loss of weight and circulatory changes, have been discussed under group 1 and will not be taken up again.

Hoarseness is one of the most common early symptoms and one of the most neglected. This condition is too often treated, even by the throat specialist, without even thinking that it might possibly be due to tuberculosis. This is a most frequent symptom and should always be looked for when there is any suspicion of the disease. It is especially apt to be noticed when the patient is slightly tired or after talking or singing when the voice has been strained. It may be due to several causes; first and most common in early tuberculosis is the failure of patient to approximate cords on account of reflex nervous condition. Again mucus may become attached to the cords, which prevents their free movement, and, lastly, the larynx may be the seat of a tuberculous process. Do not think from this that the disease starts in the larynx, for such is not the case.

The cough is another most common symptom; in fact, there are extremely few, if any, patients who have the disease and do not cough. Often a patient denies having one, but if carefully questioned he will admit that he has a slight hacking cough, most probably the first thing in the morning. This will often be noticed first by some member of the family. This morning cough, with or without expectoration, should lead one to think of tuberculosis. Any cough lasting more than two or three weeks should arouse suspicion and calls for a careful study of the case. The patient will often try to explain that it is due to a tickling in the throat, a little bronchial or catarrhal trouble. The so-called emetic cough is also a common symptom and when present should be most valuable in confirming a diagnosis. The patient will cough after a meal and vomit, although he does not have any sick feeling or discomfort of the stomach; when it is present the physician can be reasonably sure it is due to tuberculosis.

Chest and shoulder pains are often complained of by patients. They are as common in pulmonary tuberculosis as rigidity of rectus muscle is in appendicitis and should always be looked for in suspicious cases. Often the patient complains of them thinking he is suffering from rheumatism; or he will complain of feeling tired across shoulders. This calls for a most careful study of the case and will often reveal tuberculosis. He may also complain of a chilly sensation, which is most common along the spine, or he may notice he is more susceptible to changes in the weather than usual.

Flushing of the face is quite common, but is more often indicative of advanced or very active disease than a symptom of the early stage. The patient complains of one or both sides of the face feeling hot and flushed. When the process is confined to one lung the flushing occurs on that side, when present in both lungs it is noticeable on side in which the lung is more extensively or actively involved.

Menstrual irregularities are very common in young girls and women suffering with tuberculosis. One patient will complain of the flow being excessive and occurring at too frequent intervals, while the next will complain that the flow is diminished, occurs too infrequently or not at all. The real cause of such condition should be sought and not explained as being due to chlorosis, anemia or a run-down condition, as is too frequently the case.

As you see, most of the symptoms described above can be caused by other conditions than tuberculosis; still when carefully studied with those of group 3, which I now describe, will be of great value in making a diagnosis.

The symptoms of group 3 are due to the lung process *per se*. The first of these, frequent and protracted colds, are often encountered. The patient complains of contracting one cold after another; he may complain of having a cold which lasts him practically the whole winter. Most of these patients are suffering from tuberculous bronchitis. If these colds are severe they are called grippe, and sometimes they are diagnosed as pneumonia. Recently a patient in the far advanced stage of tuberculosis was admitted to the sanatorium giving a history of having had at least three attacks of pneumonia during the past winter. These were only exacerbations of an active tuberculosis. Symptoms such as the above always call for a close study of the patient, for they are due to tuberculosis more often than otherwise.

Blood-spitting is a symptom which will usually cause a patient to make his own diagnosis. Still physicians seek to find other causes for it and give an erroneous explanation to the patient only to lull him into a feeling of false security. If any symptom is pathognomic of tuberculosis, it is the spitting of blood. There are causes other than tuberculosis which provoke blood-spitting, but they are so rare that it should always be looked upon as being due to this cause until proven conclusively otherwise. It seems absurd to think of a physician offering other reasons for the spitting of blood until a patient has passed beyond the stage when treatment will be of any value. A patient once came under my observation after being referred by his family physician to a throat specialist, who, upon examining the throat, stated he could see the bleeding point. A few days later the patient had another hemorrhage, and again consulted the family physician, who assured him he need have no worry, and it was not until he had a large hemorrhage in the presence of the physician that the correct diagnosis was made, and that only a few months before his death. Many other cases could be mentioned in which a misinterpretation of common and definite symptoms has led to as disastrous an ending. If in every case of frank hemorrhage an immediate diagnosis of tuberculosis was made and the patient treated accordingly there would be decidedly fewer mistakes and many lives saved. To give a patient who spits blood an erroneous excuse for its appearance is an exposition of ignorance on part of the physician. Hemorrhage cases offer a fairly good prognosis if given the proper treatment early; any one spitting blood should be immediately given the advantage of the doubt and treated as though he had tuberculosis until it is proved otherwise.

Pleurisy also holds a more important place in the diagnosis than is usually given it. The vast majority of pleurisies are tuberculous and should be treated as such. Pleurisy is always serious and should be so taken. The general practitioner would be surprised if he were to look up the cases of pleurisy he treated from ten to fifteen years ago which apparently made a good recovery, for he would find that at least half had since died of tuberculosis. In taking the history,

then, ascertain if the patient has ever had pleurisy; if such is the case, your diagnosis is reasonably sure. A history of previously having had pleurisy is second only to that of blood-spitting, and when either of these has been present in the past the physician need not have any great fear of making a diagnosis of tuberculosis; certainly when there are other symptoms which will help confirm it.

If the general practitioner will put more importance in the history and symptoms of cases of tuberculosis presenting themselves for treatment, an early diagnosis will be made more frequently. As shown above, there is no one symptom pathognomonic of the disease, but when all the symptoms are taken together with the history of patient, most valuable evidence will be obtained toward a diagnosis. A physical examination alone is of less value, and a diagnosis cannot be made by means of it. A patient does not always require treatment when presenting physical signs of the disease. Brown² says "Physical signs tell by inference what has happened in the lungs, symptoms what is happening." A careful study of symptoms is not only valuable in aiding in diagnosis, but is valuable in determining what should be done with patient.

In the future let me urge you as physicians to place more importance in a study of the history and symptoms in order to make an earlier diagnosis of the disease and be better able to render a greater service. If the fight against the Great White Plague is ever to be a success, it will have to depend on an early diagnosis of the disease by the general practitioner. Your greatest efforts are needed not only for the benefit of your patients but that this dreadful disease may be successfully fought and finally wiped out.

REFERENCES.

1. Pottenger: Clinical Tuberculosis, Vol. I, Page 366.
2. Brown: *American Review of Tuberculosis*, Vol. I, No. 4.

THE UNSETTLED QUESTION AS TO SCURVY BEING PRODUCED BY FEEDING PASTEURIZED MILK.

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THIS question can be answered by either yes or no. I believe that, as far as direct effect of heating on the nutritive constituents of milk is concerned, this influence will not cause the disease. I do not believe that if pasteurization is properly performed the enzymes or the vitamins are destroyed to any extent that is not negligible. Note that I say "properly performed," for there are both poor and ineffective heating methods applied in pasteurization. Very high heat contact with milk will have a damaging effect in destroying some of the food constituents, and in hardening albumins.

I believe that in so-called infantile scurvy-like conditions there are always coincident, predisposing conditions present inducing a scorbutic diathesis, that are other than the influence of pasteurized milk, including conditions in the milk due to accumulations in it of putrefactive fermentative products.

I am not a pediatricist, but believe in safeguarding all milk through its heating. I have no prejudices

for or against the view held by so many, that the feeding of pasteurized milk produces scurvy in infants. That scorbutus-like symptoms may occasionally occur in infants who have been fed pasteurized milk is admitted; but it is not proven that heating the milk produces these symptoms; and inasmuch as there is still existing a very widespread lack of acquired information of specific knowledge relating to the milk question, it may be permitted for the student to doubt as to the soundness of the conclusions of some pediatricists as to the matter. Certainly the question is still *subjudice*. The symptoms that may occur once in a while in a baby fed on pasteurized milk may be and probably are induced by some coincident cause or combination of causative influences.

The evidence in hand indicates that the mere moderate heating of the milk is not the cause of those symptoms. It is even questionable if a sterilizing heat of itself alone is a productive cause of such symptoms.

Every item of information relating to this question that has been obtainable by me has been read and studied, and frequently reread and restudied. In particular, I have been rereading the Transactions of the American Pediatric Society, and those of the American Association of Certified Milk Commissions for the year 1916. At the 1916 annual meeting of the Associated Milk Commissions it was admitted by many that there had been a widespread incidence of bovine tuberculosis in certified herds. A prominent and intelligent dealer in my home community has told me that he does not believe that there is any herd in the United States that is entirely free from this scourge. In view of my own disastrous experience in connection with my carefully protected herd, I am inclined to his belief. If it is true that over 90 per cent. of children show signs of having been tuberculously infected, and that over 50 per cent. of the herds in this country are badly infected, what possible good excuse is there for not safeguarding *all* milk by sufficiently heating it, or otherwise treating it so that entire assurance is attained that, at least, complete destruction of all pathogenic germs has occurred.

As yet I have not come upon evidence that convinces me that a properly conducted pasteurization damages milk sufficiently to warrant the withholding of that protective measure.

My reasons for holding that view are as follows: The evidence in hand indicates the formation of and accumulation in milk of toxic fermentative products as being, through direct and indirect constitutional effects, more inducive of scorbutic manifestations in bottle-fed babies than heating.

All grades of milk, including the most carefully produced of "certified grades," have been more or less infected and contaminated during production, and have undergone more or less fermentative changes at the temperatures maintained in the usual methods of handling milk, both before and after pasteurization. Such contaminations may have a considerable predisposing effect on babies.

The only reason I can see why the high heating of milk could damage it for feeding purposes is the indirect effect due to the pasteurizing heat that usually destroys 95 per cent. or more of the milk bacteria, most of which are of the inert and lactic

acid forming types; and hence, when the milk is ingested, there may not be so much stimulative effect on the alimentary tract from acid fermentative action therein, for the acid produced in raw milk may help the alimentary acids in the digestion of the milk, as well as incite vigorous intestinal activities. That such theory is of value is backed by the fact that so many of the milk bacteria are of the acid-forming types, and that the most useful antiscorbutic agents are more or less decidedly acid in character, such for example as vinegar.

In view of our lack of definite information as to the enzymes and the so-called vitamins, one should not be too positive in expressing an opinion in this connection. However, it is extremely improbable that scurvy is a disease due to the nonpresence of enzymes in food, or to the coagulation of food albumins. It is even very questionable if the possible absence of vitamins in milk is the cause. A boiling heat does not destroy the vitamin principle or nutritive element in other alimentary substances; and there is no evidence that heat destroys that principle in milk—even sterilizing heat—although artificial heat probably decomposes milk more or less in proportion to its intensity of influence. Scurvy must be a very rare disease in babies who have been fed even on boiled milk, for thousands of babies so fed in Europe have been treated in European clinics without any case of scurvy having appeared.

It was definitely and generally agreed long ago that scurvy is a dietetic disorder superinduced, at least, by a lack of some food principle abundantly furnished in lemons, oranges, potatoes, pickles, cabbages, apples, and other fruits, and in various other plant products. Apparently the more acids that are present in such products, the better they act as antiscorbutics. If the potassa in such antiscorbutics is the potent principle, heating milk would not eliminate that element. We should admit that while even moderate heating may destroy the enzymes, yet that destruction may not cause scurvy. The anatomical changes in scurvy indicate a generally defective nutritive activity in the individual, while the existence of acids in the dietetic remedies for the scorbutic symptoms indicates a possible helpfulness from those acids and their possible stimulative alimentary effect. Inasmuch as the undestroyed bacteria in raw milk are largely acid formers, if the milk seeded by those bacteria would induce a fermentative production of acids in the alimentary canal, it seems reasonable to think that the acids in orange juice, or in other antiscorbutics, would be effective substitutes for acids developed in raw milk that has been seeded with such acid-forming germs.

If the disordered, scurvy-like condition seen in babies, and which, so far as I know, is only infrequently seen, is like the conditions seen in old times in soldiers and sailors, then the direct causation of the anatomical changes seen in infants has in all probability been at least partly resident in defective general nutritive conditions, or in alimentary functional defects, rather than in defective digestibility in the food consumed. I do not know that anyone has claimed that the enzymes directly furnish constructive nutrients. Presumably they merely act by their presence in aiding digestion. But even

if they are destroyed by heat, their elimination can be readily made good by the various modifications in and additions to the milk fed.

It is not unreasonable to believe that the addition of fruit juices to the milk may enhance the individual's activities in the alimentary tract, and which would not occur if the 95 per cent of more of bacteria in the milk fed had been destroyed by heat. It is conceivable that elimination of bacterial activity in the milk may result in more or less intestinal stasis, with consequent defective intestinal elimination of effete ferment products, and their constitutional absorption and diffusion. It should be remembered that some of such products may have accumulated in the milk before its ingestion by the infant. As a matter of fact, more or less accumulation of such toxic matters always occurs in milk under the present day and previously practised methods of producing and handling milk. "Certified milk" should be credited with a lesser accumulation of such excretory matters, but not complete exemption from such accumulations.

It was a widespread belief and practice in the days prior to the advent of bacteriology, that boiling milk exerted an anti-dysenteric influence. This fact adds weight to the present contention that destruction of bacteria in milk may induce static alimentary disorders. If that theory is correct, then we can say that pasteurization has indirectly a bad effect on milk, though an effect not worth while evading in view of the various possible counteractive procedures that can be readily applied.

No satisfactory reason has been advanced in explanation of the undoubted fact that boiling orange juice and potatoes does not destroy the antiscorbutic principles in them; and if it does not, there seems to be no good reason to think that the mere moderate heat of an intelligently applied pasteurization would destroy any essential nutritive element in the milk. Inasmuch as the acids correct any objectionable tendency to scurvy, any coagulative effect in the milk from heat would not be the cause of the scurvy.

In this connection it is interesting to note the similarity of the symptoms observable in unquestionable scurvy, and those resulting from the poisons due to the fermentative decompositions of animal proteins.

Many of the symptoms produced by bad milk are similar to symptoms produced by scurvy-inducing dietetic conditions, including the depressing and other predisposing causes that are adjuvant to dietetic causes.

It is so satisfactory to have a sound theory upon which to base one's practice that it is well to struggle to secure truth in theory. But anyway, it is clear that in view of the efficiency of antiscorbutic treatment, one ought to be very slow in subjecting a delicate infant to the dangers of possible pathogenic infections in the milk it consumes, whether to bolster up the obsolete ideal that cleanliness in production alone is a sufficient assurance of safety and wholesomeness in babies' milk, or for any other reason. There is no substitute step for the greatest possible care in preventing infections in babies' milk, though it is possible through absolute prevention of fermentations, to accept milk that has been long held, to possess the quality of freshness

of production. It should not be forgotten that late advances in methods of pasteurization secure results not accomplished by the older methods.

In considering this subject, one should refer to the possibility of pasteurization setting free in milk animal protein poisons that may exist in the destroyed bacteria. It is believed by many students that there are toxic matters in both non-pathogenic and pathogenic bacteria. If it is true that various disease symptoms are directly produced in the body by the destruction of invading and proliferated bacteria and the diffusion of the poison in the bacteria throughout the body, and that some of such poisons are eliminated through the intestines, then in theory at least, the destruction of bacteria in dirty milk may have some influence in producing infantile scurvy.

The opinion is advanced by Prof. V. S. Vaughan and others that the disastrous effect of some of the infectious diseases, such as in typhoid and diphtheria, observed in individuals of very vigorous constitution may follow a too abundant setting free of poisons at one time, due to too vigorous combat of the disease producers by the protective bodily influences. This opinion seems to be well based on experimentations which have demonstrated that relatively small amounts of the poisons in pathogenic and non-pathogenic bacteria are lethal for the lower animals, and that the greatest care must be exercised by those engaged in producing and handling those poisons.

It seems probable that the fever and other symptoms which appear after a few days of incubation following infection are due to the spread in the body of either the poisons in destroying bacteria or of excretions from the live bacteria, that are formed in the process of their proliferative growth; and that the accumulation of those products finally results in the death of the disease causative bacteria themselves.

The theory that the coincident destruction of a large number of bacteria in milk through pasteurization may add a very potent content of poisons to the milk may be worthy of consideration; although it appears defective as a theory, because orange juice and the other antiscorbutics counteract such poisonous contaminations, though we may consider that some constituent in the antiscorbutics may chemically neutralize the poisons that may have been liberated in the milk. There remains no question that very virulent poisons may be formed through fermentative action in milk, and that such poisons exert a long-time influence in those poisoned by these toxic principles.

In view of the existence of all these possibilities, it becomes all the more important that infections of any degree and proliferated infections should be prevented in milk that is to be fed to infants. These immature individuals at least have not had their bodily cells trained to combat and overcome the influences of invading bacterial enemies. Certainly, no animal or vegetable poisons, or bacteria producing these poisons, should be fed to babies; nor should adults be knowingly allowed to consume them in seriously damaging amounts. Of course, adults can withstand a considerable amount of poisoning from various sources, but that performance should not be encouraged.

In considering this branch of the subject, we should remember that bacterial influence destroyed millions of infants before pasteurization was practised; and furthermore, that billions of quarts of highly infected, pasteurized, and even boiled, milk have been consumed without any resulting symptoms of a scorbutic nature having appeared.

The accumulated evidence all goes to indicate that the direct, immediate cause of much of the infantile mortality of the past has been split protein excretory poisons developed and accumulated in milk, and has not been the direct attack of bacteria on the bodily tissues.

There is no evidence in hand to show that pasteurization eliminates accumulated poisons in milk; but if pasteurization is practised *before* the milk has lost its self-protective character, the formation of those poisons will have been prevented if no temperature influence favorable to the proliferation of the undestroyed residue of bacteria is permitted in the after handling of the milk. If a reasonable cleanliness of production is practised and pasteurization is efficiently performed immediately after production, there can be so little accumulation of poisons from destroyed bacteria that the amount would be negligible. Certainly that accumulation would be very much less of an evil than the seeding of the infant's body with the living bacteria, which bacteria might develop into millions of questionable bacteria. It has not been shown that heating milk of any bacterial character damages that milk for feeding to any degree that is not negligible. If the milk that is fed to infants is only clean and free from ferment products, it is questionable if there would be any cause of complaint due to heating in its pasteurization, especially in view of what intelligent modification can do in preparing it as a babies' food.

One of the greatest obstacles in the way of securing a satisfactory public milk supply is the prejudice that exists in the minds of many consumers that pasteurization has a damaging influence upon milk; and this prejudice is largely maintained by the opinion held by numerous physicians to the same effect. One cannot have everything in this world; and in our large cities, at least, milk that is absolutely safe, that is entirely wholesome, and that can be sold at prices that most consumers feel willing to pay, is one of the things that cannot be had. Still, all these advantageous characters in milk can be secured at a cost of not more than one cent a quart above the cost of the poorest grade B product.

In considering this subject there should be added the thought engendered by the results of the experiments of Dr. E. V. McCullum of the Johns Hopkins University in connection with the effects of foods on the growth and health of animals. Those experiments demonstrate that in most foods, though in different proportions, there are some unnamed constituents the presence of which are essential to the usual growth in animals. It is suggested that these are the so-called amino acids, which are among the multitude of cleavage products of digested proteins. Those products which are of lesser nutritive value, according to Osborn and Mendel of the Connecticut Experiment Station, are deficient in one special amino acid product which they have called

lysin, and which product is abundant in milk casein and albumin. It is theoretically possible that a heating of milk which would prevent active fermentation and consequent splitting of the milk proteins might more or less prevent a formation of the beneficent lysin and consequently deprive a growing child of an efficient acid, as well as an acid that would stimulate gastric activity. But here again we are met by the fact that the acid and other juices of the orange and other comestibles appear to make good any deficiency due to a non-fermentative production in cow's milk. It is to be deplored that later-day civilization is making of many mothers poor nurses for their children. The fact is patent that cow's milk is a defective substitute for mother's milk and should be considerably modified in one or another way before it is fed to a delicate baby. There does not appear to be any conceivable change in cow's milk that heat would effect, that cannot be counterbalanced or made good by modification and yet eliminate the danger from possible pathogenic infection. There are a good many medical practitioners, however, who would testify that they have never had a case of infantile scurvy following the feeding of cow's milk modified by barley or oatmeal gruels. Certainly the heating of these gruels does not destroy the lysin or other vitamine product character of those foods. Nor does pasteurization of milk destroy it as a first-class nutritive medium for pure and impure culture infections.

The problems relating to nutrition are only beginning to be solved. All the constituents needed in infantile nutrition are unquestionably present in mother's milk. When a child becomes old enough to digest vegetables and other foods besides milk, we can be sure that all the essential constituents for growth are supplied. In fact, all the needed constituents can be added to milk in watery solutions of the unknown growth substances found in many foods. So there is no need of worrying over the possibility that heating milk will destroy its food value, so long as its modification will secure ease of digestion. Possibly the addition of a modified gruel *before* the heating of milk may be of digestive advantage.

94 PROSPECT STREET.

Medicolegal Notes.

No Liability for Negligence of Independent Substitute.—In an action against a physician and surgeon for damages on account of injuries resulting from improper treatment following a surgical operation performed by the defendant, it was not claimed that there was any unskillfulness or negligence in the performance of the operation; but the contention was that the injury resulted from inattention or unskillfulness on the part of another physician left in charge of the patient by the defendant after the operation was complete. The patient was afflicted in a way that required a surgical operation involving an incision and entrance into the abdominal cavity. The defendant was summoned from Lake Village, Ark., to Little Rock to perform the operation, which was successfully done at a hospital there. In finishing up the operation it became necessary to leave a piece or pieces of gauze in the wound for draining purposes, and this was done. After the operation had been completed, the defendant announced that he would have to return to his home at Lake Village, and he arranged with a young physician, who was acting as interne in the hospital, to look after the patient until she recovered, and the plaintiff's case was based on the theory that the interne was guilty of

negligence in failing to remove the gauze at the proper time, and that the defendant was liable in damages because of such negligence. There was no agreement that the defendant was to pay the interne anything for his services; the latter merely agreed to the defendant's request to take care of the patient. The defendant left Little Rock shortly after the operation was completed, and did not see the patient any more; and there was no testimony tending to show that he was guilty of any negligence in the selection of the interne as a proper person to look after the patient and remove the gauze. The interne was a physician who had been selected by the hospital management to attend patients in the hospital, and there was nothing to indicate that he was lacking in qualification for the position.

The question in the case was whether or not a physician is liable in damages on account of negligence of another physician who takes charge of a patient at his request. This question seems to have been settled against the right to recover under those circumstances in a decision of the same court (the Arkansas Supreme Court) in the case of *Keller v. Lewis*, 65 Ark. 578, 47 S. W. 755. The facts of that case were that the son of the plaintiff sustained a dislocation of one of the joints in his arm, and was taken to Dr. Keller, the defendant, for treatment. Keller was about to leave the city, but gave the dislocated arm temporary treatment, and recommended that the patient be taken to another physician, with whom Dr. Keller had arranged to look after his patients in his absence. One of the theories in the case was that the other physician was guilty of negligence in failing to treat the dislocated joint at the proper time, and the defendant asked the court to give an instruction to the jury that the defendant could not be held liable for the negligence or want of skill of the other physician. The trial court refused to give the instruction and the Supreme Court reversed the judgment on that account. In disposing of the case the court said: "The employment of Dr. Minor constituted an independent contract, and Dr. Keller is not responsible for his negligence or want of skill." The court cited in support of the opinion the case of *Myers v. Holborn*, 58 N. J. Law 193, 33 Atl. 389, where under somewhat similar circumstances the New Jersey court held that "a party employing a person who follows a distinct and independent occupation of his own is not responsible for the negligent or improper acts of the other."

This view of the law is based on the theory that the doctrine of respondeat superior applies only in case of the negligence of a servant who acts under the direction and control of the master, and does not apply to a physician or other professional man who, when employed, acts upon his own initiative and without direction from others. That idea was clearly expressed in the case of *Arkansas Midland R. Co. v. Pearson*, 98 Ark. 399, where it was said: "A physician cannot be regarded as an agent or servant in the usual sense of the term, since he is not, and necessarily cannot be, directed in the diagnosing of diseases and injuries and prescribing treatment therefor; his office being to exercise his best skill and judgment in such matters, without control from those by whom he is called or who pay his fees."

Applying this principle to the case in hand, it was held that as the defendant was not negligent in the performance of the operation, nor in the selection of a physician to continue the treatment after he left the city, he could not be held responsible for the negligence of the other physician who was left in charge merely because the other physician took charge on his suggestion and arrangement. For these reasons judgment for the plaintiff was reversed and the case remanded for a new trial.—*Norton v. Hefner*, Arkansas Supreme Court, 198 S. W. 97.

Doctor's Opinion as to Employee's Injuries Inducing Release.—The Iowa Supreme Court holds that the expression by an employee's doctor of an opinion concerning an employee's injuries was not a fraud invalidating a release thereby induced merely because other doctors did not share such opinion, especially where there was a difference of opinion between such other doctors.—*Seymour v. Chicago & N. W. R. Co.* (Iowa) 164 N. W. 352.

Military Medicine.

Italian Medical Activities in the War.—Dr. Victor G. Heiser, member of the American Red Cross Commission to Italy, read a paper at a meeting of the College of Physicians of Philadelphia, on January 2, 1918, supplementing the one presented before the American Association for the Advancement of Science (see page 69). It is generally understood, he said, that the Italian Army consists of at least 4,000,000 men and that the number of hospital beds is approximately 1,000,000. Just what it means in two years to expand a country's hospital service to these huge proportions can be better appreciated when it is recalled that in the entire United States, with a population almost three times as great as that of Italy, there are only 300,000 beds. In spite of this vast achievement the work accomplished by the Italian medical profession since the beginning of the war has attracted to itself but little attention in this country. While probably none of the Allies fighting in Europe have received less aid, other than financial, from outside their own borders, the medical men of Italy almost invariably were loath to speak of their achievements. The equipment for the care of the sick and wounded has been provided almost entirely in Italy. Mobile hospitals of 100 bed capacity, which can be taken down and transferred 75 miles and set up and put in service again within 24 hours, are in use; the entire equipment being transported on five camions (motor trucks) and three touring cars. New operations, particularly in dental and lung surgery, new instruments without number, have been developed. The Italian medical service is presided over by an official who has his office with the Minister for War at Rome. Under the chief medical officer there is stationed with each army a principal medical officer who has almost determining powers in directing the medical work of the army with which he is stationed. The care of the wounded is undertaken jointly by the Italian Red Cross and the Army Medical Service, medical aid being rendered through the following seven classes of agencies:

1. The *Posti di Medicazione*. These are the most advanced dressing stations for emergency service, and are located usually in dugouts in trenches very close to the front.

2. The *Sezioni di Sanità*. These are located one or two kilometers behind the front, are dispensaries and more fully equipped than the preceding.

3. *Ambulancia di Montagna*, located from two to five kilometers behind the front; the most advanced point reached by the Italian Red Cross.

4. The *Stazioni di Sanità* are somewhat larger and better equipped than the *Ambulancia di Montagna*.

5. The *Ospedali di Campo*, or Field Hospitals, are at accessible points somewhat farther back; of 500 bed capacity and are used also as distributing centers where cases are classified and sent to various special hospitals.

6. *Ospedali di Tappa* are base hospitals several hundred kilometers behind the lines with a bed capacity of from 20,000 to 40,000.

7. *Ospedali di Riserva* are institutions through-

out the cities of Italy which have been made available for soldiers.

For each army there are a number of large quarantine stations provided with steam disinfecting apparatus or sulphur-dioxide chambers. Every patient before admission to the general hospitals and all prisoners are passed through stations of this kind. Hospitals afforded by the Italian Red Cross consist largely of tourist hotels, schools, and other buildings adapted to the purpose; those provided by the medical service consist of existing army hospitals, military buildings, or entirely new structures. The latter are usually one-story pavilions about 14 feet high, 18 feet wide, of any desired length, constructed of angle iron placed on 6-foot centers, with the intervening space filled in with hollow tile resembling that used in fireproof construction in this country. The roofs are also of tile. They are cheaper than tentage, are cool in summer, and can be kept warm in winter. The decreased use of cavalry has made available large numbers of cavalry barracks. In one of these at Udine a single ward has 300 beds. Hospitals are being located increasingly nearer the front and in most unusual places. Thirty or 40 feet underground and directly under a point where a battle was raging, it was a novel experience to see the hospital routine in good operating rooms and wards supplied with artificial ventilation and modern hospital equipment. On the other extreme, at an elevation of 6,000 feet in the Dolomites, there was found a hospital of 30 bed capacity hewn out of the side of a cliff. The two sides and back wall were of stone, and the mountain range at this point was so narrow that through a hole bored in the back wall of the hospital it was possible to look into the Austrian trenches on the other side of the mountain. After receiving emergency treatment patients were sent to the rail-head on the marvelous teleferica, which often go from mountain-top to mountain-top over chasms thousands of feet deep.

Specialization has been carried to a high degree; at Udine the commission saw 1,500 fracture cases in a single hospital; at other hospitals there were only gunshot wounds of the chest. Speaking of the latter, Professor Morelli has invented an improved aspirator for draining fluid from the chest. Pressure within and without the lungs can be accurately read on a gauge and through the development of special technique, which among other things permits the lungs to remain collapsed during definite periods, he has been able to produce some startling results in lung surgery. In 100 recently completed cases there had been no mortality and Professor Morelli believes it entirely feasible to keep the mortality well under 5 per cent. in all gunshot wounds of the chest.

Practically every hospital throughout Italy has one or more *x-ray* machines, all manufactured in their own country. The smooth organization of the hospital train service was one of the most striking features which the commission saw in Italy. Often one would see a train back into a side track next to a hospital, take on board fully 350 wounded, and in less than thirty minutes proceed on its way. Everything worked with clock-

like precision. One is particularly impressed by the amount of new apparatus invented to meet the needs of war cripples and almost unbelievable progress has been made in appliances and methods for the reeducation of lost functions. Great stress is laid upon specialized forms of physical drill for rehabilitating nerve function and remarkable results were shown. Dr. Guali at the Villa Fiore has devised some remarkable improvements in artificial limbs, also a clever apparatus for registering the pressure of the artificial foot. At other institutions a trade suitable to the individual patient is taught. Italy has established huge stations for the return of her soldiers from Salonica and Albania. In view of 100,000 cases of malaria invalidated back, the importance of such quarantine stations is manifest. A comparatively small amount of tuberculosis has been encountered in the Italian army, but it is said that 30,000 tuberculous Italian prisoners had been returned from Austria. The x-ray diagnosis is a routine procedure in this disease. Among other activities with which the medical service is associated is an active reclamation department which provides for the collection and repair of articles found on the field after a battle. The very general employment of huge fireless cookers assures to the soldier absolutely hot meals in whatever position he is. Large shops for repairing these cookers form part of the system.

The prison camps at the front consist of barbed wire inclosures with good tents and excellent cooking arrangements. They are divided into three sections; the first being that in which the prisoners are bathed and their clothing disinfected; in the second, specimens of stools are taken for examination for cholera, dysentery, and typhoid. After three days those whose stools are negative are sent into the third section, where they stay until transferred to the interior. For the officers, houses of a semi-permanent character are provided. One is greatly impressed by the kindness and consideration shown prisoners of all classes. The food is the same as that given to the Italian officer or soldier of corresponding grade. No work is required of officers.

No official records of venereal diseases were available, but they are stated to have been reduced to almost negligible proportions. A complete medical school has been established near the front-line trenches. During the months when the army was comparatively inactive, all medical students in the service were ordered to San Giorgio di Nogaro, at which point professors from the various medical schools who are in the army also assembled, being assigned to look after the sick in the vicinity. This enabled them to use the clinical material for the benefit of the students. Finally it may be stated that the commission was much impressed by the excellent care given the wounded and the spirit of service manifested by the medical officers. They were on duty early and late and a wonderful fellowship and mutual helpfulness prevailed.

Roosevelt Base Hospital Quarantined.—A report from the American Army in France states that the entire Roosevelt base hospital was quarantined on January 9 because of a small outbreak of scarlet

fever, diphtheria, and mumps. Another militia contingent is also quarantined. The authorities emphasize that there is no epidemic and but few cases of contagious disease, but that isolation has been deemed advisable in order to take no chances of disease spreading.

Navy in Need of Binoculars, Spyglasses, and Telescopes.—The Navy Department makes an urgent appeal to patriotic citizens for loans of binoculars, spyglasses, telescopes, chronometers, and sextants. As the United States has hitherto relied upon foreign countries for its supply of articles of this kind it has no stock on hand to meet the present demand. Those having any of the above named articles which they can dispense with will be doing the Government a service by sending them to Franklin D. Roosevelt, Assistant Secretary of the Navy, Washington, D. C. Those that are accepted will be keyed, the name and address of the sender will be permanently recorded at the Navy Department, and every effort will be made to return them. As the Government cannot, under the law, accept service or materials without making payment therefor, one dollar will be paid for each article accepted.

Red Cross Expenditures.—A statement recently issued by Henry P. Davison, chairman of the Red Cross War Council, shows that since May 10, 1917, the membership of that body has increased from 486,394 to fully 22,000,000. The total amount collected by the national finance committee, through its 2,993 campaign committees, to December 28, 1917, was \$93,925,256. In addition there has been collected direct at the national headquarters \$3,319,352, making the total amount collected \$97,226,456. It is estimated conservatively that another six million dollars will be collected for this fund. The total amount of appropriations which the War Council has made and which have been approved by the executive committee to December 28, from the Red Cross war funds, aggregated \$75,329,764. The total amount appropriated for Red Cross work in France was \$37,445,613.

Dr. Irving David Steinhardt of New York City has been appointed by the Jewish Board for Welfare Work in the United States Army and Navy to deliver a course of lectures teaching sex hygiene to the camp workers of this organization at its headquarters in New York.

Innovations in War Surgery.—An announcement made by Surgeon General Bradley, who is with the American Army in France, to the Associated Press states that plans for the care of American soldiers involve a radical departure from former methods of caring for the wounded. Dr. J. M. T. Finney of Johns Hopkins University has devised a method that insures to each case continuous treatment from the dressing station on the fighting line through the various stations to the base hospital, and will do away with the frequent examinations of wound dressings under the methods hitherto employed. The American plan of using standardized splints, with the manual explaining it, has appealed to the medical men in the British Army as a great advance over the old way of allowing every surgeon to use splints of his own devising, and they have asked that the plan be adopted by the medical department of the British Army. The American expeditionary force has adopted the French ham-

mock litters, in which the wounded sit up, as the most efficient for removing the wounded from the trenches. Since the speedy treatment of wounds results in a greater saving of life, divisional ambulance sections have been mobilized to three-quarters of their strength. It is expected that this will result in almost a merging of the field and evacuation hospitals. Up to the present time only male nurses have been employed at advanced hospitals, but the new plans provide for female nurses there, since both the British and the French have found them valuable. It has become necessary to work out plans whereby men can be operated on more quickly than in former wars owing to the difference in the nature of the wounds. In previous wars most of the wounds were bullet wounds and it was not imperative to operate quickly, whereas in the present war most of the wounds are caused by shrapnel, which makes it advisable to operate as speedily as possible. This report from the American Army in France states that the sick chart follows very closely the weather record, going up when it is damp and stormy and falling when it is clear and cold. The sick rate of seasoned troops is slightly more than 2 per cent., while that of the newly landed is but slightly under 5 per cent. As the plans for caring for American wounded provide that when a man is found to be permanently unfit for service he is to be returned to the United States, ample hospital room is being obtained, and seventeen hospital trains have been ordered. Dr. George E. de Schweinitz of Philadelphia has charge of the care of the blind. Since it has been the experience of other armies that early treatment and instruction of the blind are most valuable, the plans for the care of American soldiers whose wounds result in blindness provide for instruction as soon after the wound is received as possible and will be continued by the army until these men reach the United States.

Offer to Care for Tuberculous Soldiers.—The National Jewish Hospital, which is situated in Denver, Col., has offered the institution to the Government for the care of tuberculous soldiers. The hospital now has accommodations for 150 patients. In order to avoid turning out civil patients in need of treatment Mr. Grabfelder, the head of the institution, has offered to finance the building of a tent colony on the grounds of the hospital. The institution now maintains schools and employment offices on its grounds and has a rule providing that no patient who has been cured shall leave the hospital until he is assured of being able to earn a livelihood. It is pointed out that this would mean a great deal in the readjustment of soldiers to civil life.

Value of Psychological Tests Demonstrated.—An incident that occurred recently at Camp Dix serves to show that the psychological tests as to mental fitness for military service are of practical value. When the chief examiner of the psychological department needed a staff of clerks and assistants he asked the division headquarters to assign the necessary men from the depot brigade. The authorities told him he might have the whole brigade from which to choose. As a result 600 men were subjected to the psychological tests and the 80 highest were chosen for department service without knowing their occupations or military rank. It was

found that by the test the examiners had practically stripped the organization of the men who saw that the orders from the officers were carried out by the men in the ranks, and that it was necessary to make some other adjustment. Such a finding as this is regarded as highly satisfactory from two standpoints. It has given great satisfaction to the men interested in the psychological tests as a proof of the accuracy of these tests and it is also a compliment to the system that enables line officers to pick for important positions men whose mental scores were later shown to be of high average. However, the psychologists claim that their method has the advantage on its side since it enables them to make a successful choice in fifty minutes, whereas it takes the officers a number of weeks to make a suitable selection.

Health of Camp Dix Good.—Major-General Scott has issued an official denial of the reports to the effect that health conditions at Camp Dix are bad. He states that the health conditions of the camp are better than those of civil life, and better than those of most army posts in times of peace. He states that there are not more than 100 cases of illness in the whole camp that physicians in civil life would consider sufficiently serious to confine a man to his home. There have been only 18 deaths in the camp since it started, and of these 11 were due to various general diseases. Nevertheless a quarantine of the camp became effective on January 13 owing to the prevalence of measles. On January 12 there were 56 cases in the camp. While many of the camps have a much larger number of cases of measles, this institution of quarantine has been deemed advisable as a precautionary measure designed to limit the spread of the disease.

Major Grayson M. P. Murphy of New York has resigned as head of the American Red Cross Commission to Europe. It is reported that he will return to service in the American Army. Major James W. Perkins of New York, who has been serving with the American Red Cross Commission in Europe since last June, will immediately take up the direction of the commission's work.

Drafted Men Must Submit to Operation.—The manual of the army medical department, issued in 1916, provides for the discharge of men where the surgeon is in doubt whether the proposed operation involves an appreciable risk to the life of the soldier. It seems that many drafted men have been taking advantage of this provision to evade military service, so that Surgeon General Gorgas has found it necessary to issue a new order. Under this order any soldier whose physical condition makes him unfit to discharge his military duties must submit to an operation if such operation is indicated, or face court martial if a board of medical officers so rules. The new order directs, "in cases in which a soldier refuses to submit to operations or medical treatment that a board of medical officers be convened to pass upon the case and if the board is of the opinion that the operation or treatment is necessary to enable the soldier to properly discharge his military duties, and he persists in his refusal after being notified of the opinion of the board, he may be tried under court martial under the 96th article of war."

MEDICAL RECORD.

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SERUM THERAPY OF PARTIAL TETANUS.

CASES of partial tetanus are usually instances of attenuated tetanus as is made evident by the long duration of incubation, the limited localization of the symptoms, and the relative benignity of the process. It, therefore, is manifest that for an affection usually much less serious than generalized tetanus, our means of treatment will be much more efficacious. In partial tetanus, which often tends toward a spontaneous recovery, the slightest aid given to the *natura medicatrix* will make the scales tip in favor of a cure. Given the almost absolute uselessness of curative serotherapy in acute tetanus, as demonstrated in the present war, this method of treatment has been practically given up by the French surgeons, but it should be added that antitetanic serum is believed to possess an absolute preventive action.

This latter proposition, however, does not seem to be true, as is pointed out by Fricker in his very excellent thesis (Lyons, March, 1916) on the serotherapeutic treatment of partial tetanus, and he shows by numerous case reports that tardy partial tetanus "can perfectly well develop in spite of a former prophylactic injection of serum. Although in the majority of these cases the tetanus is attenuated by the prophylactic injection, it is, nevertheless, true that the first part of the above proposition is not exact." Fricker is also of the opinion that belief in the non-curative action of serum is not in conformity to facts. Considering the numerous failures in acute generalized tetanus, surgeons have concluded that curative serotherapy is useless and have substituted a certain number of medications in its place. Large doses of chloral, Baccelli's treatment with subcutaneous carbolic acid injections, and intraspinal injections of magnesium sulphate have each been essayed without any appreciable success. It is above all in types with a rapid evolution, where the tetanic toxin is already fixed in the nervous centers and can no longer be neutralized, that antitetanic serum fails. But on the contrary, in partial tetanus, which represents the chronic form of the process, the action of antitetanic serum is always certain, because the conditions of its action are quite different from those in

the acute generalized form of the disease. From personal experience the author is of the opinion that antitetanic serum has a very effective action in the chronic forms of tetanus, certainly far more so than other methods of treatment.

The very important question of anaphylactic accidents remains to be considered. To pass in review all the expedients that have been essayed for avoiding anaphylactic shock would make a volume, but it seems to us that from this viewpoint the question of the selection of the channel employed for the introduction of the injection is by no means a matter of indifference. Of late intravenous and intraspinal injections have been particularly proved as being more active. Now, the intravenous route would seem to be more capable of giving rise to anaphylactic shock, and this certainly is the means resorted to in animal experimentation for its production. In these circumstances, and knowing that the intravenous route does not appear to offer a therapeutic action superior to other channels of injection, this procedure should, according to Fricker, be rejected as dangerous. As to the intraspinal route, he is also of the opinion that it is not to be recommended, because it very readily gives rise to anaphylactic shock, as has frequently been observed during the serum treatment of cerebrospinal meningitis, or even to accidents of cardiac collapse of a very serious nature. But, although in cerebrospinal meningitis this route is the only efficacious one, the same cannot be said of tetanus in which the superiority of intraspinal injections has been by no means demonstrated. There remains the subcutaneous route, which Fricker says is the one of choice. Its action is quite as certain as that of the other procedures, and it exposes the patient much less to anaphylactic accidents. To still further diminish their chance of occurrence, it would seem that small doses of 5 c.c. given daily for some time produce the best results. The author finds that the treatment of late partial tetanus by serotherapy in no way prevents the use of other therapeutic measures. Chloral and morphine in particular should always be exhibited and will aid greatly in recovery, but what he regards as essential to remember is that in the cases in question antitetanic serum possesses a sure curative action.

TREATMENT OF MALARIA BY QUININE-ADRENALIN HYPODERMOCLYSIS.

THE difficulty in curing a nominally curable affection is well illustrated in the history of the therapeutics of malaria, and especially during the present war when the disease has shown itself peculiarly rebellious to treatment. This quinine-resistant type of disease is not to be confounded with the malignant and lethal types encountered in certain tropical countries. It is rather a continually relapsing malaria which, if not relieved, will become inveterate. This change of type appears to be due wholly to external conditions which result from the state of

war, and no one doubts that under peace conditions the ordinary prophylactic dose of quinine *per os* would suppress the disease manifestations.

Professor Pende of Palermo, now in charge of a Military Hospital at Padua, advocates in *Il Policlinico* for November 4 the early routine use of quinine-adrenalin hypodermoclysis for malaria-stricken soldiers. He would have the latter isolated in special hospitals in malaria-free regions, and then submitted to this intensive and sterilizing form of treatment which should enable them to return to the front for active service without any prolonged interval of convalescence.

Quinine by the mouth has proved very disappointing in this respect and this experience is by no means confined to Italy, for the French medical men on the Macedonian front, conceiving that the negative results were due to low dosage, gave quinine in heroic quantities to no purpose. The hypodermic and intramuscular injection of quinine involves an enormous consumption of the drug with a relatively small showing in positive results. The same thing may be said of the intravenous use, for in order to cure an obstinate case from 12 to 20 daily injections have been necessary; and while the dose is not such a factor here, such extensive use of a minor surgical resource is not adapted to camp practice.

The author has, therefore, introduced a *sterilisatio magna* in which 250 c.c. of physiological saline solution is infused beneath the skin of the flank every 5 or 6 days, the total number of infusions being 4 or 5. To this infusion are added 2 gm. of quinine bichloride (equal to 1.64 gm. of alkaloid) and 0.5 c.c. of commercial solution of adrenalin 1 to 1,000. He has had a very extensive experience with this resource and finds that it is extremely well tolerated. The remedy is rapidly absorbed as shown by urinary tests. The improvement is so pronounced with the continuation of the infusions that it is safe after the stated number has been given to administer the drug by the mouth. Thus far the remedy has not been tested in chronic malaria. The author has used blood tests throughout as a criterion of cure.

NEOPLASTIC FEVER.

THAT fever and even hyperthermia may sometimes accompany the evolution of malignant tumors is well known, but in such cases it is by no means easy to convince oneself that this phenomenon is due directly to the tumor, *i.e.* to substances produced by the latter which can act on the heat center. If this was true fever would be the rule and not exceptional. Hence febrile cases of neoplasm should be studied individually with great care.

In *La Riforma Medica* for December 8, Pedrini reports four cases. The first was in a laborer of 53 who presented severe constitutional symptoms—emaciation, asthenia, a yellowish tint of the skin, etc., of four months' standing. Physical examination revealed a slight enlargement of the liver with ascites, which was tapped, giving exit to 10 liters

of serosanguineous fluid. The patient ran a temperature of 99° to 100.5° throughout the observation period and up to his death. Autopsy revealed an isolated cancer of the liver. The significance of this case was not great for fever has often been noted in sclerotic processes in the liver, malaria sometimes being simulated. Neither in these cases nor in the pseudomalarial fever, which sometimes accompanies pyloric cancer with retention, can the fever be regarded as of essentially neoplastic origin.

In Pedrini's second case, pleuropulmonary cancer in a young man, with incidental hydrothorax, was associated throughout with fever of 99.5° to 101.3°. As long as the pleuritis was regarded as inflammatory in type the rise of temperature was accounted for. The third neoplastic fever patient had a primary prepyloric cancer with extensive metastases to the liver, while in a fourth the seat of the neoplasm was the cervix uteri. The author concludes that there is no typical neoplastic fever. Of a primary fever due to the evolution of the tumor we have little direct evidence. Secondary fever is doubtless due to some secondary infectious or toxic process dependent upon the presence of the cancer, for the latter can of course readily interfere with drainage.

In regard to a primary process, one may ask to what extent fever is suggestive of the presence of latent or obscure cancer. In a subject of cancer age an apparently unmotivated fever might suggest that the presence of a neoplasm had activated an old focus of infection or by interfering with drainage had caused a local stasis and absorption of thermogenic material. In material like the author's other evidences of severe disease were so pronounced that the mere presence of fever of low or medium grade was in nowise of major significance.

IODINE IN THE TREATMENT OF PHTHISIS.

JOBLINS and Petersen, when making investigations at the Rockefeller Institute, found that soaps of the unsaturated fatty acids were capable of inhibiting the action of trypsin and other ferments, and furthermore they discovered in tubercle bacilli a ferment-inhibiting substance of the nature of a lipid, to which they attribute the lack of autolysis and consequent caseation in tuberculosis. In addition, they found the higher the iodine value of a soap the less was its activity as an inhibiting agent, while saturation with iodine would destroy entirely its inhibiting powers. Moreover, in a further study these same investigators demonstrated that ether-soluble substances of the bacilli, which constitute from 25 to 35 per cent. of their work, and which are largely composed of fatty acids, have a marked restraining action on trypsin.

Dr. E. Curtin, writing in the *Medical Press*, Nov. 14, 1917, draws attention to the above investigations and points out their significance. Iodine counteracts and inhibits the lipid element, which acts as an antiferment. The effect of iodine is supposed

to be due to a saturation of the unsaturated bonds of the fatty acids of the lipoids, rendering the substituted product less active as an antipyretic agent. It also reduces the surface tension of the phagocyte and increases phagocytosis. According to Curtin, Dr. Crofton of Dublin has shown that iodine attacks the toxin of the microbe, turning it into a toxoid, and this facilitates the digestion of the microbe.

The conclusions drawn by the author are as follows: (1) The ferment-inhibiting action of the tubercle bacillus is due to the presence of unsaturated fatty acids. (2) These fatty acid compounds can be removed by means of ether. (3) Iodine and iodide of potassium remove or modify the inhibiting action of tubercle bacilli. Curtin points out the above observations confirm and justify the treatment of phthisis by the intravenous injection of iodoform dissolved in ether, a treatment employed by him with, he claims, unvarying success during a period of nearly six years.

CLEMENCEAU'S INAUGURAL THESIS.

FEW people in this country know that Georges Clemenceau, the present French premier, and perhaps the strongest figure among the French people, is a graduate physician. This fact is duly honored in the bulletin of *Le Progrès Médical* for December 1. Clemenceau was a pupil of Charles Robin, one of the most versatile physicians and prolific writers of his day, whose fame rests chiefly on his anatomical works. On May 13, 1865, Georges Benjamin Clemenceau, who had served as interne in the hospitals of Paris and Nantes, sustained his Paris thesis, which was entitled *de la génération des éléments anatomiques*, before a jury composed of Charles Robin, Pajot, Sée, and Parrot, all unusually distinguished men. Not much is known of his defense or of the rank of the thesis, but it was a work of 224 pages, which even to-day conveys a very favorable impression. Merklen wrote a review of it in 1914 and some of his comments are reproduced in the article above mentioned. Both normal and morbid anatomy are considered, and the view is upheld that disease is not an entity, separate from the body, but only an alteration of physiological processes.

Merklen sums up the work as made up of embryogeny and medical philosophy. Of the four chapters three deal with the ovum and embryo. The accumulation of facts involved much labor and the volume paved the way for the author's later works, such as "La Mêlée sociale." In his thesis he defined man as a "federation of anatomical elements," and this view is upheld in his subsequent philosophy. Grappe, Clemenceau's biographer, styles him a physician in literature, whose scientific training made him exact, and he lays a great deal of stress on the thesis above mentioned as a revealer of the author's temperament which was to be revealed anew thirty years later in his philosophical writings.

COMMON COLDS AND PNEUMONIA.

APPREHENSION lest an ordinary cold in the head may develop into pneumonia is a fear shared not only by the laity, but by many physicians as well. That this fear is not without some justification is evidenced by the fact that an appreciable number of cases of infection of the upper respiratory tract are followed sooner or later by typical lobar pneumonia. Whether this sequence is to be explained on the *post hoc ergo propter hoc* argument or is merely one of coincidence remains to be elucidated by scientific study. As a contribution in this direction Eugenia Valentine, working in the Bureau of Laboratories of the Department of Health of this city, gives the result of an investigation to ascertain the type of pneumococcus present in persons suffering from so-called common colds (*Journal of Experimental Medicine*, January, 1918). The method of procedure was to inject some of the nasal secretion or sputum into mice. A total of 65 patients afflicted with colds were examined. Pneumococci were found in 37 out of the 65 cases by animal inoculation. By direct plating of the secretions on blood agar, 6 more cases were found to contain this organism. Of these 43 positive cases, 2 contained pneumococci belonging to Group I; 2 to Group II; 4 to Group III, and 35 to Group IV. The two patients harboring Group II pneumococci and one with the *Pneumococcus mucosus* of Group III had been in contact with cases of pneumonia. The two cases belonging to Group I exhibited evidence of prostration and had a temperature of 102°. Direct plating of the secretions obtained from these patients demonstrated that Group I pneumococcus constituted at least 75 per cent. of the organisms present. As a result of these observations the author concludes that common colds due to Groups I and III pneumococci must be looked upon as a possible source of contagion for others, or as sources of possible autogenic cases of pneumonia. All of which is a further plea in favor of treating a cold not only as a menace to the possessor, but also, and what is most important to the community at large, as a potential source of danger to others.

IS THE PRACTITIONER RESPONSIBLE FOR ARTICLES LEFT IN HIS WAITING ROOM?

THE medical profession in France has been shocked by the decision of an Italian appellate court of justice to the effect that a practitioner is responsible for the safety of the wraps, etc., left in the waiting room by his clients, provided that he has failed to use ordinary precautions for their safe keeping. The editor of *La Presse Médicale* for November 19 in noting this decision states that it would work havoc if enforced in France. For self-protection it would be necessary to install during consultation hours a cloakroom with a presiding functionary and checks. The obligation would little by little be transferred to lawyers, architects, and other professional men who might be called upon to check the overcoats and canes of clients. Is there an implied contract that the medical practitioner is responsible for articles left in his vestibule by patients who enter the consultation room? If so, how much vigilance is he supposed to exert? Is the responsibility to equal that imposed on the innkeep-

ers? This question has already been answered in the negative by the French courts. Even restaurant keepers in France are not legally responsible for coats, hats, bicycles, etc. Special services of deposit of personal belongings exist in theaters and museums, and therefore there is an implied contract of responsibility, but no such conditions are to be found in department stores, factories, sleeping cars, etc., which protect packages, hand baggage, and workmen's tools. The physician cannot renounce all responsibility, and in cities he usually has a waiting room attendant who acts as custodian of clients' belongings. In the small town and rural districts such precautions are hardly required.

News of the Week.

Columbia University Plans Pay Diagnostic Clinic.—The trustees of Columbia University announce that plans are under consideration for the establishment of a large diagnostic clinic which will meet the needs of the middle classes who do not wish to be the recipients of charity and yet cannot afford to pay the fees of a number of specialists whose services may be necessary in order to reach a diagnosis. It is hoped that the clinic may be able to act as a distributing station for a number of hospitals. Dean Samuel W. Lambert, in presenting this proposal, states that he anticipates that there will be considerable opposition to it from the rank and file of the profession, but explains that the plan does not propose to eliminate the family physician. The clinic proposes merely to make the diagnosis and then refer the patient to his family physician for treatment, supplying special advice or suggestions if they are needed. The financial arrangements provide that every clinical worker shall be paid and that the fees charged patient shall be commensurate with their incomes. At the same time that these plans were made public it was announced that the trustees contemplated adding a fifth year to the medical course. During this additional year the candidate for licensure will work in a hospital under college discipline. Plans are also under way providing for additional graduate instruction and research work.

Diet Squad Tries Out School Lunches.—An experiment is being conducted under the cooperative management of the Post Graduate Hospital, the People's Institute, and the New York School Lunch Committee, the object of which is to demonstrate what constitutes a proper school lunch and to show the advantage of such a lunch to school children. The present investigations, which have shown an alarming amount of undernutrition among school children, have also indicated that this condition of affairs is not due so much to poverty as to a lack of knowledge of food values and of what constitutes proper food for growing children. The subjects of the present experiments are 27 boys, belonging to Public School No. 40., who are of various nationalities and range in age from nine to twelve years. The lunches consist in a well-balanced ration of 900 calories. It is hoped that the results of this experiment will serve as a basis for a national campaign to make an adequate school lunch a civic necessity.

State Federation of Labor Urges Health Insur-

ance.—At a conference of representatives of the State Federation of Labor held in Albany, on January 8, a legislative program was adopted whereby this organization will endeavor to promote legislation for the establishment of a State administered health insurance for wage earners. The federation favors the creation of a bureau of sickness prevention and health promotion within the State Industrial Commission.

Court Upholds Law Against Birth Control Propaganda.—The Court of Appeals to which Mrs. Margaret Sangster, who was convicted in the lower courts of violating the section of the penal law prohibiting the dissemination of birth control information or paraphernalia, carried her case has handed down a decision declaring the law constitutional and that it must, therefore, be upheld by the courts.

New Health Commissioner for New York City.—Mayor Hylan has appointed Dr. J. Lewis Amster of the Bronx health commissioner of the city to succeed Dr. Haven Emerson. Dr. Amster is a graduate of Cornell University Medical School in 1902.

Physicians Get City Appointments.—Mayor Hylan has appointed the following physicians, who were formerly on the coroners' staffs, assistant medical examiners at salaries of \$3,000, except in the Borough of Richmond, where the salaries are only a little over half that amount: Drs. George W. Tong, Albert T. Weston, George Wuest, Timothy D. Lehane, Benjamin Schwartz, William H. Nammack, John Riegelman, Thomas Curtain, George Hart and George Mord.

Course of Instruction in Contagious Diseases.—The Health Department of New York City announces that the course of instruction in contagious diseases which it has given at the Willard Parker Hospital have been so well attended that it has arranged to give a similar course at the Kingston Avenue Hospital, Brooklyn. Each course will consist of eight lessons, of which six will be devoted to clinical or bedside instruction, one to a demonstration of intubation, and one to practical laboratory work. The sections will be strictly limited to ten members each. No fees are charged, but physicians entering the courses are expected to attend regularly. The course will be given Tuesdays, Wednesdays, Thursdays, and Fridays, at 3 o'clock. The first course will be given on Tuesday, February 5. Physicians may register for the course with the Bureau of Public Health Education, Department of Health, 139 Center Street, New York. A series of courses similar to those given in previous years will be given at the Willard Parker Hospital. The schedule for these lectures has not yet been definitely arranged.

New York City's Death Rate.—In a report recently submitted to ex-Mayor Mitchel covering the work of the Health Department for four years Health Commissioner Emerson calls attention to the fact that since 1910 the death rate of the city has dropped from 16 per thousand population to 13.78 per thousand. Under the Fusion administration, that is during the past four years, the rate has dropped from 14.03 to 13.78. This report shows that the decrease in the death rate is chiefly in the matter of the infant mortality. In 1910 slightly

more than 125 infants under one year of age out of every 1,000 births died, while during the past year less than 90 children per 1,000 births died.

Associated Out-Patient Clinics of the City of New York.—The annual meeting of this organization will be held on Friday, January 25, at 8.15 P. M. in the lecture room of the Presbyterian Hospital, 41 East Seventieth Street. A paper on "Voluntary Workers in Dispensaries" will be read by Dr. Charles Hendee Smith; one on the "Malnutrition Clinics and the Work of the Poliomyelitis Clinics" will be read by Dr. E. H. Lewinski-Corwin, executive secretary. "Dispensary problems Growing Out of the War" will be another topic for discussion, but the speaker for this subject has not as yet been announced.

The Ophthalmological Society of the United Kingdom will hold its next Annual Congress at the Royal Society of Medicine, London, England, on May 2, 3, and 4, 1918. E. Treacher Collins, F.R.C.S., is president of the society and M. S. Mayou, 30 Cavendish Square, London, W., is secretary.

The Clinical Society of the Dispensary and Hospital for Deformities and Joint Diseases, New York, will hold its next meeting at the dispensary building, 43 East 123rd Street, at 8.30 o'clock, on January 22. The meetings of this society are held every second and fourth Tuesday of each month.

The Volusia County Medical Society, which met recently at Hawk's Point, Fla., elected the following officers: *President*, Dr. F. J. Walter of DeLand; *Vice-Presidents*, Dr. W. C. Chewing and Dr. R. R. Niblack of New Smyrna; *Secretary-Treasurer*, Dr. L. C. Ingram of DeLand.

The Dallas County Medical Society, which met at Dallas, on December 27, elected the following officers: *President*, Dr. J. T. Watson; *Vice-President*, Dr. Minnie Massett; *Secretary-Treasurer*, Dr. R. S. Loving.

Obituary Notes.—Dr. EDWARD HOMER MARTIN of Middlebury, Vt., died in the Mary Fletcher Hospital in Burlington, on December 29, aged 56 years. He was graduated from the University of Vermont Medical School, in 1884. He was surgeon to the Mary Fletcher Hospital and to the Fanny Allen Hospital at Winooski. Dr. Martin was treasurer of the Vermont State Medical Association and secretary and treasurer of the Addison County Medical Society.

Dr. FREDERIC POWERS of Westport, Conn., died on January 12, of cerebral hemorrhage. He was born at Amenia, Dutchess Co., N. Y., May 15, 1842, and was a graduate of the College of Physicians and Surgeons, New York, in 1870. He was a member of the Fairfield County and Connecticut State Medical Societies, of the American Medical Association, and of the Alumni Association of the College of Physicians and Surgeons. He practised medicine for over 40 years in Westport, Conn., where for many years he was health officer and medical examiner.

Dr. FRANK E. BURDICK of Providence, R. I., died suddenly of heart disease at his home, on December 26, aged 46 years. He was graduated from the Syracuse College of Medicine, New York, in 1895. He was a member of the staff of the Rhode Island Hospital and visiting physician at St. Elizabeth's Home.

Dr. OMER LARUE, a graduate of the Victoria University Medical Department, Quebec, in 1872, died at his home in Putnam, Conn., on December 28, aged 68 years. He was a charter member and former treasurer of the Franco-American Historical Society of the United States and a former president of the Winham County Medical Association.

Dr. JOSEPH H. HORNER of Concordville, Pa., a graduate of Jefferson Medical College, in 1886, died at Columbus, Ohio, on December 27, aged 73 years.

Dr. CHARLES W. HOYT died, after a long illness, at his home in Sharon, Pa., on December 15, at the age of 78 years. He was a graduate of the Cleveland Homeopathic College in 1870, and a Civil War Veteran.

Obituary.

THOMAS DAVISON CROTHERS, M.D.

HARTFORD, CONN.

DR. THOMAS D. CROTHERS died at Walnut Lodge Hospital, Hartford, on January 13, of pneumonia. He was born at West Charlton, N. Y., September 21, 1842, and was graduated from the Albany Medical College in 1865. He began practice in West Galway, but removed to Albany in 1870, where he was appointed assistant professor of the practice of medicine in the Albany Medical College. In 1875 he was appointed assistant physician to the New York Inebriate Asylum at Binghamton. In 1878 he was made superintendent of the Walnut Hill Asylum in Hartford, and when it became the Walnut Lodge Hospital in 1880 he was chosen president and superintendent, and remained there until his death. He was editor of the *Journal of Inebriety* from 1876. For some time he was dean and professor of nervous and mental diseases at the College of Physicians and Surgeons, Boston. Dr. Crothers' specialty was the study and treatment of inebriety and drug addiction, and to this he had devoted his entire professional life. His published works were: "The Disease of Inebriety," 1893; "Drug Habits and Their Treatment," 1901; "Morphinism and Other Drug Diseases," 1902; "Clinical Study of Inebriety," 1911; he was also a frequent contributor on topics related to his specialty to various medical journals. He was secretary of the Association for the Study and Care of Inebriates, and was a member of a number of medical societies, including the American Medical Association.

Correspondence.

ONLY GRADUATE NURSES ELIGIBLE FOR ARMY SERVICE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In the recent publicity announcement sent you, relative to the need of army nurses, it was stated that the call to duty was made to all graduate and practical nurses in the United States. The Surgeon General directs me to inform you that the statement relative to practical nurses was erroneous, as I am informed by the superintendent of the Army Nurse Corps that only graduate nurses would be accepted for service. Will you kindly make this correction?

C. D. CRUDGINTON,

1st Lieut. Sanitary Corps, U. S. N. A.

CHRISTIAN SCIENTISTS ARE NOT ANTAGONISTIC TO THE RED CROSS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In relation to the item in your January 5 issue, taken from the *New York Times*, to the effect that a Red Cross booth was torn down by Christian Scientists at their Wednesday evening meeting in Aeolian Hall, please permit me to say the statement is unqualifiedly false. The booth placed in the lobby before the meeting remained there throughout the meeting, and the woman in charge solicited and received members to the Red Cross among those in attendance without molestation, before and after. I have this upon the written statement of the first reader, the chief usher, the assistant usher in charge of the hall, and an attendant at the meeting. On December 22 the *Times* published a refutation of the story by Mr. Frank Presbrey, the leader of the Red Cross drive, who gave out the original story.

Equally false is any intimation that the Christian Science organization is opposed to the work of the Red Cross. A complete answer to this charge is found in the fact that the Red Cross helpers were invited to join the relief train sent by the Christian Science Board of Directors of the Mother Church in Boston to the Halifax sufferers, and accepted the invitation. Among Christian Scientists membership in the Red Cross is wholly a matter of individual option. May I say for myself that I have been a member nearly three years.

ALBERT GILMORE.

LETTER FROM CANADA.

(From an Occasional Correspondent.)

CARE OF INVALID SOLDIERS—WORK OF THE MILITARY HOSPITALS COMMISSION—THE HALIFAX DISASTER—LIABILITY OF MEDICAL STUDENTS FOR COMBATANT SERVICE.

TORONTO, January 2, 1918.

OFFICIAL announcement was recently made of the appointment of Lieut.-Col. Alfred Thompson, M.D., medical superintendent of the Military Hospitals Commission and M. P. for the Yukon, as assistant director of Medical Services, Invalids. Lieutenant-Colonel Thompson will thus have charge of the medical service of the hospitals and convalescent homes established by the Military Hospitals Commission, and will carry on his duties under the direction of General Fotheringham, C. M. G., the director general of Medical Services.

Within a few months of Canada's entry into the war the majority of the members of the Army Medical Corps had gone overseas, and the acting director of Medical Services, Colonel Potter, was left with a staff greatly depleted and a superabundance of work. In addition to the great mass of clerical work and the medical administration of the different military districts throughout the Dominion, provision had to be made for the medical care of members of the Expeditionary Force, and particularly for the care and treatment of wounded and invalided soldiers upon their return to Canada. In the summer of 1915, therefore, the Military Hospitals Commission was established, under the chairmanship of Sir James Lougheed. The commission was composed of representative men from the vari-

ous provinces who were in a position to influence the municipal and provincial bodies to cooperate with the federal government, and who understood the facilities offered by each district and province. Thus the work of providing facilities for the care, treatment and reeducation of invalid soldiers was coordinated. The establishment of hospitals and convalescent homes was placed in the hands of the commission, and there was a general understanding that whereas the Army Medical Corps would provide medical care and treatment for members of the Canadian Expeditionary Force who had not yet left Canada, the commission was to assume responsibility for the care and treatment of returned invalid soldiers. This arrangement led to a good deal of duplication, particularly in view of the fact that the treatment of men was commenced overseas under the direction of the Army Medical Service, and upon their return to Canada taken over by the commission, which entailed the establishment of a double service in each district, an arrangement all the more to be deplored when the services of medical men were so much in demand. It was felt, therefore, that it would be better were an arrangement made whereby the purely medical part of the vast amount of work to be done could be placed in the hands of the army medical authorities, and the efforts of the commission, which had already done such valuable work, directed toward the establishment of convalescent homes, the provision of vocational training, etc. The matter has been under consideration for some months, and official announcement has now been made as follows:

The Military Hospitals Commission which has been charged with very full powers in connection with returned soldiers, has found itself confronted with many serious problems. The number of men in its institutions has about quadrupled within the year, being at present about 11,000, with a probable increase before the new year to 15,000. The heavy fighting which has recently taken place will unfortunately greatly increase this number. The Commission has been able fairly to keep abreast and somewhat in advance of the requirements of the invalids, in providing accommodation and equipment. Its greatest problem has been to arrange adequate medical and surgical treatment for these invalids. This has arisen from the following causes: The fact that so large a proportion of the medical men of the country have placed their services freely at the disposal of the military authorities; again the urgent demand for medical men at and near the front; again the fact that treatment of those wounded or invalided in warfare has made enormous strides through experience gained since the beginning of this war. Consequently, the best treatment of the invalids who return to Canada, requires that the treatment should, at least in part, be given by men who have had overseas experience. To meet the situation it has been arranged between the Department of Militia and Defence and the Military Hospitals Commission as follows: That the medical services in the institutions of the Commission shall be performed by the Army Medical Corps of the Department of Militia and Defence. Lieutenant-Colonel Alfred Thompson, medical superintendent of the Commission, will receive a staff appointment as Assistant-Director of Medical Services, Invalids. He will, under the Director-General of Medical Services, carry on this work with a staff selected from the Army Medical Corps. The Militia Department will make arrangements by which the present medical staff can be retained. The office of Lieutenant-Colonel Thompson, A.D.M.S. Invalids, will continue to be at the headquarters of the Military Hospitals Commission. There will thus be linked together, in caring for those invalids, the Military Hospitals Commission and the Army Medical Service Corps.

Since its establishment the Military Hospitals Commission has accomplished a most important and extensive work. It has established throughout the Dominion a series of convalescent hospitals equipped with every facility for the treatment and reeducation, both functional and vocational, of invalid soldiers. It has also established the Orthopedic Hospital in Toronto, and has taken over Hart House, where research work in this connection is being done, and training is given in massage and the use of various appliances employed in functional reeducation. Some account of this work was given in my previous letter.

Although it is not possible yet to state with any degree of certainty the number of lives that were lost in the disaster which overwhelmed the city of Halifax on the morning of December 6 last, it may be said that the loss of property is approximately \$20,000,000, two square miles of buildings having been completely wrecked. The number of those injured is estimated at about 3,000; those killed at about 1,250; and those partially or totally blinded at about 350. The large number of eye injuries was due to the fact that practically every pane of glass in the city was smashed by the force of the explosion and bits of glass were sent flying in all directions.

In the confusion which followed immediately upon the explosion it was natural that every one should run for help to the medical men in the city, whose offices were crowded with people, injured and non-injured, those who had escaped trying to assist those who were hurt or to find missing ones. Under such conditions it was extremely difficult for doctors to attend to the wounded, and many of them worked continuously for thirty-six hours or more.

The hospitals also were filled with wounded, who were brought in by hundreds every hour, some of them with eighteen or twenty distinct wounds, in many cases of the scalp and eyes, caused by falling wreckage or bits of flying glass. One of the most painful aspects of the catastrophe was the fact that many were buried under fallen buildings and could not be rescued on account of the fires which followed close upon the explosion and the subsequent blizzard and heavy snowfall.

Col. McKelvey Bell, A. D. M. S., of the Sixth Military District, in which Halifax lies, at once took command of the situation and directed the work of rescue. The promptness and efficiency with which he acted prevented worse developments in a situation that was already almost beyond description, and within a few days of the disaster Colonel Bell had appointed a committee of administration, instituted daily reports from the various hospitals and daily inspection of all hospitals and dressing stations, and had appointed an officer to take charge of all available statistics, and another to direct transportation.

At the University of Dalhousie the students had just assembled for the classes, which commenced at nine o'clock, when suddenly, with a tremendous roar, every window in the medical building was blown in. The laboratories fared even worse, particularly those of physiological chemistry, histology, and biology, since not only were the windows blown in but the ceilings also fell.

Prof. Fraser Harris of the Chair of Physiology in Dalhousie University, has been appointed historian of the medical side of the disaster, and is

preparing a complete report from this point of view.

Prompt assistance was sent to the stricken city from near-by towns and from Montreal, Toronto, and other places, and the following units were sent from the United States with as much dispatch as possible: (1) The Massachusetts State Guard from Boston, with a personnel of thirty-two, commanded by Maj. Harold J. Gidding. This was assigned to the building known as Bellevue, once the residence of the general commanding the Halifax garrison. (2) Dr. E. A. Codman's private hospital staff from Boston. This comprised fourteen persons, and was sent to the Y. M. C. A. Building, which had been rapidly transformed into an hospital. (3) The American Red Cross Unit from Providence, R. I., made up of one hundred and seven persons, commanded by Maj. G. de N. Hough. This unit worked at first in the Halifax Infirmary and later at Bellevue. (4) The American Red Cross Unit (Boston) No. 5, consisting of one hundred and five persons, in charge of Dr. W. E. Ladd and Mr. Samuel L. N. Wolcott (A. R. C.). They went to St. Mary's College, a Roman Catholic institution, hurriedly transformed into an emergency hospital. (5) The State of Maine medical unit, consisting of twenty-four persons, commanded by Maj. Gilbert M. Elliott. They went to the Halifax Ladies' College, which had also been given over as a hospital. (6) The Calais Chapter of the A. R. C. from Calais, with a personnel of twelve, under command of Dr. William Miner and the Rev. R. A. Macdonald. This unit worked chiefly at relief dressing stations No. 1 and No. 2. Quantities of food, clothing, and medical supplies were sent to Halifax from different places in Canada and the United States, and on the afternoon of the day of the explosion Captain Goodman left New York on a special train to coordinate the work of the American and Canadian Red Cross, taking with him four baggage cars of supplies.

Fortunately, many eye injuries, though severe, have cleared up under treatment, but, as already stated, the number of those who have lost their sight is very great. Three cases of gas gangrene were met with, and one case of incipient tetanus, which, however, was arrested by the free injection of anti-tetanic serum.

Since the entry of Canada into the war many students in medicine have found it difficult to decide whether their duty to their country required that they enter the combatant ranks or complete their medical course so as to fit themselves to give more efficient service as fully qualified doctors. A large number of such students attached themselves to the various ambulance corps, and the fourth and fifth-year men were subsequently sent back to Canada to finish their medical course. The government has now arranged that first-year students of medicine, dentistry, or veterinary science, are to be called to the colors under the selective draft if physically fit. All other students of these subjects are to continue their studies, and are to form reserve corps to be called upon in case of military necessity. Upon graduation, if physically fit, these students will be given the military training necessary to fit them to accept commissions in the Army Medical Corps; and should they already have taken this military training they will be given leave of absence until called to the colors.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 3, 1918.

1. The Differential Diagnosis of Pulmonary Tuberculosis. William H. Smith.
2. The Treatment of Eczema in Childhood. Charles J. White.
3. Lipoids in 131 Diabetic Bloods. Horace Gray.

2. The Treatment of Eczema in Childhood.—Charles J. White finds that at the end of three years of concentration on the subject of eczema and of working and pondering over one positive and two possible accessories to our therapeutic armamentarium, he feels justified in making the following deductions: (1) There are two great types of eczema,—those curable in the hands of an expert and those which resist even the most scientific care. These two classes cannot be distinguished objectively. (2) Crude coal tar when properly used is curative in the majority of instances of moist eczema, and has proved of inestimable value. (3) There is no doubt that eczematous individuals, both young and old, react positively in decided numbers to the food tests and stool examinations—in fact he and his co-workers have seen among the children described in this communication 66 per cent. of positive food tests and 81 per cent. of abnormal stools. Therefore, they do not hesitate to say that food plays some rôle in the abnormal composition of individuals afflicted with chronic, rebellious eczema. (4) Proper feeding, as indicated by food tests and stool examinations, is capable in very young children (who eat elemental food), of producing a cure or of paving the way for a cure in a decided majority of cases. (5) In older children and in adult life the same successful results have been obtained only in a small minority of the cases; but it is possible that this failure is due less to the value of this same knowledge than to the fact that the food of this class of patients is practically always a complex substance and hence incapable of such scientific and exact preparation as is possible in the comparatively simple modification of milk. Until, therefore, it is possible by means of special diet kitchens to synthesize the food of older children and adults, we cannot hope to make use of these two modern therapeutic adjuncts in our fight against unamenable eczema. Certain eczemas not amenable to treatment were tested for food reactions, the following foods having been employed in the tests: Beans, wheat, barley, rice, oats, rye, lentil, corn, buckwheat, barley, pea, turnip, cabbage, carrot, strawberry, egg white, lactal albumin, beef, lamb, pork, and chicken. Various degrees of response to one or more of these foods was obtained.

New York Medical Journal.

January 5, 1918.

1. Ophidismus or Snake Poisoning. C. C. McCulloch, Jr.
2. Three Unusual Cases of Renal Tuberculosis. Leo Burger.
3. Single Suture Appendectomy. Arthur J. Walscheid.
4. Hospital Treatment Versus Home Treatment. John W. Brannan.
5. Body Flexibility. Stewart Lewis.
6. A Comparison of the Physical Condition of Prisoners on Admission and Discharge. Frank L. Heacox.
7. The Organization of the Department of Physical Education of the Rochester Public Schools. Herman J. Norton.

5. Body Flexibility.—Stewart Lewis advises the systematic use of certain types of exercises for the production of body flexibility for the relief of impaired function, lowered resistance, and local and general disorders due to relaxed muscular condition and also to the opposite condition stiffness due to habit or nonuse. He says that extending a motion as far as we can we frequently find it limited by a tight band, the opposing muscle. Attempting to stretch this by steady pull, intermittent pull, or massage, we seldom succeed, in fact we may actually stimulate the muscle to increased contraction. *If, however, we keep up steady tension and sway the muscle back and forth we note a fine and then a coarser crackling sensation and the resistance yields.* Almost every one of us has a "weak spot" somewhere, some part of the body which tends to trouble us, especially when we are a bit tired, by a feeling of disagreeable tightness, pressure, even pain. Such dif-

ficulties may be greatly relieved by proper exercise of the part, preferably the entire body, to restore flexibility, muscle balance, and tone; neglected, they may go on to serious disorders. The following set of exercises are offered, especially for those approaching middle age who are decidedly in need of more body flexibility: *Head and neck.*—These exercises are especially helpful for the tired head and stiff neck of the brain worker or the nerve wearied person. 1. Force the head as far back as possible, looking upward. Force head as far to the left as possible, all the time trying to force it farther back. Move the head to right. Repeat five times and return to normal position. 2. Force head as far as possible toward left shoulder. Swing head as far forward as possible, all the time reaching toward left shoulder. Swing the head back as above. Repeat five times and return to normal position. Note the tightness of opposite side of neck, followed by crackling and relief. 3. Head right—opposite of above. *Trunk.*—Position, body erect, head back, chest up. Hands on hips, thumbs to rear. 4. This exercise is especially helpful for bad posture and for tired and sensitive back of the nerve tired. Lean as far backward as possible. Keep abdomen in. Swing as far to left as possible but forcing backward. Do not bend knees. Keep heels on ground. As you bend to one side raise opposite elbow as far as possible, to get pull of latissimus on spine. Bend to the right. Repeat five times and return to erect position. 5. Bend as far as possible to the left. Raise left elbow. Front. Back. 6. Bend right, then same as above. Front bending exercise on same principle may be used, but very little in cases of bad posture. *Shoulder.*—7. Swing arms in half or full circle, stretching shoulder muscles all you can. *Lumbar and thigh.*—This exercise is for selected cases of static backache and sacroiliac strain and is not used in regular drill. 8. Lie on table or high bed, body below hips hanging over the side. Swing legs both together, left and right. *Leg and foot.*—This is especially useful for prevention and cure of flat foot. 9. Stand erect, rise on tiptoes and sink as usually prescribed but with this modification: Stand pigeon toed and as you exercise try to force the toes more and more inward and heels outward. Be sure to rise just as high as you possibly can. In many cases of the class referred to the condition may have progressed beyond stiffness to actual tenderness and pain. It is difficult to decide whether one may exercise in such a case. He can only suggest that one proceed cautiously. Sometimes by experiment we find an exercise which gives grateful relief, as in tenderness at one point near a joint it may prove very helpful to stretch the muscles on the opposite side, thus relieving tension. If good judgment is shown in removing causes, such as overwork, bad nervous habits, etc., the relief afforded by these exercises is permanent. Better results will often be obtained if the patient is not only carefully instructed but the movement assisted manually, and the use of a considerable degree of force is sometimes permissible. A slight sprain may occur but requires only a day or two of rest.

Journal of the American Medical Association.

January 5, 1918.

1. Recurrent or Habitual Dislocation of the Shoulder. M. S. Henderson.
2. Paralysis of Recurrent Laryngeal Nerve Associated with Mitral Stenosis: Report of a Case. George E. Brown and Bert E. Hempstead.
3. Studies in the Transplantation of Whole Organs: I. Autotransplant of the Left Kidney to the Neck with Right Nephrectomy in the Dog. Carleton Dederer.
4. Action of Emetine on Malignant Tumors. Richard Lewishohn.
5. Family Prevalence in Anencephaly: Report of Case. Herbert Thoms.
6. Exhaustion Pseudoparesis: A Fatigue Syndrome Simulating Earl Paresis, Developing Under Intensive Military Training. J. Ramsay Hunt.
7. The Disinfection of Pneumococcus Carriers. John A. Kolmer and Edward Steinfield.
8. Successful Treatment of Anthrax by Various Methods. D. G. Dudley.
9. Determination of Types of Pneumococcus in Lobar Pneumonia: A Rapid Cultural Method. O. T. Avery.
10. Death Following the Administration of Theocin. William W. Cadbury.
7. The Disinfection of Pneumococcus Carriers.—

John A. Kolmer and Edward Steinfield point out that recent studies by various experimenters on the epidemiology of lobar pneumonia show that in a considerable proportion of cases this disease arises by infection from without, because of the entrance into the upper air passages of virulent pneumococci of the fixed serologic types, contracted from persons suffering from lobar pneumonia or convalescent from this infection. In studies of a large number of healthy persons in contact with cases of lobar pneumonia due to Type I or Type II pneumococci, four investigators report that about 12 per cent. were found to carry the corresponding types of pneumococci, whereas among healthy persons not in contact with cases of lobar pneumonia, these types were found in but 0.3 per cent. or less. In almost every instance the observers found that the type of pneumococcus in the carrier corresponded with that of the case with which there had been an association. Advisability, therefore, for the destruction of the pneumococci in the mouth secretions seems indicated. Kolmer and Steinfield offer as the results of their laboratory experiments in this direction the following solutions: 1:10,000 dilutions of ethylhydrocuprein hydrochloride or quinine bisulphate, quinine hydrobromide, and other eichinichs in a 1:10 dilution of liquor thymolis, constitute mixtures that may be readily used by persons as mouth washes and gargles. The slightly bitter taste remaining after the use of any of these washes is readily removed by rinsing the mouth with plain water. The systematic use of 1:10,000 solution of ethylhydrocuprein hydrochloride in 1:10 dilution of liquor thymolis twice or more daily may go a long way toward the protection of others if used by both patients of lobar pneumonia and those coming in contact with them often. The other above-mentioned drugs, while not quite as efficacious, are beneficial as substitutes. Similar dilutions in undiluted Dobell's solution may be used for douching or spraying the nose, or, incorporated in a dental cream, for cleansing the teeth. For washing the mouth and gargling, a solution is conveniently prepared after the following formula: Ethylhydrocuprein or quinine bisulphate 0.005, liquor thymolis 5.0, distilled water sufficient to make 50.0.

The Lancet.

December 17, 1917.

1. A Discussion on the Surgery of Exophthalmic Goiter. T. P. Dunhill.
2. Nasal Reconstruction. With a Note on Nature's Plastic Surgery. J. L. Aymard.
3. The Use of the Turbinals and Septum in the Repair of Injuries and Defects of the Wall of the Nasal Cavity. G. Secombe Hett.

1. A Discussion on the Surgery of Exophthalmic Goiter.—T. P. Dunhill considers that surgeons, as well as physicians, recognize that the removal of a large portion of a gland which is so essential to the bodily well-being as is the thyroid is a confession that the origin of its disturbances has not yet been discovered. But while recognizing this, they maintain that the manifestations of Graves' disease are the manifestations of excessive and disordered functional activity of the thyroid gland. Working on this hypothesis, they believe that, when other means have failed, sufficient gland tissue may be removed to place the patient on a greatly improved plane of health, while still leaving ample for physiological purposes. Referring to his own experience with reference to operation for this condition, Dunhill says that he has always found that removal of one lobe and the isthmus gives improvement which is readily recognized by both patient and observer. The removal of rather more than half the remaining lobe almost always places a patient on a plane of health which enables her to work and play and to feel well whilst doing so. Occasionally a third operation is necessary, and when necessary it is generally because one has not been able to decide how much was left at the second operation. The reason for this non-decision is because the portion to be left is never dislodged. Dunhill does not say that every case should be operated upon, and he is far from saying that every case should be operated upon at once or even early. But he desires to point out what can be done and how it can be done with reasonable safety. If in the case of a person severely ill with Graves' disease the state

of the thyroid were hyposecretion the removal of three-fourths of the gland should cause myxedema at once, and fairly constant. Yet, it never does, either immediately or later. On the contrary, the loss of psychical unrest and a condition of well-being obtains, which, before operation, was foreign to the patient. Dunhill cites several cases as illustrations of results he has obtained through operation. The following case shows the need of removing sufficient gland tissue. Miss M. was a healthy girl in the early twenties, when she developed exophthalmic goitre. The goitre, the prominence of the eyes, the tremor, the rapid pulse and the palpitation, were all characteristic. The first operation was one of the first six that Dunhill performed for this disease (1906). Consequently he removed only one lobe. She was improved, but remained far from well. This was the first case which compelled him to recognize that removal of one lobe was not going to cure, and he removed a part of the second lobe. After the second operation she lived a fairly active life, but she still had a large piece of gland tissue remaining in the region of the upper pole of the left lobe and was not free from tremor and palpitation. Her eyes had become practically normal after the second operation. He decided to remove still some more. This he did, and within a few days she felt quite a different being. Her eyes are now normal, her pulse is normal, she has no tremor and no palpitation. She has undertaken a tour on foot, lasting five days, over mountains, carrying a knapsack, and sleeping at nights in ordinary accommodation houses. She plays tennis regularly and is quite well. This was not due to rest in bed or medical treatment. Each time she entered hospital the night before the day of operation. As soon as sufficient gland tissue was removed she was completely better. Ten years later her health is normal. She is a vigorous woman.

British Medical Journal.

December 15, 1917.

1. Penetrating Gunshot Wounds of the Chest, and Their Treatment. G. E. Gask and K. D. Wilkinson.
2. Lectures on the Anatomical and Physiological Principles Underlying the Treatment of Injuries to Muscles, Bones, and Joints. Arthur Keith.—II. John Hilton's Principles of Treatment.
3. Gastrointestinal Sepsis a Cause of Ménière's Symptoms. T. Mark Hovell.
4. The Paraffin Treatment of Burns. Alfred J. Hull.
5. A Case of Fulminant Cerebrospinal Fever without Meningitis. Wm. St. Clair Symmers.
6. Chlorine Water in the Treatment of Infantile Diarrhea. S. Roseberry.
7. A Case of Cesarean Section Complicated by Rupture of the Uterus. G. W. Kilner Crosland.
8. Note on the Fate of Halazone in the Animal Body and on the Stability of Tablets containing it. E. K. Dunham and H. D. Dakin.

3. Gastrointestinal Sepsis a Cause of Ménière's Symptoms.—T. Mark Hovell considers that although aural surgeons of late years have clearly drawn the distinction between Ménière's disease, or the class of cases to which Ménière referred in his paper, occurring suddenly in patients without previous ear trouble, and Ménière's symptom complex occurring in patients suffering from an affection of the middle ear—which condition for many years he has preferred to call by the simpler term of Ménière's symptoms—the distinction is not as yet universally understood in the profession, and there is in consequence a tendency, except with aurists, for any patient suffering from the group of symptoms which Ménière described to be regarded as having an incurable ear disease, so that palliative treatment is all that is possible. It is not his intention now to deal with the cases in which the symptoms are produced by syringing the ear when perforation of the drumhead exists, or by quickly rotating the patient, or to an extension of suppuration to the labyrinth, or are found in the course of an acute disease from inflammation or infective processes extending to it, or with the attacks of giddiness and tinnitus which occur sometimes as part of the vasomotor disturbances which accompany the menopause, or any of the cases in which the cause is obvious, but to confine himself to those which occur in patients suffering from middle-ear disease and come on without the reason being apparent. The treatment adopted not only greatly diminished the frequency and severity of the attacks, but in some cases practically freed the patients from this distress-

ing condition. In many of the patients the following conditions obtained at the first visit: A furred tongue, congested pharynx, nasopharyngeal catarrh, hypertrophic rhinitis, flatulence frequently causing much distension, and constipation, although sometimes the motions were broken and light colored. Several patients stated that previous to an attack the motions have been noticed to be especially offensive. With these symptoms the blood pressure was often high, for Hovell states that with toxemia due to intestinal sepsis this last symptom is a common result, and some dilatation of the heart existed in many cases. Pathological mouth conditions as well as other conditions may produce this result also. With the patient suffering from the above symptoms, it is not surprising that closure of the Eustachian tubes is usually present when Ménière's symptoms exist, for gastrointestinal derangement is a common cause of congestion of the pharynx and nasopharyngeal catarrh and consequent closure and catarrh of the Eustachian tubes. Nor is it to be wondered that tinnitus and giddiness are found when toxemia is present, these symptoms being more the result of this condition than caused by the high blood pressure when it exists. With these conditions present gastrointestinal antiseptics are in order, as well as medicines for the reduction of blood pressure, and also a preliminary measure of washing out the stomach with an alkaline solution. In some cases Hovell has obtained a specimen from the stomach during fasting and has had a vaccine prepared and administered as an adjunct to other treatment. For the reduction of the blood pressure he advocates three to five drops of a solution of adrenalin chloride with a little dilute hydrochloric acid, rightly flavored, for each dose; but this is only an adjunct to the intestinal clearing out, for which he first administers a full dose of castor oil. Combined with this, local treatment of the Eustachian tubes brings about a normal condition. For this he employs an injection into the tubes through a catheter of a few drops of collosol argentum. The nozzle of the syringe which injects the drug into the catheter must not fit the catheter tightly, or the drug might be forced directly into the Eustachian tube instead of being sent into it in the form of a spray by air pumped from an air-bag, the nozzle of which closely fits the catheter. To lessen the nasopharyngeal catarrh, collosol argentum or collosol iodine sprayed directly backward through the nostrils so that it reaches the nasopharynx and the orifices of the Eustachian tubes is a beneficial measure. This entire method often relieves tinnitus of long standing from other causes. Collosol argentum, Hovell also states, is useful for stopping earache, and he applies it by placing the patient with the meatus of the affected ear upward and then filling the canal with the drug and allowing it to remain there.

Le Progrès Médical.

December 1, 1917.

Pseudomalarial Septicemia, Cause Unknown, with Meningococcus Meningitis.—Challamel reports a rare disease association in a soldier of 19 years. The admission symptoms were fever and erythema nodosum on all four extremities. For 10 days there was a peculiar type of remittent fever nonresponsive to quinine with a maximum of 103° F. The patient was otherwise normal—ate, drank, conversed, read. In other words, there was notable dissociation in the picture. As no organic affection could be located a provisional diagnosis was made of sepsis and an intravenous injection of colloidal silver brought the temperature to normal, where it remained for 24 hours. Upon its reascension there were associated violent arthralgias which were in harmony with the erythema nodosum, now paling. Sodium salicylate gave relief to the pains. The fever curve now assumed the "needle" type. A fresh examination revealed absence of local lesions and several blood tests were negative. A few days later the fever assumed a frankly malarial type—severe chills, high temperature and profuse sweating. The range of temperature was 36°-41° C. During all this time the patient seemed well, would not remain in bed, came and went at pleasure. There was no history of malaria and intramuscular injections of quinine were inert. Nine days after the supervention of the malarial type of fever the picture changed sud-

denly to that of meningitis. Lumbar puncture gave exit to a purulent fluid under pressure. Death occurred on the twelfth day of meningitis in coma. Blood cultures were negative as before. From the spinal punctate a coccus was found of the meningococcus type which did not cultivate. The author chooses to be a unicist in explaining this case. As no cause was found for the sepsis, he decides that it is simpler to ascribe it to the meningococcus than to regard the latter as the cause of a secondary infection. Cases have been reported in which a meningococcemia terminated after some weeks in a meningitis. In the author's patient failure to find a diplococcus in the blood must be ascribed to defective technic. In meningococcemia without meningitis we may see an exanthem suggesting ordinary erythema nodosum, joint pains, a malarial type of fever and enlarged spleen. It is possible that early lumbar puncture would have revealed latent meningitis, in which case serotherapy might have saved life. The single intraspinal injection of polyvalent antimeningococcus serum received by the author's patient did not in the least modify the course of the disease.

Hygeia.

October 16, 1917.

History of Eustachian Catheterization.—Key-Aberg calls attention to the work of Archibald Cleland, an old English regimental surgeon who recommended an inflation at a time when liquid injections were universally practised. His pioneer efforts were virtually ignored and not until nearly a century had expired did his method come into general use. Cleland's original paper was published in the *Philosophical Transactions*, London, 1741, and the title conveys no suggestion of the method in question. Among various aural apparatus described is a Eustachian catheter. Cleland's immediate followers in the use of the latter included Petit, Douglas and Wathen, the latter publishing numerous cases in the *Philosophical Transactions* for 1754. In 1821 Itard and in 1827 Deleau revived the resource, and in the fulness of time the pioneers of modern otology—men like Tröltzsch and Politzer—gave the method its full due.

Berliner klinische Wochenschrift.

October 22, 1917.

The Surgical Treatment of Facial Paralysis.—A. Kochmann offers us a general review of this subject. He considers somewhat lengthily the various procedures which have been resorted to with the prospect of restoring the functions of the injured nerve and gives the literature of the most recent publications on the question. After the first essays of anastomosis between the peripheral end of the facial with the spinal or the hypoglossus (the latter procedure having given the best results), with Busch appeared the technique having for end an entirely cosmetic result, obtained by the use of loops of iron wire, which, by fixing the angle of the mouth to the malar bone, raised its angle. However, the best results seem to be promised by Gersung's procedure, in which the paralyzed muscles of mimic are united to those muscles which have maintained their physiological functions. In certain cases this method may bring back a considerable mobility of the face. Now, although Gersung has sought for the tutor muscle in the domain of the intact facial branches, Rosenthal has sought for it in the muscles of mastication. Nevertheless, this procedure will not result in a return of the mimic muscular play to the same extent as that obtained by Gersung's technique, in the opinion of Kochmann.

The Intravenous Injection of Urated Calcium Chloride.—C. Wiénand-Rose has experimented with the above named product upon himself and considers it less irritating than other calcium salts. He injected a 10 per cent. watery solution in the dose of 10 c.c. The therapeutic indications are as follows: Acute bronchial asthma, hay-fever, hypersensibility of the nasal mucosa, and urticaria; they are to be given also at the time seric injections are exhibited, in order to obviate anaphylactic phenomena.

Münchener medizinische Wochenschrift.

October 23, 1917.

Spring Plaster Casts for Preventing Deformities Due to Paralysis of the Peroneal Nerve.—H. Lehr has noted that the time elapsing between the receipt of the lesion and that of the nerve suture, which is necessitated by the treatment of the wound itself, as well as the complications arising, is frequently the cause of ultimate deformity which prevents *restitutio ad integrum* of the functions of the limb involved. In order to do away with these untoward incidents, Lehr has had constructed plaster casts made in two parts, using very pliable wire as a framework. The two portions of the plaster splint are, consequently, movable over each other and therefore allow the patient to execute movements of flexion and extension. The circulation of the parts is favored in the limb and tardy trophic disturbances do not occur.

The Influence of Balancing Movements on the Human Organism.—A. Ritschl remarks that, aside from the reactions of the nervous system, one should take into consideration more than is usually done certain mechanical influences, particularly the pressure exercised by fluids on the walls of the containers, as for example the heart, stomach, meninges, etc.

Deutsche medizinische Wochenschrift.

October 25, 1917.

Treatment of Malaria with Methylene Blue and Salvarsan.—L. Appel considers the treatment of malarial infection by successive injections of the above named drugs, which he believes exercise a favorable action on the morbid process. Appel thinks that the dye acts electively upon the specific organism, while, under the action of salvarsan, the transformation into toxic products gives results which may realize the sterilization of the host. A similar idea occurred to Roosen, who has treated septic conditions with methylene blue combined with calomel (*Deutsche medizinische Wochenschrift*, No. 10, 1914). The technique is as follows: A 2 per cent. solution of chemically pure methylene blue is injected intravenously in the dose of 10 c.c. Four hours later a similar injection of neosalvarsan (45 centigrams in 10 c.c. water) is given. These injections are repeated on the tenth and twentieth days. In cases where this treatment is not followed by success the injections are continued once weekly until the fever has entirely disappeared.

Dysentery.—Czaplewski has noted that the usual etiological factors of dysentery (*bacillus* of Shiga, Flexner's γ *bacillus*) are usually found wanting. On the other hand, the epidemic of dysentery studied by the writer was characterized by an acidopoiëtic encapsulated bacillus, which was found both pathogenic and violently toxic.

Diagnosis of Intestinal Affections.—A. Alber comes to the conclusion that, as far as dysentery is concerned, bacteriology should give way to clinical symptomatology in making the diagnosis of the affection.

Wiener medizinische Wochenschrift.

October 27, 1917.

Treatment of Soldiers with Cardiac Affections in Sanatoria.—K. F. Wenckebach, speaking from a purely practical viewpoint, has come to the conclusion that it has become necessary to organize the treatment of the cardiopathies of war. A sojourn in a sanitary establishment acts by withdrawing the patient from his mental preoccupations and activities by directing his thoughts in the sense of a punctual fulfillment of his medical prescriptions. After careful selection of cases which are undergoing hospital treatment (advanced cases of uncompensation), such patients placed in sanatoria can be benefited particularly by therapeutic exercises. The writer advises a mild mental activity, as much for producing a certain amount of cardiac exercise as for occupying the patient's mind and thus relieving him of psychic depression. The writer believes that hydrotherapy is too much neglected, particular favor being shown to treatment with carbonic acid gas baths. The hydrotherapeutic methods advantageously

take the place of the latter treatment in hypotonic states. The use of electricity has not given any marked results in cases treated by the writer. Carbonic gas baths may give real success on the condition that they are given to strictly selected cases, particularly in hypertensive states.

Scorbutus at the Front.—E. Schneider gives a description of cases under his observation since 1916. He has not been able to convince himself of the reality of epidemics in the strict sense of the word. He is more inclined to admit that changes undergone by foodstuffs and meat from cooking and also probably from fermentation give rise to the process.

Correspondenz-Blatt für Schweizer Aerzte.

November 24, 1917.

Palpatory Determination of Maximum Pressures.—Baumann of Sahli's clinic concludes that he has refuted experimentally the assumption of von Benczler that the palpatory determination of maximum pressure only suppresses the peripheral pulse and not the circulation of the blood, so that the maximum pressure is found to be too low. On the contrary the persistence of the blood stream beneath the compressing cuff is connected with the persistence of the pulse—no pulse, no circulation. The fact that the pulse seems to return before the circulation is due purely to technical shortcomings in the experimentation. In the use of the cuff method the blood pressure may be altered as a result of reflex activities. While the disadvantages of a narrow cuff do not hold good for cuffs of average width, increase in width varies directly with defective lowering of figures as a result of dynamic loss of pressure. Hence published figures of maximum pressure possess no absolute value unless the width of the cuff has been taken into consideration. It therefore follows that the pelotte—of a diameter not exceeding 3 cm.—should be free from the objections which inhere in a wide cuff while it may also be shown that it is without the disadvantages of a narrow cuff. The method of the determination of the suppression of the radial pulse by the Riva-Rocci procedure is defective because with radial pulse suppressed the brachial pulse can still be felt. Errors as high as 20 mm. Hg. can be recorded as a result. To avoid this source of error the brachial pulse should be palpated beneath the cuff, a procedure impracticable in fat subjects. There are other sources of error not sufficiently regarded in connection with manufacturing defects in the various manometers. In this connection the writer praises the new apparatus of Sahli (1916 model), which is from 5 to 8 mm. more accurate than the older model.

Calcium and Phosphoric Acid Metabolism in a Case of Rachitis Tarda.—Ricklin (Professor Feer's clinic) relates a typical case of late rickets in a boy of 15 years. Two years before he had been sound like the other children (4) in the family. At this period he began to suffer increasingly from pains in the knees and ankles and developed a marked case of knock knees with great impairment of locomotion and psychic alteration. Anemia and tetany were both absent. The supposed causal factors of rickets were not in evidence. He had had plenty of fresh air and good food. Endocrine factors were therefore under suspicion but the good state of development of the genitals seemed to antagonize such a view. There was nothing to implicate the parathyroids. The treatment consisted at first of phosphorized codliver oil; later insoluble calcium phosphate was substituted for phosphorus. The calcium and phosphorus retention was shown to be better under the latter plan. Metabolism studies were abandoned after it had been deemed necessary to operate upon the knock knees. Radiograms of the wrist showed improvement in the diaphyses of the long bones and general texture of the osseous structures. The photograph taken before the discharge of the patient shows a well-developed and well-set-up boy, hardly recognizable in the photograph taken upon admission.

Pseudotabes and Meningism Following Diphtheria. Oppenheim and Haller report this sequence in an adult. Thus far it has been seen only in adults.—*La Presse Médicale*.

Book Reviews.

HELPING THE HELPLESS IN LOWER NEW YORK. By LUCY SEAMAN BAINBRIDGE, Honorary Superintendent Woman's Branch, New York City Mission Society; Author of "Round the World Letters." Introduction by Rev. A. F. SCHAUFLER, D.D. Price, \$1.00. New York: Fleming H. Revell Company, 1917.

IN no large city of the world, not even excepting London, is there such a cosmopolitan population as in the tenement district of New York. It undoubtedly contains the most teeming mass of all sorts and conditions of men and women that can be found anywhere. Poverty and disease stalk throughout the district, and it is in the best interests of Christianity, humanity, and public health that aid should be given to the sick and indigent. For a long time the New York City Mission has, through the agency of the noble band of men and women who have given their services, done much to relieve the sickness and distress, which not only hamper the activity of the sufferers but which menace the entire community. Among those who have been especially strenuous in this good work is Mrs. Lucy Seaman Bainbridge, who was for eighteen years an active member of the missionary staff.

In "Helping the Helpless" Mrs. Bainbridge has set down tales of some of the individual cases which came within her ken as a city missionary. These are dealt with from the moral and physical standpoints and provide true human documents which are, at the same time, poignant and instructive. It may be said truly that the book is valuable from both the social and medical points of view. The medical man is brought into contact with many of these down-and-outs who form the subjects of some of the stories, and any of us could certify to the correctness of the incidents, though few could tell the tales so illuminatingly and in such sympathetic language. The stories are all interesting and well worth reading, and they also serve to throw a light on the commendable work of the City Mission Society. The little book is dedicated to the author's son, who is Dr. William Seaman Bainbridge of this city.

PREVENTIVE MEDICINE AND HYGIENE. By MILTON J. ROSENAU, Professor of Preventive Medicine and Hygiene, Harvard; Director of the School for Health Officers of Harvard University and the Massachusetts Institute of Technology; formerly Director of the Hygienic Laboratory, U. S. Public Health Service, etc. With chapters on Sewage and Garbage by GEORGE C. WHIPPLE, Professor of Sanitary Engineering, Harvard; Vital Statistics, by JOHN W. TRASK, Assistant Surgeon General, U. S. Public Health Service; Mental Hygiene, by THOMAS W. SALMON, Medical Director, National Committee for Mental Hygiene, etc. Third edition. Containing a special section on Military Hygiene. Price, \$6.50. New York and London: D. Appleton and Company, 1917.

THE present edition of this now well-known book contains a valuable section on military hygiene. The fact that the author served for many years as an officer of the Public Health Service fully entitles him by virtue of much practical experience to write on this subject. He states in the preface that "this entire volume may be regarded as dealing with military hygiene, for the fundamental questions concerning food, water, soil, ventilation, vital statistics, disposal of wastes, disinfection, and the prevention of the communicable diseases are essentially the same for the soldier and the civilian." In this section such topics as the examination of recruits, organization of the medical department, the Red Cross, rations, equipment, diseases of the soldier, hygiene of the tropics and cold climates, are dealt with in a concise and authoritative way. A detailed reference list on these subjects is appended. That part of the book devoted to communicable diseases represents the latest word on all that pertains thereto. The chapters on sewage and refuse disposal, vital statistics and mental hygiene are written by men who are recognized as specialists in these lines.

The book as a whole is very complete and fully maintains the reputation established for it by the author in the previous editions. It is a text that is to be par-

ticularly recommended at the present time on account of the valuable information which it contains not only for the medical man already in service, but also for prospective army doctors. The publishers might have selected a better grade of paper commensurate with the value of the contents.

HYGIENE OF THE FACE AND COSMETIC GUIDE. By RICHARD W. MULLER, M.D. Price, \$2.00 net. New York: E. P. Dutton & Co., 1917.

IN the years past this subject has been delegated entirely too much to the inefficient hands of so-called beauty specialists, barbers, and quacks. That such an important and expressive part of the human anatomy as the face must need special care and attention in order to keep it in normal condition, and to preserve whatever beauty nature may have bestowed upon the individual, needs no further comment here. The fact which does need emphasizing, and strongly, is that this care and attention should be given under the direction of competent skin specialists and not allowed any longer to remain a field of remuneration for a horde of quacks.

Dr. Muller has gone a considerable distance along the right road in presenting this book to the public. He has graciously dedicated it to "The Queen of Her Sex the World Over, The American Lady," thus finding a sure, fair, and competent reading public.

The subject of facial conditions is taken up with reference to age, and treatment is offered accordingly. Prophylaxis and hygiene, together with scientifically prepared formulæ for cosmetics, also massage and other methods of rejuvenation are included.

What a boon to mankind it will be when more members of the medical profession awaken to a realization of the importance of this heretofore neglected branch of the medical art, and attempt, not to remake, but to improve upon what nature has been niggardly in bestowing of natural beauty in men and women, as well as preserving that most wonderful of all gifts, beauty of face in feature, texture of skin, and coloring.

MANMALIAN ANATOMY WITH SPECIAL REFERENCE TO THE CAT. By ALVIN DAVISON, Ph.D., Ex-Fellow of Princeton University; Professor of Biology in Lafayette College. Third edition revised by FRANK A. STROMSTEN, D.Sc. (Princeton), Assistant Professor of Animal Biology, State University of Iowa. With 115 illustrations, etc. Price, \$2. Philadelphia: P. Blakiston's Son & Co., 1917.

THE first edition of this work appeared in 1903 and was actually larger than the present volume, something rather unusual in bookmaking unless deliberately planned. A comparison shows that the introduction has been considerably shortened. Dr. Stromsten has also omitted the entire section on the fiber tracts of the spinal cord as belonging properly to a more advanced textbook. On the other hand, the section on the classification of animals has been expanded and radically changed. There is a new section on the skull as a whole, and the chapter on general structure has been rewritten.

AN INTERMEDIATE TEXTBOOK OF PHYSIOLOGICAL CHEMISTRY WITH EXPERIMENTS. By C. J. V. PETTIBONE, Ph.D., Assistant Professor of Physiological Chemistry, Medical School, University of Minnesota, Minneapolis. Price, \$2.50. St. Louis: C. V. Mosby Co., 1917.

IN the theoretical first portion the food substances are duly considered, and in this respect the volume suggests a book on dietetics, especially as chapters follow on the physiology of digestion. The section ends with a chapter on the urine. The laboratory section follows and duplicates the classification throughout. Whether such duplication is advisable will doubtless appear in time.

In the next edition the author may find it of advantage to have a single section, with the laboratory work appended to each chapter of theory, or to fuse the two elements into single chapters, or to make the work a laboratory book pure and simple. By the word "intermediate" in the title the author evidently understands a transition between ordinary descriptive text and laboratory manual of procedure. The volume is of the type which must be judged by its reception.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held December 13, 1917.

DR. ROGER H. DENNETT IN THE CHAIR.

New Plans for Health Centers.—Dr. HAVEN EMERSON, Commissioner of Health of New York City, said that he had been asked to make a brief statement of the object and principles of the new plans for the establishment of health centers. Any one who attempted to analyze the results of health organization as set forth in the reports of the Bureaus of the Department of Health would be struck by the fact that no officer of the Department was familiar with all the needs and phases of civic health work in any given borough or district of the city. The general death rate, the infant mortality rate, the rates of incidence of the different communicable diseases in the community as a whole, were known to the Health Department, but as soon as one came to analyze these rates he found that he was dealing with too large groups to make these statistics applicable to any one district. The attempt had been made to analyze these statistics so that they could be applied to local racial groups, to industrial groups, or to areas where especially favorable or unfavorable sanitary conditions prevailed, and the results had not been satisfactory. For many years the system of administration of the Health Department had been the growth of a series of kingdoms, within an empire, each to a great extent independent and with its functions and sphere of influence sharply defined; each bureau was served by a staff of employees more or less specially trained and independent of the other bureaus, in thought, action, and method of work. There was no opportunity or desire for conference or comparison of the records and results or for consultation for the sake of obtaining joint action between the different bureaus. There was no place in the city where investigation was being carried on in respect to the effectiveness of the existing or other possibly desirable methods of health administration. The advisability of carrying out such an experiment was evident, and it had been carried out in Federal Census unit, No. 6, in Manhattan. The records for this district, in Manhattan, were available for 1900, 1910, and for the succeeding years. This area had been utilized as an experiment station, where different methods of serving the functions of the four field bureaus, namely, those of Preventable Diseases, Child Hygiene, Food and Drugs, and the Sanitary Bureau, had been tried out and the results studied under one directing officer. The health officer of this district was expected to know everything regarding environment and its results, the occupations and the results of occupation of the residents of the district, everything about the food supply, the causes and incidence of sickness and death in this area, and the methods of approaching the groups of people living and working in these city blocks, in order that the Health Department might render the most effective service to them. The results in this district made it seem advisable to try out the system in a larger group of people in a growing community with a more varied population. The Borough of Queens seemed to fulfill the conditions suitable for such an experiment. The plan as applied there comprised briefly a sharp cut line and staff organization. The population of this borough was about 400,000, and it was divided into four districts of approximately 100,000 people each. At the head of each district was placed a physician trained in the work of some one or more of the four field bureaus. In each Health District there was a headquarters and one person was placed in charge, whose business it was to become familiar with every detail of the conditions in that community with which the Department of Health should properly have an interest. This physician was on hand to meet the public, and he studied and learned that particular community. The various functions of the Health Department were administered through this central district office, where a physician, adequately trained in infant welfare, school medical inspection work, in tu-

berculosis work and in the diagnosis of communicable diseases was in charge, or if all these functions were not covered by one physician, others attached as part time medical inspectors were on hand to assist and supplement the work of the health officer. The nurses were also trained in their visiting to fulfill all district nursing functions of the Department and to keep their eyes open for all matters that might come within the province of the Health Department. In short, the effort was to get away from specialization of service and to obtain a more intensive application of all the functions in smaller groups of families, or tenements, or factories, by a field force adequately trained and directed in routine field procedures of each of the four bureaus. The results from the point of view of preventable diseases, the welfare of infants, the inspection of school children, and the work in tuberculosis was as good if not better than before the district system was introduced, and where any difference in the results between the two systems was apparent the result was in favor of the district system. Under the district system the community felt that it had something definite, something that was its own, instead of feeling that the activities of the Health Department, as administered from a Central Bureau in another borough, were intangible, impersonal, and indefinite. Another point in favor of the district system was the opportunity it afforded for the focusing of volunteer work of physicians and relief agencies in such an area. As an instance of this, in the Borough of Queens before the introduction of the district system there was no venereal clinic, no orthopedic clinic, no eye clinic. There was a population of 400,000 people without these indispensable special services. The physicians practising in these communities knew the need for this special service, and were willing to volunteer their services in such local centers as the district and health office now offered. A beginning had now been made, and several special clinics had been established in Queens. The reports that came in from these district health officers were radically different in their point of view from those received from the borough officers in other boroughs. One was struck with the intimate sense of responsibility, and with the all-embracing human interest in each aspect of the lives of the people shown by these district officers. The physician in making a diagnosis of the individual might need the assistance of the specialists, so the man in charge of the health center submitted his data to the staff officers as consultants. These staff officers were the specialists or experts, the directors and division chiefs of the various bureaus, and under the district system were just as responsible as under the bureau system, but instead of working through specialized bureau employees responsible only to them, they were studying results and making recommendations to physicians, the health officers, who were responsible to the Health Department as a whole through the assistant sanitary superintendent of the borough, and through him to the Commissioner. It had just been planned to extend this system to Brooklyn, in 1918, and the budget for the coming year had made provision for this. There should be fourteen such districts in Brooklyn, but the probability was that only three would be established at first and the system gradually extended. The difficulty had been to go slowly enough to consolidate the work properly and have it sufficiently well organized to stand in competition with the well-established bureau type of work. The cost of the two systems was about the same, but with some economies in rentals, janitor service, and equipment, under the district system. There should be in every community a social, educational, and recreation center, preferably conducted in relation with a school, and there should also be voluntary cooperation between physicians of the locality for a pay diagnostic and therapeutic clinic. These two facilities, together with a health district service such as was outlined, should produce tangible results in the improvement of the health of all within reach.

Dr. L. E. LA FETRA said that all who had listened to this admirable presentation of the health center plan must feel that it marked an epoch with regard to our methods of health administration, and that we had made a great step forward because we had taken a

step back to the community idea in which all health problems by one man or a small group of workers. This was a method of administration by which the community spirit could be aroused and developed. The group system of administration had long been employed in Paris. Paris was divided into *arrondissements*, or small departments, from which all public health activities radiated, and each department took great pride in its *mairie* and its achievements. London was administered in the same way, and one found a great deal of community spirit in these groups. Dr. Emerson had pointed out the advantages of the broadened view resulting from this plan of coordinating the work of the different bureaus, but it seemed to the speaker that he did not make enough of the advantage of having one nurse take up all the problems of the family. There was a great deal of complaint among tenement house mothers because of visits from so many nurses, each coming for a different purpose. One nurse ought to be able to perform the functions now distributed among several if she had the proper spirit. It might be well in developing this system to go slowly, especially in view of the difficulty that was likely to be encountered in getting the proper personnel for the carrying out of this plan, though undoubtedly men and women could be trained for this work. In summing up, Dr. La Fetra said he failed to see any adequate objection to this plan, and he congratulated the city on having Dr. Emerson to elaborate and undertake its practical application.

Dr. SIMON TANNENBAUM said he was in entire accord with the Health Commissioner on Health Center organization. The Health Center system was organized on three basic principles. 1. Prevention of Overlapping. 2. Local administration in accordance with local needs. 3. Development of the community spirit. 1. *The Prevention of Overlapping.*—This could best be illustrated by explaining the difference between the bureau and the health district systems. At the present time each bureau had its own force of employees who worked independently of each other. The employees of the bureaus were again subdivided into divisions, each division having its own set of employees working independently of other divisions. As an illustration, there was the Division of School Medical Inspection, the employees of which did nothing but perform that particular work. A nurse of that division would visit a home for a physical defect and, owing to her status as a school nurse, she would not be able to take any cognizance, for instance, of a case of tuberculosis in the family. The same was true of Baby Welfare nurses, of the nurses visiting midwives and foundlings, of the tuberculosis nurse, and the contagious disease nurse. Under the health district system the family had at last come into its own. It was treated as the basic unit for health department service; one nurse visited the family and served all the Health Department functions to the family and was better able to minister to them than four individual nurses, who could not see the entire needs of the family for Health Department service. It was during the health district system that the Family Record Card came into existence; this was a continuous record of the family, as far as service rendered by the Health Department to the different members of the family was concerned. This was never thought of and in fact was impossible under any other system. It was true that an all round nurse and an all round medical inspector did away with specializing, but that they considered an advantage rather than a fault, because, first of all, there were no real specialists in the Department. In the second place they were unwilling to admit that a nurse should visit foundlings only, or babies attending welfare stations only, or babies suffering from physical defects only, or children suffering from contagious diseases only, and that as soon as she attempted to perform two functions her worth was greatly impaired. The same was true of medical inspectors. Besides there was a great saving of time in the obviation of overlapping, which had increased the output of work and reduced the *per capita* cost of functions so that they could now perform more work with the same number of employees or the same work with fewer employees. Figures showed that the value of preventive work had been increased on account of the

prevention of overlapping and the coordination of functions. 2. *Local Administration.*—While New York was thought of as a unit of 5,000,000 inhabitants, it must not be forgotten that it is a cosmopolitan city, consisting of numerous races, which had clung to their own racial characteristics, and Health Department administration that might apply to one race would not apply to another. It was impossible for an administration controlled from headquarters to take cognizance of these different characteristics. It was only the man on the spot who was familiar with the conditions of the district who was really able to handle them successfully. The speaker described the work that had been done in the Borough of Queens through the coordination of functions and as an instance cited that during the present year all pre-school examinations had been made in Greater New York for the first nine months, while about 100 were made in the Borough of Queens alone. 3. *Development of the Community Spirit.*—This basic principle was even more important in the conservation of the health of children than the other two enumerated. The conservation of the health of children was not a medical problem only, but was a social problem to perhaps a greater degree and in order to look at it from that point of view the spirit of the community for the purpose of social and medical cooperation with the Health Department must be aroused. While this could be done theoretically under the bureau system, it was a fact that it had not been done as well, and that the health district organization had shown the way in which it could be accomplished. The speaker quoted from the report of the Committee of Public Health of the New York Academy of Medicine showing the advantages they had found in their investigation of this system. He said that after all the infant mortality was the real index of the work done among children and they could point with pride to the record in the Health District organization. In the Borough of Queens, in 1915, before health districts were organized, the infant mortality rate was 102. In 1916, when the health districts were organized in that borough, it was reduced to 93, and in the present year, up to the present time, it had been reduced to 91. In Health District, No. 1, it had been reduced to 70 in 1916.

Dr. EMERSON in closing, stated that it was well known that the infant mortality, was a fair guide to the sanitary progress of a community, but under the bureau system only the mortality rates by boroughs were kept and as had already been pointed out, if one applied the rates for the city or a borough as a whole to a particular district one might expect to make mistakes. One could not take the decrease in the infant mortality as a valid argument without reservations. A factor that must be recognized was that the health of a community under this plan depended upon the quality and qualifications of the health officer in charge of the center. The health officer in charge of a center received \$3,000 a year for full time service and must abandon his private practice, or any demand upon his time which would prevent his responding to a call from the Department at any time, day or night. It was difficult to get capable men who were willing to abandon their private practice, especially with the slight prospect of advancement. One of the advantages of the district system was that it made it possible to get different groups of men together for instruction, as janitors, food handlers, employers, etc. This giving of instruction to certain groups of people had been shown to be very effective.

The National Danger from Defective Development of Growing Children in Time of War.—Dr. HENRY DWIGHT CHAPIN presented this paper (see page 89).

Dr. S. JOSEPHINE BAKER emphasized the grave importance of the question of undernourishment in children. For the past two years they had known that conditions in this regard had been increasing and for a year and a half they had been trying to bring the matter to the attention of the public. In 1914, their statistics showed that 5 per cent. of the children in the public schools of New York were suffering from malnutrition; in 1915, this had risen to 6 per cent. and in the school year 1916-17 it had risen to 12 per cent. These figures were sent in by the medical inspectors in their ordinary line of duty. In order to ascertain

whether or not there was any basis of error, Dr. Willis, Chief of the Division of School Inspection, and the speaker had undertaken an investigation. Their cases were all tabulated according to the Denfermline scale. They found that some of their doctors had become so accustomed to seeing undernourished children that they considered undernourishment as a racial or local type and in applying the Dunfermline scale they had taken children of certain localities and grouped them into four classes, making their diagnosis relative rather than absolute. They knew that they were doing this, but stated that all the children of certain neighborhoods showed a condition of undernourishment and therefore they felt that the condition of undernourishment was so universal that they had simply graded degrees of actual undernourishment as there were no children to be placed in No. 1 group. These figures, as well as those of Dr. Chapin, showed that undernourishment among the children of this city was critical. The statement should be made, however, that malnutrition was not the result of actual starvation. The children did get food, but the condition was the result of wrong feeding and long continued underfeeding. While it was true that there had never been so little unemployment and wages had never been at so high a level as they were at the present time, the increase in wages had not kept pace with the buying power of a dollar, particularly as far as food was concerned. Where the food supply of a family was curtailed the child was the first to suffer, because he needed food for growth as well as for the replacement of bodily waste. The adult might stand a restricted diet fairly well; the child was almost always permanently impaired. Dr. Baker referred to the experience of the belligerent countries in having neglected relief work among infants and children during the first year of the war. When the governments realized the effect of this neglect they immediately took steps to remedy the mistake. Dr. Baker also called attention to the report of Dr. Lucas, in connection with his work in Belgium, stating that he found tuberculosis on the increase among the children and he traced this increase directly to undernourishment. After canteens were established for children in Belgium, the incidence of tuberculosis was much decreased. We must realize that undernourishment in children means lowered resistance and that continued undernourishment would have a permanent effect upon the development of these children. We must expect to have a marked increase in the incidence of tuberculosis in this country unless the problem of undernutrition in our younger age groups was given immediate attention. Dr. Baker related her experience in investigating small groups of children, a short time ago, in an effort to find out what they were eating. The investigation seemed to show that there was a marked relation between malnutrition and the food these children were receiving. We must remember, however, that malnutrition was a very complicated entity not dependent upon feeding alone, but upon environmental conditions as well. In order to attack the problem from all sides one would have to readjust the entire social structure. It seemed at the present time that the most direct way was to feed these children; they were not getting enough of the right kind of food. Their daily routine consisted usually of coffee or tea and bread for breakfast, with a quick lunch of ice cream, pie, cake, or something equally indigestible, at noon, and at night a late, hurried, and unsuitable dinner. They knew that the provision of adequate school lunches had a practical, definite effect upon the health of the children. Their problem was how to make the school lunches available by extension of the machinery already in existence. It had been said that the children did not like the type of food served, and that they would not eat cereal and would not drink milk. That was true, at first, but they had found that after instruction and proper supervision by the nurse, they not only ate it but their mothers showed a distinct willingness to find out how the cereal could best be cooked and to give the children the food they needed. The feeding of these children without any question of charity but simply as a matter of common justice was a duty of this country at the present time.

Dr. CHARLES HENDEE SMITH agreed with the previous speakers as to the seriousness of malnutrition. In attacking the problem people would have to be educated to the fact that the thin child was not a healthy child.

Thinness was not natural to a child. The thin child had less resistance to disease as a rule and less reserve fat to fall back upon when he was ill than a well nourished one. He was constantly kept back by the loss of weight incident to heavy illness, so that he was always behind, gaining less than he should. A child of this sort fell an easy prey to acute illness, and as he grew up was very apt to acquire tuberculosis. Dr. Smith reviewed the various causes of malnutrition—diseases and defects—and said that the great majority of undernourished children were simply showing the results of bad habits of life. Their lives were at fault in so many respects that it was difficult to know where to begin to correct them. He illustrated this by giving a sample day from the life of a child among the poor. It was perfectly evident that no child could gain on such a regime in which practically every single phase of the daily life was at fault. It had been shown that it was possible to make a thin and weak child grow fat and strong if no serious disease were present and if the daily life of the child could be controlled. The men in the medical profession had been doing this with their private patients for years. Nothing repaid effort so wonderfully as the results obtained in this kind of child. The last few years had seen a number of attempts to apply more widely the principles which were known to be successful in individual private patients and in controlled groups of children. The class plan of treatment was the way in which this could be most easily accomplished. Such a class had been conducted by Dr. Emerson in Boston for some years and one had been in existence at the Bellevue Hospital Out-patient Department for over a year. There were several others in the city. They found that class talks to the mothers and to the children saved time and often made a deeper impression than did the same advice when given to individuals. Lectures on foods, cooking, and on the advisability of eating slowly, the necessity of rest, fresh air, exercise, and cleanliness were given at frequent intervals. Food exhibits and printed diet lists were used freely. The children were spurred to try to gain weight by the spirit of competition with each other and by working for prizes. A visiting nurse followed up the children to the homes and collected information which often brought out the cause of the child's malnutrition. It had been found that over two-thirds of the children could be made to gain at two or three times the expected rate for their ages. The one-third of the children who gained at the average rate or less were failures because of extreme poverty, lack of cooperation, ignorance of parents, or some one of the diseases, such as tuberculosis. In the endeavor to solve the problem of malnutrition a broad educational campaign must be the main reliance. The people must be taught to think about their food and the expenditure of their money by somewhat the same means as they had been urged to buy Liberty Bonds. Nutrition classes should be established in all of the out-patient departments of the city, and parents must be educated to take heed of the weight of their children and to take every child to a doctor or a dispensary if his weight was below the average, or if he did not gain at the average annual rate for his age. School lunches should be extended so that every child who could not get decent lunch at home could have the opportunity to get a nourishing midday meal at a nominal cost. Such lunches should be really nourishing, and not merely a thin soup, weak cocoa, and uncooked fruit. They should give a child protein-containing food in the form of meat, fish, eggs, purée of peas or beans, or milk, with a starchy vegetable or cereal, a green vegetable, and some cooked fruit. The educational effect of such meals on the child would be most valuable. The present campaign for saving food was excellent and necessary, but more stress might well be laid on the fact that it was possible to buy sufficient nourishing food if the available money were properly spent.

Dr. MORRIS STARK described an experiment that was carried out under the direction of the Post-Graduate Hospital and the Association for Improving the Condition of the Poor to see whether malnutrition could be helped. By weekly examinations they had been able to tell just what profit the lunches supplied had been to the children. There was no question that a great deal could be done for these children by supplying a proper mid-day meal. One important point was that among

Hebrew children it was customary to attend school for religious instruction after the regular school hours. There should be a campaign conducted to influence these religious schools to shorten their hours. Such a campaign should come from the community worker and should not come from outside.

Dr. ROYAL STORRS HAYNES said that when we looked at the experience abroad we realized that we must expect an increase in malnutrition and we were going to need more malnutrition clinics, feeding in schools, and various expedients for lessening malnutrition. There were a great many pediatricists who felt that their particular training tended to keep them at their usual work instead of putting them into the Service. They had here an opening in this war problem and if they could attack it and help in its solution they would be doing a part, if not all, of their duty to their country. As a section they should take action as to what they should do in their particular community, and if they were successful here they might set an example which other communities would find worth while following. He therefore moved the appointment of a committee to make an investigation of this problem and act in advisory capacity; it should make an investigation of the field, cooperate with other agencies along this line, and should keep informed as to what each man could do and let the section know what might be done in the solution of this problem. (This motion was carried.)

Dr. ROWLAND G. FREEMAN expressed the opinion that while the figures presented showed that the situation was grave it was probable that the trouble was rather an ignorance of food value than simple poverty. There was little nonemployment and wages were good, and while the cost of food had increased considerably, sufficient calories might be purchased at little cost; for instance, 2,500 calories of oatmeal cost only 9½ cents, and of hominy only 15 cents. The trouble was that people did not know the nutrient value of different foods or the necessity for a balanced ration of sufficient bulk. Dr. E. K. Dunham had devised perhaps the best method of representing food values in plaster casts made in imitation bread, butter, cheese, vegetables, and fruits, each representing 100 calories. This gave a concrete illustration of comparative food values, and if such casts could be shown in popular lectures, with instruction about food balance and the necessity for food bulk, much underfeeding and defective feeding could be corrected.

Dr. JAMES PORTER FISKE thought there was no objection to acting along the lines indicated and that a nationwide interest in this subject should be aroused without maintaining that there was any real hardship impending. The large number of recruits that were rejected because of physical unfitness and underweight could be used as an argument to show the need of more attention to the subject of proper nutrition and better hygiene, and this could be done without exciting alarm as to an actual scarcity of food.

Dr. JACOB SOBEL said there was no doubt as to the need of an answer to the question what was to be done to solve the problem of malnutrition. In addition to the one means that had been suggested, the school lunches, the Bureau of Child Hygiene of the Department of Health exercised special foresight when it organized cooking classes for mothers at the fifty-nine baby health stations, the object of which was to instruct mothers in the purchase, preservation, care, and preparation of food, and the ways of adapting it to the needs of the growing child. In carrying out this plan attention had been given to the needs of the locality and to the racial needs. This work had been done through the cooperation of Teachers College of Columbia University, Pratt Institute, and the Mayor's Committee. They had tried to teach people to adjust themselves to the present condition, how to prepare food, how to establish a family budget, and to show them how a dollar might be made to purchase the largest amount of food of the greatest value. Dr. Sobel emphasized that malnutrition was not a matter of food *per se*, but of other factors as well, and urged that the time allotted for the midday lunch be extended. He believed that by lengthening the school lunch hour so that children would have time to eat a meal we might hope to see an improvement in the nutrition of the school children.

Dr. CHAPIN, in closing, agreed with Dr. Sobel that while a good midday meal was important it was also im-

portant that the child should have time in which to eat the meal.

Election of Officers.—Dr. Herbert W. Wilcox was elected *Chairman* of the Section, and Dr. Murry H. Bass *Secretary*.

SECTION ON MEDICINE.

Stated Meeting, Held December 18, 1917.

Dr. EDMUND P. SHELBY IN THE CHAIR.

Observations on the Treatment of Diabetes Insipidus with Infundin.—Dr. JESSE C. M. BULLOWA read this paper which was based on a very careful study of many repeated observations in a single patient. He said he hoped the intensive study of the case would atone for the lack of greater clinical opportunity. The patient was a boy, 15 years of age, who came under his observation on September 6, 1917, complaining of the typical symptoms of diabetes insipidus. When the salt intake was restricted the amount of urine voided was reduced and the specific gravity rose occasionally to 1007, but never beyond that point. On September 24, this boy's weight, which six months before was 136 pounds, had fallen to 113 pounds; the specific gravity of his urine was 1004, and he was passing large amounts. He was then given 1 c.c. of pituitrin hypodermically. The administration of posterior lobe extract had been continued up to the present time with occasional intermissions and changes in the dose. By their observations in the course of the treatment they had succeeded in confirming those of others that there was a marked concentration of the urine about two and one-half to three hours after the injection. The specific gravity usually reached 1020. Associated with this rise in specific gravity there was a marked diminution in the amount of water excreted. The fall in the specific gravity was gradual, the effect of the dose as measured by the increase in specific gravity being about seven hours. There was no acute thirst until fourteen or sixteen hours after receiving the drug. They had found the optimum dose of infundin to be 1.2 c.c. They had also used other preparations of pituitary extract. A single dose induced, in about two minutes after the injection of the drug, marked pallor of the skin, dilatation of the pupils and headache, accompanied by a slowing of the heart and a fall in the blood pressure. The pallor of the skin lasted about fifteen minutes and the fall of blood pressure forty-five minutes, when it returned to normal. A fall in the blood pressure was no measure of the benefit to be obtained in relieving the patient's symptoms. They observed the effect of a single dose, as shown by charts, of the same dose divided, of the large dose repeated, and the effect of drugs which have a similar physiological action on smooth muscle and the sympathetic nervous system. They had given the drug by mouth without producing any effect and had also given the whole gland minced orally without benefit. They had observed the excretion of phenolsulphonephthalein given when the patient was not under the influence of the drug and when the drug was exerting its maximum effect. The drug apparently caused a retention of water which was rapidly lost when the patient was allowed to escape from the effect. In short, they had a moderately emaciated patient with a primary polyuria of severe grade in whom hypodermic injections of infundin in optimum doses possesses an antidiuretic action. When this dose was diminished or successively increased a favorable antidiuretic action was not obtained. In view of the fact that tuberculosis as the terminal event in diabetes insipidus had been emphasized, Dr. Bullowa said he wished to show x-ray plates which indicated some infection of the lungs in this case. It had occurred to him that a tuberculous lung infection might be primary and might act through the presence of a pituitary cytotoxin in the production of the nephrosis.

Treatment of the Epileptic Based Upon a Study of the Fundamental Makeup.—Dr. L. PIERCE CLARK read this paper. He said that the gloomy view of the past in the therapy of tuberculosis, with its nauseous drug compounds and easements of narcotics, had been largely superseded by the rational one of fresh air, sunlight, proper nourishment, and an intelligent living regimen.

Such a parallel of progress in therapy was on its way in handling many psychoses and neuroses today, and nowhere was the portent of a change more patent than in the beginning rational therapy for epilepsy. As we had come to recognize and treat tuberculosis in the incipient stage, so we were beginning to realize that so-called idiopathic epileptics were rarely if ever free from the hall marks of their disorder in physical and mental traits during seizure intervals, and in point of fact they had need of the broadest possible therapy to cover their entire life activities. He traced out the analogy between tuberculosis and epilepsy in respect to prognosis, stating that the detection of epilepsy at the presence of a grand mal attack for hopeful treatment was not essentially better than the detection of tuberculosis when it had reached the stage of abscess and cavity formation, but a small percentage of either being restored to health. The analogy might be carried further; the stage of extensive tuberculous consolidation had about the same prognosis as that of an essential epilepsy detected at its mildest beginnings in petit mal or protean manifestations of rank periodic seizures. About 10 per cent. of the latter were fully restored or brought to a more or less permanent arrest. When epilepsy could be detected before any crude manifestations of attacks as such had occurred, then in the early stage of potential epilepsy, as in the early diagnosis of lymphatic involvement in the tuberculous, might it not be hoped that the former would have as favorable prognosis as the latter? We already knew crudely what some of these constitutional factors were as shown in analyses of epileptic individuals. They consisted of a makeup of supersensitivity, egotism, and such a defective primary endowment of instincts that such individuals failed of an easy adjusted or a rich emotional life during their childhood and adolescence. The fault was quantitative as well as qualitative, thus differing from these traits found in normal individuals. When this latter statement was fully recognized the diagnosis of the epileptic makeup would be somewhat easier. Inasmuch as for some years to come our main efforts at correcting or bettering the life and disorders of the epileptic would have to be centered upon him as an individual badly adapted for life in the home, society, or in special sanatoria we should have to increase our efforts to open and make keener his opportunity to objectivate his peculiar type of personality, his hopes and ambitions, into a properly adjusted and selected environment. It was therefore highly important to study individual cases with this end in view. Dr. Clark then cited three cases showing the methods adopted which had been successful in adjusting these individuals to a certain extent at least to their environment. One of these cases was that of a young woman with an undervitalized endowment, born of an elderly alcoholic father and a tuberculous mother. She was inordinately sensitive to sounds of all kinds and very narcissistic and mother-attached. In the failure of a proper adaptive training and being, on the contrary, allowed to mould the environment as she liked rather than she herself making the adaptation, she got on fairly well until the more specific adult demands of living an independent life at the death of the foster parent and a finally unmodifiable marriage situation occurred. She then showed the earlier manifestations of weepings because of hurt feelings, day-dreaming, and when these failed to be of sufficient relief a grand mal epilepsy seemed to have developed. The therapy in this particular case consisted in talks on the defects of her endowment and childhood training and their results. Then followed similar talks with the husband and relatives requiring them to first remove the life stresses so that the patient might regain her normal physical health and proper mental poise. She was advised to discard the numerous patent medicines containing large quantities of bromide which had already given her bromism and a marked stomach and bowel disorder. She was then urged to take music as a study and also to teach it, both being agreeable to her, and each carrying its own pleasure and discipline. In this way she was started on the roadway to better mental and physical health. In closing, Dr. Pierce stated that all three cases which he cited had a fairly poor prognosis. He said he could not too strongly urge that the epileptic as well as the epilepsy be the future object of earnest

treatment, and this by studying as carefully as possible the fundamental makeup of the primary life endowment and basing our therapy largely upon that.

The Endocrine Origin of Muscular Dystrophy.—Drs. N. W. JANNEY and S. P. GOODHART made this presentation which was illustrated by lantern slides and roentgenographs.—Dr. Janney stated that muscular dystrophy was a general disease, as it was accompanied by characteristic changes in bones and other organs. Its endocrine origin had been suspected on account of its symptomatology including dwarfism, peculiar distribution of hair and subcutaneous fat, trophic changes in nails, skin, etc., as well as its appearance in conjunction with endocrine diseases. Moreover the bone lesions resembled those occurring in endocrine conditions. Improvement had occurred on administration of ductless glandular preparations. Nine representative cases of muscular dystrophy were accordingly studied in the metabolism ward of the Montefiore Hospital in order to ascertain whether changes were present which would point to an underlying endocrine disturbance. The results might be summarized as follows: Low creatinine values in blood and urine, the abnormal appearance of creatine in urine, hypoglycemia in all cases. With the help of a new blood sugar tolerance test there was detected in the majority of cases studied a delay in the assimilation of sugar. Hypoglycemia was an indication of hypofunction of various endocrine glands. It was present after epinephrectomy. In a series of dogs it had been found constantly present by Janney and Isaacson after thyroidectomy. In these cases also the blood tolerance test showed decreased assimilability of glucose. Hypoglycemia was also observed in hypophysial dystrophy and Addison's disease. The hypoglycemia and consequent deficient nutrition of bone, muscle and tissues might account in general for the lesions of muscular dystrophy. Creatine was known to increase in muscles in a state of undernutrition, and to appear in the urine when the carbohydrate metabolism was disturbed, or carbohydrates omitted from the diet. The low creatinine values could be accounted for as compensatory for the creatine excretion and as an indication of the decrease in general muscular efficiency. The results of the research seemed sufficient evidence to ascribe an endocrine origin to muscular dystrophy. The study had been reported in more detail before the annual meeting of the American Medical Association of 1916, Section on Neurology, and in an article in course of publication in the *Archives of Internal Medicine*, in which the protocols appeared.

Dr. L. PIERCE CLARK said that he was more or less familiar with the work that was being done along the lines that had been presented this evening; the paper was interesting and showed that the studies were carried out with a great deal of care. He was rather surprised at the mixed clinical types that were under observation, that was, cases in which there were so many factors suggestive of acromegaly and the possibility of central nerve involvement. In a series of his own cases at Randall's Island, some six or seven, who were more or less permanently located there, nearly all kept to the pure type as described in the textbooks for the pseudohypertrophic paralyses. As far as he was able to observe they did not show acromegalic features. He was inclined to believe that the abiotrophic conception of Gowers and Edinger was the best explanation for these disorders. It was well known that this conception had been used particularly in those disorders of the body where there was a general giving out of some particular system, circulatory, respiratory, or muscular, before the individual as such became senile. It was interesting to him to see that there was endocrine disturbances in these disorders either as a pure coincidence or as a result of the dystrophies, and it might be just possible that in time it will be found as the authors contended that the endocrine disturbance was a direct promoter of this particular type of dystrophy. However, one must bear in mind that not a few cases were being reported, especially by the improved anatomic studies, to be associated with degeneration in the nervous structures and that such evidence as presented this evening would, of course, go far toward bringing endocrine causation into direct relationship to the whole degenerative process, but there ought to be studies made to control these findings in conditions of pareses,

in senile degenerations and in conditions of extreme wasting in the tuberculous and in chronic exhausting psychoses. We also knew that some chemical findings similar to those reported had been found in athletes undergoing extreme endurance tests. Until these collateral studies could be made confirmatory or could be excluded from consideration, one would be inclined to think of the endocrinic causation as here presented in the paper as not sufficiently conclusive, interesting though such studies might be in general.

Dr. JANNEY in closing, said that Dr. Clark's question as to whether the endocrine disturbances were concomitant with, or causative of, the changes in the various organs seen in muscular dystrophy was indeed well taken. Light on this problem was afforded by control studies. If the metabolic disturbances found in muscular dystrophy were due to endocrine hypofunction, they should not be present in other conditions such as rheumatoid arthritis, where even as great asthenia and muscle wasting but no endocrine involvement were present. Blood sugar determinations made in several cases of this nature revealed normal blood values which had also been reported in one similar case by McCrudden and Sargent. Evidently the metabolic changes of muscular dystrophy were not merely the concomitant phenomena. As they were the same as those found in other endocrine dystrophies and were shown in animal experiments to follow removal of ductless glands, the weight of evidence was in favor of regarding muscular dystrophy as an endocrine dystrophy of more general nature.

The Physiology of Aerophagia.—Dr. JOHN L. KANTOR read this paper. He stated that if a sufficiently large group of individuals were examined, it would be found that the majority belched after eating, a smaller number would be able to belch on request, and a very few would be able to swallow air when asked to do so. In addition a certain proportion would be found to be unconscious belchers or air swallowers, whereas a final group would be unable to belch or to swallow air even after making every effort to acquire the practice. Air might enter into the stomach in one of two ways; it might be either carried down with the fluids and solids, or it might be gulped down alone. After reviewing the description of the act of deglutition given by various physiologists the writer agreed with Kraus that too little importance was generally attached to the phenomena associated with the cardia and that it would be more in harmony with the latest studies to speak of the swallowing act as composed of three rather than two chief periods, namely, a buccopharyngeal period, and esophageal period and a cardiac or cardiogastric period. He reviewed the act of deglutition from this standpoint, describing his experimental studies of the problem with the aid of the fluoroscope, which were undertaken with the idea of establishing the relation between the swallowing sounds and the entry of air into the stomach. The chief findings were that the bolus was found to reach the cardia in one or two seconds, presumably depending on the amount swallowed and the force employed in the effort. As a rule the food began to penetrate the cardia in a thin stream without any delay whatever. In every case a bubble of air was seen at the top of the food column. No peristaltic waves could be made out at any time, the barium columns seeming to simply sink down into the stomach. In every case in which the second swallowing sound was heard it occurred immediately after the disappearance of the last portion of food through the cardia. The time of occurrence, as well as the number of swallowing sounds, depended entirely upon the position and distribution of the air in the bolus. The essayist then described the mechanism of air gulping and related his experiments with two subjects who were skillful air swallowers. It was found that five or six gulps were sufficient to distend the fornix and tubus of the empty stomach, and in some cases the pyloric vestibule as well. The gulping of air into the filled stomach not only raised the diaphragm but caused a depression of the food level as well with an associated broadening of the stomach through the tubus. When air was swallowed with food in the erect posture there was very little opportunity for the former to go through the pylorus. By far the greater portion was belched up long before the rest of the stomach contents were evacu-

ated. In the reclining position the entrance to the pylorus seemed more accessible. The writer concluded that in general gas accumulations in the upper digestive tract had atmospheric air as their basis. This air was introduced by ordinary swallowing or by the mechanism known as gulping. The difference between the swallowing of air and that of food depended to a large extent on the influence of gravity. As a result the swallowing mechanism showed peculiarities described in this paper. By means of fluoroscopic examinations it could be demonstrated that the so-called swallowing sounds were produced by the entry of air into the stomach. A close study of the mechanism of deglutition showed the advantage of describing the complete act of swallowing as consisting of three instead of two periods, as above mentioned.

Dr. S. J. MELTZER discussed this paper (see page 100).

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

OHIO STATE MEDICAL EXAMINATION BOARD.

June 11, 12, 13, and 14, 1917.

ANATOMY.

1. Name the muscle that moves the humerus (a) forward; (b) backward; (c) inward.
2. What bones form the orbital cavity?
3. Describe the crystalline lens and state what tissues are in contact with it.
4. Through what arteries is the collateral circulation carried on after ligation of the subclavian artery?
5. Give point of opening of parotid duct, submaxillary duct, and sublingual ducts.

PHYSIOLOGY.

1. Give the physiology of the production of animal heat.
2. Name the functions of the medulla oblongata.
3. In proportion to weight, what is the average amount of blood in man? How is it renewed after hemorrhage?
4. Give the mechanism of respiration.
5. What are the internal secretions? Give their source and action.
6. Give gross structure and describe the mechanism of urinary excretion.
7. Name the active principles of digestive secretions and state briefly how each affects the food.
8. Describe the effect of an excessive starchy diet.
9. Mention the facts and conditions that favor absorption, and those that retard it.
10. Define reflex action and give examples.

CHEMISTRY.

1. Name three common poisons used for suicidal purposes and the chemical antidote for each.
2. How do you distinguish chemically between urea and uric acid?
3. Give some ordinary chemical tests for recognizing potable water.
4. What is colloidal chemistry? What bearing has it on medicine?
5. Discuss briefly diacetic acid in urine. How determined?

MATERIA MEDICA AND THERAPEUTICS.

1. Give dosage and indications for three remedies used in rheumatism; malaria; jaundice.
2. Name and give dose of two drugs belonging to each of the following classes: (a) diuretic; (b) cathartic; (c) emetic.
3. Name the official preparations of bismuth and state how administered.
4. Apomorphine hydrochloride; give dose and its principal use.
5. Give indication and dosage of aconite; belladonna; digitalis.
6. What is the dose, describe the action, and state the use of mild chloride of mercury and corrosive mercuric chloride.
7. In case of high temperature what are the three

most efficient and safest antipyretics that could be used? Give mode of administering.

8. Explain the physiological action of the salines. Name three and give the dose of each.

9. Name two principal serums and vaccines. Give therapeutic use, dose and mode of administration of each.

10. Define (a) cardiac stimulant; (b) cardiac sedative; (c) cardiac tonic.

DIAGNOSIS.

1. Describe Raynaud's disease.
2. Give clinical signs of empyema of thorax.
3. Differentiate chronic cholecystitis, ulcer of duodenum, and chronic appendicitis.
4. Differentiate rupture of appendix and rupture of gall-bladder.
5. Differentiate pleuritis left side and pericarditis.
6. Differentiate stone in ureter of right kidney and acute appendicitis.
7. Give early signs of cerebral softening.
8. Describe symptoms establishing diagnosis of acute pancreatitis.
9. Describe typical case of ptomaine poisoning.
10. Describe locomotor ataxia.

ANSWERS.

ANATOMY.

1. *A muscle that moves the humerus (a) forward, biceps; (b) backward, latissimus dorsi; (c) inward, teres major.*

2. *Bones which form the orbital cavity: Frontal, malar, superior maxillary, lacrymal, ethmoid, sphenoid, and palate.*

3. *The crystalline lens is a transparent, biconvex, solid body, enclosed within an elastic capsule to which the suspensory ligament is attached. Anteriorly, it is in contact with the iris; posteriorly with the vitreous body.*

4. *Collateral circulation after ligation of the subclavian artery (third part): The suprascapular with the dorsalis scapulæ; the posterior scapular with the subscapular, and the circumflex branches of the axillary; the internal mammary, and superior intercostal, with the long and short thoracics of the axillary and the deep epigastric.*

5. *The parotid duct opens in the mouth opposite the second upper molar tooth; the submaxillary duct opens on the floor of the mouth on a papilla by the side of the frenum of the tongue; the sublingual ducts open separately on the floor of the mouth, one of the larger ones opens into or by the side of the submaxillary duct.*

PHYSIOLOGY.

1. *Heat is developed in the body, by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the brain; (4) the heart, and (5) the thermogenetic centers in the brain, pons, medulla, and spinal cord. (It also is produced by the food and drink ingested.)*

"The immediate source of the body-heat is to be found in the chemical changes which take place in all the tissues and organs of the body. Each contraction of a muscle, each act of secretion, each exhibition of nerve-force, is accompanied by the evolution of heat. The chemical changes are for the most part of the nature of oxidations, the union of oxygen with the elements, carbon and hydrogen, of the food principles either before or after they have become constituents of the tissues. The ultimate source of the body-heat is the latent or potential energy in the food principles, which was absorbed from the sun's energy and stored up during the growth of the vegetable world. In the metabolism of the animal body the food principles are again reduced through oxidation, directly or indirectly, to relatively simple bodies, such as urica, carbon dioxide, and water, with a liberation of a large portion of their contained energy which manifests itself as heat and mechanical motion."—(Brubaker's *Physiology*.)

2. *The functions of the medulla oblongata are: (1) It is a conductor of nervous impulses or impressions from the cord to the cerebrum, from the brain to the spinal cord, also of coordinating impulses from the cerebellum to the cord; (2) it contains collections of*

gray matter which serve as special nerve centers for the following functions or actions: respiration, salivary secretion, mastication, sucking, deglutition, vomiting, voice, facial expression; it also contains the cardiac and vasomotor centers.

3. *The total quantity of blood was formerly said to be about one-thirteenth of the weight of the body; recently this figure has been altered to one-twentieth of the body weight.*

Regeneration of blood after a hemorrhage: "If the bleeding does not go on to death the blood is restored by absorption from the tissues or from the food taken in; the first to be absorbed being the serum sanguinis, with the dissolved salts, and then the albumen. A longer time is required to form new red blood-corpuscles. Regenerated blood is at first abnormally watery and poor in cells. As a result of the greater flow of lymph into the blood the number of white blood-corpuscles is greatly increased, and then their number falls off; the red blood-corpuscles again attain their usual number, and the composition of the blood gradually returns to the normal. We do not as yet know certainly how the restoration of the red blood-corpuscles takes place. The most generally accepted view is that colorless corpuscles are being constantly formed in the lymph glands, in the spleen, in the bone marrow, and in the liver, and a certain number of these colorless corpuscles change into the red disks."—(Tillmann's *Surgery*.)

4. *"Respiration is carried on under ordinary circumstances by the diaphragm and external intercostals enlarging the chest and sucking air into the lungs, followed almost immediately by the recoil of the elastic lungs and ribs forcing out the air so inspired. But when there is a more than ordinary venous condition of blood in the system greater efforts must be made to supply the lungs with oxygen, and muscles not ordinarily employed in the effort must be brought into play. The arms and scapulæ are fixed by seizing hold of some object, and by bringing into action the trapezius, levator anguli scapulæ and rhomboidei, so as to make firm attachments for serratus magnus, pectorales, and latissimus in their efforts to raise the ribs. Labored expiration in like manner brings extra muscles into play. In labored respiration the nostrils are expanded by the dilatores naris during inspiration, and resume their original size during expiration. The glottis is widely open during inspiration, while it is narrowed during expiration. These movements of the glottis occur during ordinary breathing, but are exaggerated during difficult breathing."*

*"Breathing is a reflex act, capable of being modified by the will. The nerve-center is situated in the medulla, the afferent nerves are the vagi; the efferent nerves are the phrenics, intercostals, etc. Respiration continues in the absence of consciousness and after the removal of the brain about the medulla; but destruction of a certain small portion of the medulla below the vasomotor center causes the movements at once to cease. This spot is called *nœud vital*. The center is influenced by impulses from without or within—a dash of cold water in the face, a cold bath, an emotion, venous blood in the pulmonary vessels, all call it into action. The center is probably automatic as well as reflex, section of the vagi, thereby interrupting the channel by which the afferent impulses reach it from the lungs, while interfering with the respiratory act does not stop its action. Automatic impulses descend from the center along the efferent nerves. Probably the venous blood circulating through the center itself supplies the stimulus."*—(Ashby's *Physiology*.)

5. *Internal secretions: It is generally held now that the glandular organs, chiefly the pancreas, liver, and the ductless glands, produce a secretion, peculiar in each case to the particular gland producing it, and which is supposed to be given off to the blood or lymph, and to have some peculiar value in the general metabolism of the body. Such secretions are called internal secretions, in contradistinction to the previously known secretions, which are carried off by a duct, and are known as external secretions. Very little is definitely known of these internal secretions, but much work is being done on the subject.*

Internal secretions are produced by the liver, pancreas, ovaries, testes, thyroids, parathyroids, spleen, suprarenals, pituitary body, and by the fetus.

The function of the thyroid is not definitely settled: (1) it has some trophic function, regulating oxidation in the body, and it is supposed to have also a special influence on the vasomotor nerves, the skin, the bones, and on the sexual functions; (2) it is supposed to antagonize toxic substances and (3) it produces an internal secretion.

The function of the thymus is not settled; it is said: (1) To be a blood-forming organ; (2) to have influence on growth and nutrition; (3) in hibernating animals it is supposed to store up materials which can be utilized during the period of inactivity.

The function of the suprarenals is not definitely settled; they produce an internal secretion which is probably necessary to life. This secretion causes constriction of arterioles, raises blood pressure, and stimulates muscle fibers which are supplied by the sympathetic system. There is supposed to be some connection between the adrenals and the thyroid and pituitary bodies.

The function of the pituitary body: Complete removal of whole gland or of anterior lobe is followed by death; the anterior lobe is connected with growth, if the gland hypertrophies there follows overgrowth of the skeleton, and partial removal leads to failure of development of the body as a whole and of the sexual glands. The posterior lobe is believed to cause constriction of arterioles, rise of blood pressure, contraction of the involuntary muscles in many viscera, increased flow of urine, and increased secretion of milk.

6. How the urine is secreted is not settled. Bowman's theory was that the water of the urine, together with the soluble inorganic salts, are taken from the capillaries of the glomeruli through the epithelial cells of Bowman's capsule; and that the nitrogenous substances (urea, uric acid, creatinin, etc.) are excreted by the cubical cells which line the convoluted tubules.

Ludwig's theory was that the glomeruli are little more than filters, and that the urine in a dilute form is taken out of the blood by the glomeruli (by filtration), and that in its passage through the tubules these latter absorb some of the water.

Many also believe that urinary excretion is partly due to mechanical filtration and partly to secretory or selective action of the glomerulus; at the same time the epithelium of the tubules is believed to contribute substances to the urine.

Bowman's theory was based on the general structure of the kidneys, the high blood pressure in the renal arteries, and the low blood pressure in the renal veins. According to Ludwig's theory, the function of Bowman's capsule is purely physical (filtration), and the function of the convoluted tubules is physiological (reabsorption).

7.

SECRECTIONS.	ACTIVE PRINCIPLES.	FUNCTIONS.
Salivary	Ptyalin.	Changes starches into dextrin and sugar.
Gastric	Pepsin.	Changes proteids into proteoses and peptones in an acid medium.
	A curdling ferment.	Curdles the casein of milk.
	Trypsin.	Changes proteids into proteoses and peptones, and afterwards decomposes them into leucin and tyrosin; in an alkaline medium.
Pancreatic ...	Amylopsin.	Converts starches into maltose.
	Steapsin.	Emulsifies and saponifies fats.
	A curdling ferment.	Curdles the casein of milk.
Intestinal ...	Invertin.	Converts maltose into glucose.

8. The effects of an excessive starchy diet, are: Dyspepsia, flatulence, diarrhea, obesity, and glycosuria.

9. "Factors favoring absorption: (1) The valvulae conniventes greatly increase the area of the intestinal surface, and by their shelf-like formation delay the

advance of the chyme. (2) The villi of the intestine not only increase the area, but are the special organs of the function of absorption. (3) The contraction of the intestine upon its fluid contents also favors, mechanically, the filtration of the contents through its walls. Conditions favoring food absorption: To be absorbed by the blood vessels or lacteals we must have substances in a fluid state, and the more dilute in solution the more ready the absorption; insoluble substances are not appreciably affected by this process, nor are any dense solutions readily taken up. The rapid removal of the absorbed matter and the renewal of fresh blood in the capillaries are of importance. Thus if the portal circulation is obstructed, so that the blood is circulated slowly, or the capillaries are tense from intravascular pressure, absorption will be slow."—(Collins and Rockwell's Physiology.)

10. Reflex actions are involuntary or unconscious movements, due to suitable stimuli. They depend upon the integrity of the reflex arc, which is a complex made up of: (1) A surface capable of receiving an impression; (2) an afferent nerve; (3) a nerve cell capable of receiving and also of sending out impulses; (4) an efferent nerve, and (5) a surface capable of responding to the impulse conveyed by the efferent nerve.

Example: The patellar reflex consists of a contraction of the extensor muscles of the leg and a movement of the foot forward when the ligamentum patellæ is struck; the quadriceps extensor must first be slightly stretched by putting one knee over the other. Its integrity depends upon a healthy condition of the entire reflex arc, consisting of tendon, afferent or sensory nerve, posterior roots, and anterior horn of the spinal cord, the efferent or motor nerve, and the muscle itself.

CHEMISTRY.

1. Three common poisons used for suicidal purposes: (1) Carbolic acid, antidote sodium sulphate or alcohol; (2) corrosive sublimate, antidote white of egg or milk; (3) arsenic (paris green), antidote freshly prepared solution of ferric hydroxide.

2. Urea is readily soluble in water; uric acid is almost insoluble. Test for urea: To a few drops of a solution of urea upon a watch glass add a few drops of Millon's reagent, and heat; a yellow color is produced which changes to red. Test for uric acid: Moisten a little uric acid in a porcelain capsule with a few drops of nitric acid; heat on a water-bath until dry; a yellow or red residue remains; then cool it, and add a little ammonium hydroxide solution; the color becomes a red-violet or purple.

3. A potable water should be clear, cool, colorless, odorless, as free as possible from dissolved organic matter, and should not contain more than three or four parts of chlorine in 100,000 parts of water.

Sulphuretted hydrogen may be detected by a black streak which follows when a solution of lead acetate is allowed to flow gently over the surface of the water.

Recent sewage contamination is detected by the rapid decolorization of a solution of potassium permanganate.

Nitrites may be detected by adding a solution of potassium iodide (free from iodate) and starch to the water, and then adding some sulphuric acid; a blue color promptly results in the presence of nitrites.

4. Colloid chemistry is the chemistry of colloid substances, or of substances in a colloid state; practically all biochemistry is colloidal chemistry. The building up of the living tissue from the products of absorption, cell life, all the life processes in the human body, the maintenance of water in the tissues, the phenomena incident to fertilization and the early development of the embryo, the process of growth, the nature of muscular contraction, the problems of secretion, edema, inflammation, and nephritis are some of the more important problems whose solution depends on colloidal chemistry.

5. Diacetic acid is often found in the urine with acetone and beta-oxybutyric acid in the following conditions: Starvation, diabetes mellitus, some of the acute infectious diseases, the pernicious vomiting of pregnancy and eclampsia, disturbances of the digestive tract, and after-poisoning by chloroform. Diacetic acid is detected by slowly adding a solution of ferric chloride to the urine, when a Bordeaux-red color appears; this color disappears on boiling.

MATERIA MEDICA AND THERAPEUTICS.

1. *Three remedies used in rheumatism*: (1) Sodium salicylate, gr. xx every two or three hours until the pain is relieved; (2) sodium bicarbonate, 5j to 5jss every three hours until the urine becomes alkaline, when the dose is reduced; (3) cold bath for the hyperpyrexia.

Three remedies used in malaria: (1) Quinine, 15 grains three times a day until the temperature is normal, when the dose is reduced; (2) strychnine sulphate, gr. 1/40 three times a day as a tonic and for the anemia; (3) methylene blue in 2 grain doses has also been used.

Three remedies used in jaundice: (1) Sodium phosphate, 1 dram every four hours, in the catarrhal form; (2) potassium sulphate, 30 grains well diluted, as a saline purgative; (3) *fel bovis purificatum*, 7 grains, to stimulate the hepatic secretion.

2. *Two diuretics*: (1) Potassium citrate, dose 15 grains; (2) infusion of digitalis, dose 2 drams.

Two cathartics: (1) Castor oil, dose 4 drams; (2) elaterin, dose 1/10 grain.

Two emetics: (1) Apomorphine hydrochloride, dose 1/12 grain by hypodermic method; (2) tartar emetic, dose 1/2 grain.

3. *The official preparations of bismuth* are: Bismuthi betanaphtholas; bismuthi et ammonii citras; bismuthi subcarbonas; bismuthi subgallas; bismuthi subnitras; bismuthi subsalicylas, and magma bismuthi. They are administered by the mouth, and also applied externally as a dusting powder. The insoluble salts are generally given suspended in mucilage.

4. The dose of apomorphine hydrochloride is 1/20 grain as an expectorant, 1/6 grain as an emetic (administered by mouth), and 1/12 grain as an emetic (administered hypodermically). Its principal use is as an emetic.

5. *ACONITE. Indications*: In fevers, some inflammatory conditions, in high arterial tension, in nervous palpitation of the heart, and congestive dysmenorrhea; also externally for neuralgia, pruritus, herpes, chilblains, etc. *Dose* of aconite 1/2 grain.

BELLADONNA. Indications: To relieve pain, relax spasm, check sweating, as a mydriatic, to check griping of purgative; in asthma, to check fevers, in heart disease, shock and collapse, acute coryza, urinary incontinence, chordee, low delirium of fevers, mania, alcoholism; as an antigalactagogue, spasmodic cough. *Dose* of belladonna, 1 grain (of the leaves), 3/4 grain (of the root).

DIGITALIS. Indications: Digitalis is indicated in diseases of the heart: (1) when the heart action is rapid and feeble, with low arterial tension; (2) in mitral lesions when compensation has begun to fail; (3) in nonvalvular cardiac affections; (4) in irritable heart, due to nerve exhaustion. Digitalis is contraindicated in diseases of the heart: (1) in aortic lesions when uncombined with mitral lesions; (2) when the heart action is strong, and arterial tension high. Digitalis is also a diuretic, and it is used in some forms of nephritis, exophthalmic goiter, pneumonia, chronic bronchitis, etc. *Dose* of digitalis, 1 grain.

6. *MILD CHLORIDE OF MERCURY. Dose*, 2 1/2 grains (as a laxative), 1/4 grain (as an alterative). *Action*: Externally, mildly irritant and stimulant; absorbed by skin, by lungs. Internally, laxative and purgative; indirect cholagogue.

Uses: Externally, stimulant for syphilitic and non-syphilitic sores, itching, vapor bath in syphilis. Internally, as general laxative or purgative, vomiting from congestion of stomach; congestion of liver, functional or organic; cirrhosis, diarrhea, diuretic in small doses; rarely for syphilis.

CORROSIVE MERCURIC CHLORIDE. Dose, 1.20 grain. *Action*: Externally, antiseptic disinfectant, antiparasitic; absorbed by skin, by lungs. Internally, gastrointestinal irritant; produces anemia in large doses; direct cholagogue. *Uses*: Externally, as general antiseptic and parasiticide, yellow wash for itching and syphilitic sores. Internally, alone or with potassium iodide for syphilis, second or third stage; to absorb non-syphilitic, chronic, inflammatory formations, e.g. interstitial nephritis.

7. *The three best and safest antipyretics* are: (1)

Cold water, administered externally as a bath, cold pack; (2) *quinine*, administered internally, generally in a single dose (about 30 grains) in capsules or suspended in milk; (3) *aconite*, administered internally, in doses of 4 or 5 minims of the tincture.

8. *Salines* "act by stimulating the intestinal glands to increased secretion, and by their low diffusibility impede reabsorption, causing an accumulation of fluid in the intestinal tract which, partly from the effect of gravity and partly by gentle stimulation of peristalsis excited by distention, reaches the rectum and produces a copious evacuation."—(Potter.)

Three salines: Magnesium sulphate, dose 4 drams; potassium bitartrate, dose 30 grains; sodium phosphate, dose 1 dram.

9. *TWO SERUMS*: (1) *Antidiphtheritic serum* (against diphtheria); administered subcutaneously; dosage, average about 3,000 units, immunizing dose for a well person about 500 units. (2) *Antitetanic serum* (against tetanus); administered subcutaneously or into the spinal subarachnoid space; dose, 10 to 20 c.c.; repeated if necessary.

TWO VACCINES: (1) *Typhoid vaccine* (against typhoid fever), administered subcutaneously into the arm, giving 500 million bacteria at the first injection, and two further injections of one billion bacteria at intervals of ten days. (2) *Vaccine virus* (against smallpox), used by inoculation.

10. *Cardiac stimulant* is an agent which rapidly increases the force and frequency of the pulse in depressed conditions of the heart.

Cardiac sedative is an agent which lessens the force and frequency of the heart's action.

Cardiac tonic is an agent which stimulates the heart muscle and makes its contractions slower and stronger.

DIAGNOSIS.

1. *Raynaud's disease* is a very rare disease, characterized essentially by symmetrical gangrene. The cause is unknown, but there are three chief theories brought forward to explain the disease. These are that it is due to (1) endarteritis obliterans, (2) to peripheral neuritis, (3) to vascular spasm. The affection is associated with some disturbance of the vasomotor system, as a result of which local stagnation of the peripheral circulation occurs. In consequence of this there arise localized anemia, congestion, and finally gangrene, symmetrically distributed. The condition is observed most often in neurotic women under thirty years of age and in children. Pain is a prominent symptom.—(Hughes' *Practice of Medicine*.)

2. *Empyema of the thorax*. The physical signs are those of fluid in the pleural cavity; that side does not move well, the percussion note is dull, there is absence of breath sounds, vocal fremitus and resonance are diminished. Left alone, an empyema may burst through an intercostal space, usually the fifth. The lung is collapsed in extent according to the amount of pus. The pleura, at first covered with lymph, soon becomes covered with layers of granulation tissue, the deeper part of which is converted into fibrocartilaginous tissue, and the lung itself also undergoes some fibroid change. If the pus is let out early the lung and pleura soon expand, but if allowed to go on the infiltration of the lung and the density of the scar tissue covering it hinder expansion. Nature attempts to remedy this in various ways. (1) The other lung expands and pushes the heart over to the opposite side; (2) the chest wall falls in, the intercostal spaces are obliterated, and the spine is curved, with its concavity toward that side; (3) the abdominal viscera are pushed up; and (4) exuberant granulations form on the pleura. If a cavity still remains an operation is necessary.

Symptoms: Fever, sweats, chill, diminished breath sounds and vocal fremitus, impaired mobility of chest, dullness on affected side, heart displaced to opposite side, leucocytosis.

3. In *chronic appendicitis*, there is a history of one or more previous attacks in which no operation was performed, or perhaps the diagnosis was not made; attacks of pain occasionally occur in the right iliac fossa; there are various digestive disturbances, such as constipation, diarrhea, flatulency; a tender mass may be detected on palpation over the painful area; the pain generally incapacitates the patient for a day or two. In *chronic*

cholecystitis, the history points to the liver or gall-bladder; the pain and tenderness are just beneath the costal arch; the pain is more severe and may radiate to the right shoulder; the pain is not relieved by eating, and it does not come on after every meal. In *duodenal ulcer*, there is a history of pain in the epigastrium about two to six hours after eating, and this pain is relieved by eating; it generally occurs in middle-aged people, and the pain may be referred to the shoulder or right iliac region; blood is passed with the feces.

4. In *rupture of the gall bladder*, the immediate symptoms are those of shock and severe pain in the right hypochondriac region; acute peritonitis follows: jaundice will be present; bile will be found in the urine, and the feces will be clay colored. In *rupture of the appendix*, the pain is at first in the right iliac fossa, but may spread over the lower abdomen or even the entire abdomen; vomiting and constipation are present; the abdomen is tender and distended; there are marked constitutional symptoms, but collapse is not very noticeable.

5. *Pleuritic and pericardial effusion*: "In pericardial effusion dyspnea is a more prominent symptom than in pleural effusion. In the former the heart is not displaced to the right, as in pleural effusion. In pericardial effusion percussion shows the area of flatness to be circumscribed, and to be most marked in the axillary region. Along the posterior margin of the left pleura normal pulmonary resonance is obtained, whereas in pleural effusion a flat note is elicited over this region. In pericardial effusion the heart-sounds are distant, feeble, or muffled, while in pleural effusion the quality of the heart-sounds is unaltered." (Anders and Boston's *Medical Diagnosis*.)

6. In *appendicitis*, the pain is of sudden onset and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle, and tenderness at McBurney's point; there are usually fever, nausea, vomiting, and constipation.

In *right ureteral calculus*, the pain may be excruciating, and radiates down the course of the ureter and to the genitals; x-ray may show the calculus, and the passage of a ureteral catheter may also demonstrate it; cold sweat, vomiting, strangury, and collapse may be present, and the other signs of appendicitis are absent.

7. *Cerebral thrombosis* is characterized by a gradual onset. It is most common in the aged and is manifested by persistent headache and vertigo of varying intensity; alterations in the character, the patient becoming irritable, morose, and despondent with periods of absent-mindedness; disorders of vision, impairment of memory; hesitating and mumbling speech; impaired locomotion with muscular weakness and trembling; and finally paralysis. Hemiplegia is common and may appear gradually or be preceded by sudden insensibility; the condition progresses and ends in dementia and finally death from exhaustion. Rarely, a collateral circulation is established and partial or complete recovery occurs.

In *cerebral embolism*, the symptoms occur suddenly and may be mild or grave in character. In the *mild variety*, there are sudden and severe vertigo, confusion of mind, muscular twitchings, usually one-sided, and vomiting, followed by hemiplegia, most frequently of the right side, the intellect remaining clear but hesitating. After some weeks or months the paralysis usually disappears and recovery is complete. The *grave or apoplectic variety* is manifested by sudden headache, vertigo, flushing or pallor of the face, sudden unconsciousness, often preceded by a sharp cry, and complete muscular relaxation followed by death, or a gradual return to consciousness with hemiplegia, usually right-sided, and aphasia. The loss of speech may last several weeks or months or may be persistent. The mind may remain normal or may be greatly enfeebled, the reason and judgment be clouded, and after a varying period dementia develops, being followed by exhaustion and death.—(Hughes' *Practice of Medicine*.)

8. *Acute pancreatitis*.—"The occurrence of sudden severe pain in the epigastrium, accompanied by faintness or collapse and by vomiting, should lead one to suspect an acute pancreatitis, if the other acute conditions which occur in the upper abdominal region can

be excluded. In addition to the above triad of symptoms, there is muscular rigidity and tenderness over the epigastrium, and a tender mass can be felt here. If suppuration occurs a rise of temperature persists after the subsidence of the acute symptoms, and with it a leucocytosis. In many cases death occurs on the second to the fourth day of the disease. In the acute cases there is marked constipation, but this is not so absolute but that flatus can be passed by the aid of an enema. This serves to differentiate it from an intestinal obstruction. There is also fat in large quantities in the stools. The pain may be so severe as to produce syncope or collapse, and it has a tendency to become paroxysmal. The pain is soon followed by distention in the upper abdominal region, which later becomes general. There is usually slight jaundice present, but this may be quite intense, if the ampulla of Vater is completely blocked by a calculus. The preceding description applies to either the acute hemorrhagic, gangrenous, or suppurative varieties."—(Eisendrath's *Surgical Diagnosis*.)

9. *The symptoms of ptomaine poisoning* are: Onset more or less sudden, abdominal pain, persistent nausea and vomiting, chill, diarrhea, headache, weakness, vertigo, faintness, neuromuscular pains, sometimes fever.

10. *Locomotor ataxia* is a disease of the spinal cord, characterized by loss of coordination, characteristic and unsteady gait, a tendency to stagger when standing up with the feet together and the eyes closed, sharp and paroxysmal pains called *crises*, girdle sensation, Argyll-Robertson pupils, and loss of knee-jerk and other reflexes. In locomotor ataxia the posterior columns of the spinal cord and the posterior nerve roots are involved. The process is destructive and progressive; it is not a simple wasting, although the nerve fibers are atrophied, but it is characterized by irritation, changes in the axis cylinders, overgrowth of the connective tissue, and sometimes congestion. The spinal ganglia may also be affected and the membranes over the affected parts are adherent and opaque.

In the *pre-ataxic stage*, there may be found: Lightning pains, girdle pains, paresthesia, loss of knee-jerk, Argyll-Robertson pupil, ptosis, and optic atrophy. In the *ataxic stage* there will be found: Incoordination, the ataxic gait, flaccidity of the muscles, loss of muscle sense, various visceral crises, perforating ulcer of foot, brittleness of bones, and Charcot's disease.

(To be continued.)

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and on acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

PROGRESSIVE MEDICINE. A Quarterly Digest. December 1, 1917, issue. Edited by HOBART AMORY HARE, M.D., Assisted by LEIGHTON F. APPLEMAN, M.D. 466 pages. Illustrated. Price, \$6.00 per annum. Published by Lea & Febiger, Philadelphia and New York.

TRANSACTIONS OF THE AMERICAN OTOLOGICAL SOCIETY, Fiftieth Annual Meeting. Vol. XIV, Part II. 358 pages. Illustrated. Published by The Society, Mercury Publishing Company, Printers, New Bedford, Mass.

THE CONDUCTION OF THE NERVOUS IMPULSE. By KEITH LUCAS, Sc.D., F.R.S. 102 pages. Illustrated. Price, \$1.50. Published by Longmans, Green & Co., London and New York.

THE PRACTICAL MEDICINE SERIES. Vol. VII, OBSTETRICS. By JOSEPH B. DE LEE, M.D. 224 pages. Illustrated. Price, \$1.35. Published by The Year Book Publishers, Chicago.

THE PRACTICAL MEDICINE SERIES. Vol. VIII, PHARMACOLOGY AND THERAPEUTICS, PREVENTIVE MEDICINE. By BERNARD FANTUS, M.S., M.D., and WILLIAM A. EVANS, M.S., LL.D., P.H.S. 384 pages. Illustrated. Price, \$1.50. Published by The Year Book Publishers, Chicago.

Miscellany.

War and Alcohol.—Major W. McAdam Eccles, surgeon to St. Bartholomew's Hospital and First London General Hospital, delivering the Seventh Norman Kerr Memorial Lecture of the Society for the Study of Inebriety on October 9, 1917, took as his subject, "War and Alcohol." He dealt specially with the relationship of the war to the manufacture and use of alcohol. War, he said, alters many preconceived ideas and lays bare foundation truths. Alcohol has a most important bearing on the war. Men like to drink it, the sum of £200,000,000 (\$1,000,000,000) was spent on excisable alcoholic beverages in the United Kingdom and Ireland in 1916 and the output of munitions and ships has been menaced by it. Nearly one-half of the population of the British Isles are total abstainers, the other half drink alcohol, either moderately or immoderately. Alcoholic beverages are drunk for the alcohol they contain far more than for the small amount of food present in them, and the question, therefore, is whether the alcohol is beneficial or harmful to health and efficiency when taken in moderate amounts.

Ethyl alcohol is not an essential food. If taken as a food it is a most expensive and consequently a "luxury" food and a great deal of it is being wasted by human consumption. Alcohol is an essential for manufactures connected with the war, particularly in the production of munitions, and if used for other purposes it is wasted so far as victory is concerned. Continuing, Major Eccles pointed out that alcohol is useful for many industrial, chemical, and scientific purposes. If there is not enough and cheap alcohol for these uses on account of human consumption, there is direct waste. Alcohol is really a drug rather than a food. All the nutrition which can be obtained from alcohol can be obtained from other very much less expensive, and, when taken in normal quantities, harmless foodstuffs.

It is significant that some of the present industrial unrest has resulted from the scarcity and high price of beer, brought about by the necessary action of the Central Control Board. The majority of the female munition workers were able to perform their duties and keep in good health without having recourse to alcoholic beverages. Major Eccles concluded his address by saying: "The saving of money, the better health of the people, their greater efficiency, and, as many believe, the hastening of victory by the disuse of alcohol for human consumption is a matter which concerns every member of the community, and it is the duty of all who know the facts to diffuse them temperately, earnestly, and widely among all classes of the nation. Truly it would be a splendid achievement to win a more decisive and quicker victory over our enemies by the patriotic and self-denying abstinence from alcoholic beverages so wisely inaugurated by the King and his households."—*The Medical Officer*, November 10, 1917.

War Prosperity and Health Conditions in Birkenhead, England.—Dr. R. Sydney Marsden has this year submitted his twenty-fifth annual report as medical officer of health for the county borough of Birkenhead. On this occasion he is

able to show the lowest death rate and infant mortality rates hitherto recorded. Referring to the healthy condition of the townspeople in spite of the difficulties caused by the war, he says that there is no doubt in his mind that this general condition of good health is due largely to the fact that the children are being better fed than in normal years, owing to the men being at war; the separation allowances are going to the mothers, and the women, in most cases, spend them on food and clothing for the children, with the result that the latter have greater resisting power against disease, and infectious fevers have not spread, the number of cases treated in the fever hospital during the past two years showing a marked decline. If this condition of feeding could be continued and better housing facilities could be provided, Dr. Marsden thinks that the death rates might be still further reduced.—*Medical Officer*, November 10, 1917.

Garbage Disposal in New York.—Dr. Joseph A. Shears, in the *Monthly Bulletin* of the New York City Department of Health for October, describes the new method for the disposal of the garbage of the city that is being employed in the plant at Lake Island, Greenridge, Staten Island. This process is the result of twenty-one years of experience and experimentation in the disposal of garbage by the reduction method and is known as the Cobwell System. In this plant there are at present 200 garbage reducers in operation, each having a capacity of five tons. It takes somewhat less than twelve hours to dispose of this amount of garbage.

The most striking advantages of the Cobwell method of garbage disposal over other methods from the sanitary viewpoint are that the garbage is not handled manually and at no time, from its receipt until its final discharge as a finished product, is it brought into contact with the atmosphere; it is thoroughly sterilized and the by-products are practically odorless; there are no gases of decomposition or of combustion, nor is there any condensing, washing, or trapping of odoriferous gases; the effluent water is sterile and free from deleterious matter, and every portion of the material receives the full sterilizing and deodorizing action of the process. A comparison of the efficiency of the Cobwell system with the Arnold system shows that the quantity of grease recovered under the Cobwell process exceeds that recovered by the Arnold process by 10 per cent. The quantity of fertilizer recovered under the Cobwell process exceeds that recovered by the Arnold process by 60 per cent. The aggregate value of all products recovered under the Cobwell process exceeds the aggregate value of all products recovered under the Arnold process by approximately 20 per cent. The comparative value of the fat yield, based on assumed 275,000 tons of garbage as the annual delivery of a quality equivalent to that of the garbage delivered in 1914 and 1915, shows that with the Cobwell process fats sufficient to manufacture 3,500,000 pounds of high explosives and 70,000,000 cakes of laundry soap of standard size can be produced as compared with 2,800,000 pounds of high explosives and 60,000,000 cakes of soap by the Arnold process.

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Original Articles.

STREPTOCOCCUS ORAL SEPSIS:

AN ATTEMPT TO APPLY A COMPLEMENT FIXATION TEST
AND TO DETERMINE THE VALUE OF A
ROUTINE BLOOD EXAMINATION.

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THE rapidly accumulating laboratory and clinical evidence of the importance of focal streptococcus infections in a very wide range of diseases, from a mild lumbago to an arthritis with permanent crippling, from fruste Graves' disease to a profound neurasthenia, from a slight cardiac derangement to a lethal subacute bacterial endocarditis, or from a mild renal insufficiency to a terminal Bright's disease, impels us to present the following preliminary report with the hope that although inconclusive it may add another suggestive link to the chain and stimulate interest in further attempts to fix the responsibility of this elusive microorganism before its effects have accomplished incurable invalidism.

Billings' and Rosenow's work has been so widely read as to require only the high tribute it properly deserves. Nearly thirty years ago Willoughby D. Miller¹ called attention to infections in the oral cavity and their importance to the general health. A little more than ten years later William Hunter² reported the results of his investigations of oral sepsis and especially emphasized the "sallow complexion and languid condition of such chronically infected individuals." He believed the absorption of toxic products was usually from swallowed pus, and called attention to the direct invasion of the mucosa of structures between the teeth and stomach—tonsils, pharynx, esophagus, and especially the stomach. He also mentions, however, the possibility of direct absorption from the tooth sockets, "the most serious form of sepsis, that of diseased bone," and the possibility of such acute conditions as resulting empyema, meningitis, and osteomyelitis.

In 1909 Hunter published his "Severest Anemias," attributing their cause to a chronic infection.

Ten years ago, impressed by the almost specific action of vaccines in some streptococcus infections,³ one of us, with other observers, began a number of unsuccessful efforts to incriminate this germ and its particular variety by correlating the clinical features of selected cases with some blood test or subcutaneous reaction. Numerous similar attempts have been made by others, but thus far, with the exception of the work on scarlet fever, no very encouraging or useful results have been obtained. Besredka,⁴ working with the serum of immunized horses, found that complement fixation was produced only with the strain of streptococcus producing the immunity. In the same year Besredka and Dopter⁵ applied the fixation test in scarlet fever, but without positive results. During the years since then a number of other workers⁶ have attempted to identify the streptococcus as the cause of scarlet fever, using the complement fixation reaction with antigens made in various ways in order to determine the presence or absence of streptococcus antibodies in the blood of these patients, but with varying results. In 1907 Castex,¹⁰ in four cases of erysipelas, five of scarlet fever, one of puerperal fever, one of pleurisy and arthritis, and one with a streptococcus abscess found the complement fixation test positive in all but three of the five cases of scarlet fever. Swift and Thro¹¹ used the same test and conglutination reaction, and Hastings¹² used complement fixation with antigens made from various bacteria in chronic arthritis.

The accompanying table summarizes our experience with a complement fixation test in a series of cases selected from one of the hospital services and from the private practice of one of us. We have been able to follow up nearly all of the latter group.

In Table II we have rearranged most cases of the same series and so summarized the results of the fixation tests in arthritis and heart disease. Although in a tabular form only suggestive, the clinical course of those private patients which we have been able to follow for a considerable period of time has convinced us of the preponderating importance in etiology and treatment of these minor focal streptococcus infections in many serious conditions of chronic invalidism and stimulated us to further study of more exact and specific methods of diagnosis. The technique used in making these tests was identical with that of the classical Wassermann test, excepting that an antigen prepared from several varieties of streptococci was used. The strains of streptococci from which the antigen was prepared were obtained from clinical cases showing widely varying conditions of streptococcic infection.

ORAL INFECTION.

TABLE I.

POSITIVE.

No.	Source of.	Name of Organism Isolated.	Complement Fixation.	Clinical Symptoms.
6	Tonsils	Streptococcus	++++	Arthritis poly. subac. chr. tonsils pharyngitis.00
15			++++	Hyperthyroid, early, pyorrhea.
19			++++	Purpura, conjunctivitis, pyorrhea c. v. dis. mitral in.0 φφ
20	Pharynx	Streptococcus	++++	Hyperthyroid, early, chronic tonsils.
22			++++	Malaria, double tertian, pharyngitis.
24	Tonsils	Streptococcus v.	++++	Hyperthyroid, early, and chronic tonsils, arthritis.
31		2x	++++	C. v. dis. mitral st., pharyngitis, pneumonia.
45			++++	Arthritis, poly. acute pyorrhea, pharyngitis, c. v. dis.0 XX
59			++++	Cerebral lues, pyorrhea, chronic tonsils, pharyngitis.X
65			++++	Acne, pyorrhea, chronic intest. toxemia.
69			++++	Nephritis, acne, pyorrhea, tonsillitis, c. v. dis. mit. sten.
73			++++	Parotitis, acne, sup. furunculosis.
31			++++	C. v. dis. mit. st. and in. pyorrhea. X
23	Teeth, tonsils	Streptococcus	+++	Pyorrhea, debility p., typhoid, chr.
28			+++	Cystitis, chronic ankylosis hip. pyorrhea, chronic pharyngitis.
29			+++	Asthma, bronchitis. 0
34			+++	Ucinariasis, second, anemia
41			+++	Gastric ulcer, anemia, hyperthyroid.
60			+++	C. v. dis., aortic in. pyorrhea, arthritis, moartic p., tonsillitis. 0
63	Teeth, tonsils	Streptococcus v.	+++	Arthritis, poly. subacute.
75	Teeth, urine	Streptococcus v. coloa	+++	Hypopyrit, Hypothyroid.
10			++	Arthritis, poly. cystitis, pyorrhea, pleurisy, bronchitis.
17	Teeth, tonsils	Streptococcus	++	Chlorosis or splenic anemia.
36			++	Arthritis, poly. acute neuritis, pyorrhea, pharyngitis.0 XX
47			++	Tic douloureux, pyorrhea.0 φφ
62	Tonsils	Streptococcus	++	Pleurisy pyorrhea.
57			++	Arthritis, poly., chronic tonsils, gastric ulcer old.
66	Teeth	Staph. aur.	++	Hyperthyroid, early, pyorrhea.
67			++	Tooth abscess, cong. liver., pharyngitis, card. neurosis.0
68			++	Nephritis, acute tertiary syph., pyorrhea.X
77	Teeth, tonsils	Streptococcus h.	++	Pyorrhea, tonsils, chronic.
83	Teeth, narea.	Strept. and staph.	++	C. v. dis. mit. in., pyorrhea, pharyngitis.0
87			++	Poly. arthritis, acute tonsils, chronic pyorrhea.
12			Pos.	Brochiectasis, bronchitis, chronic furunculosis.0
16			Pos.	Malaria, pyorrhea, debility, card. neurosis.00 X φ0
38			Pos.	Visceral lues, felon.
40			Pos.	Arthritis, monartic chronic.
46			Pos.	Hyperthyroid, tonsillitis, chronic pyorrhea.
70			Pos.	Sciatica, pyorrhea.0
74	Blood	Streptococcus 1911	Pos. +	C. v. dis. mit. in. aortic st., arthritis, poly., chronic pyorrhea.0
84			Pos.	Arthritis, subacute tonsillitis, chronic.
71			Pos.	Parotitis, inf. dental pyorrhea, gastric ulcer, old.
DOUBTFUL.				
7			+	Senility, anemia. 0
8			+	Arthritis, Ac. Poly. Tonsils pharyngitis, c. v., dis. mit. in.
13			+	Neurasthenia, bronchitis, pharyngitis.
25			+	Visceral syph. pyorrhea, pharyngitis.X
54			+	Arthritis, poly. erythem. multi-forms, parotitis φ
72			+	Arthritis, poly. acute pharyngitis. 00
78			+	C.v. dis. a. and m. in. X. 00
80			+	Arthritis moartic, acute tonsils chronic.XX
82			+	Hyperthyroid, early, pyorrhea acne.
85			+	Visceral lues, pyorrhea.X
1	Teeth	Streptococcus 2x	=	Arthritis, chronic art. scler., neph., chronic pyorrhea, anemia.
2			=	Prostatic acute orchitis acut.
6			=	Gout, pyorrhea.0 φφ
27	Tonsils	Streptococcus	=	Urticaria, acne, tonsils chronic, chronic intest. toxemia.
32			=	C. v. dis. a. and m. in., arthritis, chronic tonsils, chronic pyorrhea.0.00
33			=	Arthritis, acute poly., o. v. dis. mit. in. pharyngitis.0

TABLE I.

DOUBTFUL—Continued.

No.	Source of.	Name of Organism Isolated.	Complement Fixation.	Clinical Symptoms.
42	Teeth	Streptococcus v.	=	Arthritis, chronic poly. pyorrhea. apical abscesses.
51			=	Malaria, chronic pulmonary tuberculosis, chronic pharyngitis.φ
55	Tonsils	Short, thick bacillus	=	Arthritis, acute poly., tonsillitis acute.
NEGATIVE.				
3	Sputum	Streptococcus	—	Pulmonary tuberculosis, pleurisy with effus., arthritis.0.
4	Sputum	Pneumoc. boil and staph. a.	—	Brocho-pneumonia, pleurisy, bronchiectosis, furunculosis.0
9			—	C. v. dis. mit. in. pyosal pinx., cystitis.0
11			—	Myalgia, lumbago, phlebitis, pyorrhea, debility.00
14	Teeth	Streptococcus v.	—	Arthritis, poly. chronic lumbago, pyorrhea.
21			—	C. v. dis. a. st. and in.0
26			—	Malaria, acute st. aut.φ
30			—	Arthritis, poly. subacute.0.00
35			—	Meningitis, tuberculosis. Infl. W++++ X
37			—	Arthritis, acute poly. pharyngitis, pyorrhea.0.00
43	Tonsils	Streptococcus v.	—	Arthritis, monartic chronic tonsillitis, chronic pyorrhea.00
49			—	Coxa vara. benign tumor coloa, pyorrhea.0
53	Tonsils	Streptococcus m.	—	Appendicitis chronic, tonsils chronic.
56	Tonsils, teeth	Streptococcus v.	—	Arthritis, acute poly. pharyngitis, tonsils, chronic pyorrhea.0.00
58			—	Variocele.
62	Abscess	Staph. aur.	—	Ischio. rect. abs. art. acute poly. c. v. dis. a. in.
76			—	Meningitis ep. c. a.
79			—	Arthritis, chronic poly. hyperthyroid, pyorrhea.0.00
86			—	Arthritis, chronic poly. Arrested one year ago, p. 1, dose 606.

++++, +++, ++ indicate positive streptococcus complement fixation tests, the degree shown by the number of crosses.

"Pos." indicates merely a positive test of varying degree.

+, =, indicate doubtful tests.

— indicates a negative test.

X indicates a positive, φ a doubtful, 0 a negative Wassermann test.

XX indicates a positive, φφ a doubtful, 00 a negative gonococcus complement fixation test.

The ice-box method of binding complement was used throughout, as it was found that a much greater dilution of antigen could be used by this method than with water-bath at 37° C.

The antigen was prepared as follows: eighteen to twenty-four hour old cultures grown on plain veal agar were washed off with distilled water and extracted in the water-bath at 56° C. for several hours. The suspension was then centrifuged and the supernatant fluid passed through a Berkefeld filter. The filtrate was rendered isotonic by the addition of 0.85 per cent. of sodium chloride, and was standardized against the serum of an immunized rabbit for use as an antigen.

The sera of immunized rabbits were also used as positive controls in making the clinical tests. The hemolytic system and antigen were carefully standardized each day before tests were made and the sera to be tested were always inactivated at 56° C. for thirty minutes.

Streptococcal antigens prepared by the above method did not cross fix with immune sera prepared from other pus producing organisms but immune sera prepared from individual varieties of streptococci gave more or less complete fixation with antigens prepared from any of the other varieties, as well as with antigens prepared from the streptococcus mucosus capsulatus and the pneumococcus.

It was found necessary to test rabbits selected for immunization with great care as the serum of a

TABLE II.
ARTHRITIS.

No.	Source of.	Name of Organism Isolated.	Complement Fixation.	Clinical Symptoms.
6	Tonsils	Streptococcus	++++	Poly. arthritis, tonsils, pharyngitis.
19			++++	Acute artie rheumatia, purpura oral sepsis, pyorrhea, pharyngitis.
24	Tonsils	Streptococcus v.	++++	Arthritis, cerv.-vert. Graves, myalgia oral sepsis, tonsillitis, card. dil.
45			++++	Poly. arthritis, pyorrhea, pharyngitis.
41			+++	"Rheumatism," al. ex-goitre, g. ulcer, anemia.
50			+++	Arthritis monartie p., tonsillitis, c. v. dis. and insuff. pyorrhea.
63			+++	Arthritis, poly.
75	Teeth, urine	Strept. v. colon	+++	Arthritis, poly. cystitis, pyorrhea, bronch., pleurisy.
17	Teeth, tonsils	Strept. Strept.	++	Arthritis, poly. myositis, neuritis, pyorrhea, pharyngitis.
52	Tonsils	Streptococcus	++	Arthritis, poly. tonsillitis, old gastric ulcer.
83	Nares, teeth	Strept. Strept.	++	Arthritis, poly. chronic tonsillitis, pyorrhea.
40			Pos.	Arthritis jaw.
74			Pos. +	Arthritis, c. v. dis. pyorrhea, streptococcus septicem.
84			Pos.	Arthritis, eubacule tonsillitis, chronic.
8			+	Arthritis, acute pharyngitis, tonsillitis, c. v. dis.
54			+	Arthritis, poly. eryth. multif. parotitis tonsillitis.
72			+	Arthritis, poly. acute pharyngitis.
80	No. g. c. prostate		+	Arthritis, monartie tonsillitis g. c.
1	Teeth	Streptococcus	=	Arthritis, poly. chronic nephritis, art. scler., oral sepsis, pyorrhea, second anemia.
5			=	Gout, arthritis, pyorrhea.
32			=	Arthritis, chronic c. v. dis., tonsils, pyorrhea.
33			=	Arthritis, acute r. fever, c. v. dis., pharyngitis, chronic tuberculosis, healed.
42	Teeth	Strept. v.	Doubt.	Arthritis, chronic and subacute pyorrhea, apic abscesses.
55			=	Arthritis, acute r. fever, tonsillitis, acute.
3	Sputum	Streptococcus	-	Arthritis, pulmonary tuberculosis, pleurisy with effus.
11			-	Arthritis, myalgia, lumbago, phlebitis, pyorrhea debility.
14	Teeth	Streptococcus v.	-	Arthritis, poly. lumbago, oral sepsis, pyorrhea.
30			-	Arthritis, poly.
37			-	Arthritis, acute r. fever, pharyngitis, pyorrhea.
43	R. tonsils	Streptococcus v.	-	Arthritis, monartie chronic tonsillitis.
56			-	Arthritis, acute r. fever, pharyngitis, tonsils, pyorrhea.
62	Abscess	Staph. aur.	-	Arthritis, poly. acute c. v. dis., lachio rect. abscess.
79			-	Arthritis, poly. chronic hyperthyroid, pyorrhea, gingivitis.
86			-	Arthritis, poly. chronic, arrested 2 years, p. 1, dose 606.
34 cases: 4 +				++++, 4 +++, 3 ++, 3 pos., 4 +, 6 =, 10 -.
ANEMIA.				
34			+++	Secondary, ucinariasis.
41			+++	Secondary, gastric ulcer, sl. ex. goitre, rheumatism.
10			++	Chlorosis or aplenic anemia.
7			+	Secondary, aenility.
1	Teeth	Streptococcus	=	Secondary chronic nephritis, art. sclerosis, poly. arthritis, pyorrhea.
GASTRIC AFFECTIONS.				
41			+++	Ulcer, anemia, sl. ex. goitre, rheumatism.
52	Tonsils	Streptococcus	++	Old ulcer, arthritis, poly. tonsillitis.
71			Pos.	Old ulcer, pyorrhea, parotitis, inf. dental.
24	Tonsils	Strept. v. 2	++++	Card. dil. cerv. arthritis, chronic tonsils, Graves myalgia.
31			++++	Mitral stenosis, pneumonia, pharyngitis.
81			++++	Mitral stenosis and regurgitation, pyorrhea.
50			+++	Aortic regurgitation, arthritis monartie p. tonsillitis. W.—
66	Teeth	Staph. aur	++	C. neurosis, cong. liver, 3 ox. due to tooth abscess.
77			++	Mitral regurgitation, pyorrhea, pharyngitis.
16			Pos.	C. neurosis, malaria, gingivitis, b. angina, debility.

TABLE II.
GASTRIC AFFECTIONS.

No.	Source of.	Name of Organism Isolated.	Complement Fixation.	Clinical Symptoms.
74	Blood	Streptococcus 1911	Pos. +	Acute mitral regurgitation, arthritis, poly. pyorrhea, streptococcus, sept.
8			+	Mitral and a. regurgitation, acute poly. arthritis, pharyngitis, tonsillitis.
78			+	Mitral and a. regurgitation, nephritis.
32			=	Mitral regurgitation, chronic arthritis, poly. tonsillitis, pyorrhea.
38			=	Mitral regurgitation, acute arthritis, rheumatism, chronic healed tuberculosis, pharyngitis.
9			-	Mitral regurgitation, chronic pyosalpinx, cystitis.
21			-	A. stenosis and regurgitation, mitral stenosis, chronic par. nephritis.
62	Isch. rect. abs.	Staph. eur.	-	A. regurgitation, acute rheumatism, Isch. rectal abscess.
15 cases: 3 + + +				+ , 1 + + + , 2 + + , 2 pos. , 2 + , 2 = , 3 - .
HYPERTHYROID COMPLEX.				
15			++++	Graves fruste, oral sepsis, pyorrhea, gingivitis.
20	Throat	Streptococcus	++++	Goitre exoph., chronic tonsils, rheumatism one year ago.
24	Tonsils	Streptococcus v. 2x	++++	Hyperthyroid card. dil. cerv. arthritis, tonsils, myalgia.
41			+++	Hyperthyroid, anemia, old gastric ulcer.
64	Teeth, tonsils	Streptococcus v.	+++	Hyperthyroid, hypopit.
57			++	Hyperthyroid, pyorrhea.
46			Pos.	Hyperthyroid, tonsillitis, pyorrhea.
82			+	Hyperthyroid, pyorrhea, acne.
79			-	Hyperthyroid, chronic arthritis, pyorrhea, gingivitis.
0 cases: 3 + + +				+ , 2 + + + , 1 + + , 1 pos. , 1 + , 1 - .
PULMONARY LUNGS AND PLEURAL AFFECTIONS.				
31			++++	Pneumonia, c. v. dis. mitral stenosis, pharyngitis.
29			+++	Asthma, bronchitis.
75	Teeth, urine	Strept. v. colon	+++	Pleurisy, bronchitis, arthritis, poly. pyorrhea.
47			++	Pleurisy, pyorrhea.
12			Pos.	Bronchiectasis, chronic bronchitis, furunculosis.
13			+	Bronchitis, pyorrhea, neurasthenia.
3	Sputum	Streptococcus	-	Pleurisy, with effus. pulmonary tuberculosis, arthritis.
4	Sputum and pneumo. boils	Staph. a.	-	Bronchopne. pleurisy, bronchiectasis, furunculosis.
NEURITIS.				
17	Tonsils, teeth	Streptococcus	++	Neuritis, myositis, arthritis, pyorrhea, pharyngitis.
36			++	Tic douloureux, pyorrhea.
70			Pos.	Sciatica, pyorrhea.
11			-	Lumbago, myalgia, pyorrhea, phlebitis, arthritis.
14	Teeth	Streptococcus v.	-	Lumbago, arthritis, pyorrhea.
NEPHRITIS.				
69			++++	Acute p., tonsillitis.
67			++	Chronic par., pyorrhea, tertiary syph. W. —
78			+	Chronic nephritis, c. v. dis. mitral and A. regurgitation.
1	Teeth	Streptococcus	=	Chronic nephritis, chronic arthritis, scler., pyorrhea, second anemia.
21			=	Chronic par. nephritis, c. v. dis., A. stenosis and regurgitation.

large percentage of apparently normal rabbits gives strong fixation with most bacterial antigens.*

Twenty-one of our cases, all but one from private practice, have been followed up very carefully for two years or more, and have very largely recovered or very decidedly improved, due, we believe, to the elimination of a definite focus of chronic infection, usually in the teeth or tonsils. We have tabulated

*A considerable portion of the actual test work was performed by Miss M. P. Olmstead, for whose assistance we wish to express here our obligation and appreciation.

these cases (Table III) with the results of their complement fixation, the focus treated, and the clinical result.

TABLE III.

No.	Complement Fixation.	Clinical Condition.	Focus Eliminated.	Result.
20	++++	Hyperthyroid	Local tr. to tonsils	Improved
24	++++	Hyperthyroid arthritis	Teeth and tonsils	Recovery
65	++++	Aene. intestinal toxemia	Teeth	Improved
23	+++	Debility, pyorrhea	Teeth	Recovery
64	+++	Hypoparathyroidism	Teeth	Improved
75	+++	Arthritis poly., pleurisy	Teeth and bladder	Improved
36	++	Tic douloureux	Teeth	Improved
52	++	Arthritis poly. chronic	Tonsils enucleated	Recovery
66	++	Tooth abscess	Teeth	Very much imp.
68	++	Neurasthenia, tonsillitis, pyorrhea	Teeth	Very much imp.
16	Pos.	Malaria, pyorrhea	Teeth	Improved
46	Pos.	Hyperthyroid	Tonsils	Very much imp.
84	Pos.	Arthritis poly. subacute	Teeth and tonsils	Improved
82	+	Hyperthyroidism, acne	Teeth	Improved
85	+	Visceral syphilis, debility	Teeth	Improved
1	+	Arthritis poly. chr., art. scler.	Teeth	Recovery
27	+	Intestinal toxemia, acne	Teeth and tonsils	Recovery
42	+	Arthritis poly. chronic	Teeth	Improved
14	—	Arthritis poly. chronic	Teeth	Improved
39	—	Hyperthyroid. Arthritis poly. subacute.	Thyroid operation	Improved
53	—	Appendicitis chronic	Appendectomy, tonsils	Improved

The details of a few illustrative cases, most of them from our series, Table III, follow:

CASE I (Not in series).—An example of a subacute periodic bacteremia in which a reliable test to identify the causative organism would have been of great value early in her disease. Female, 35 years, married. Previously well except for nearly all the diseases of childhood. In November, 1914, she had complained of "lameness" in the first left lower bicuspid, which by x-ray showed an area of decalcification at the tip. Her dentist considered it trivial, but in February, 1915, an abscess developed. The tooth was then drilled into, pus evacuated, the tooth filled, but the abscess promptly filled up and the tooth was again opened and this time treated until all radiographic evidence of any trouble at the root had disappeared, when it was again filled and gave her no trouble until the latter part of the summer of 1915. Then the "lameness" returned, and several weeks later (November) pains began in her joints and muscles. She recovered from one such attack only to have another in a few days and a much more persistent and painful one. Salicylates and strict diet were ineffectual, but the ultra violet ray apparently did help her until December 5, when she was acutely stricken with severe epigastric pain, vomiting and fever. Two days later, when first examined by one of us, she still had the abdominal pain, there was a distinct mitral lesion of the heart with enlargement and a to and fro murmur over the base of the precordia, some congestion at the base of the left lung, a herpes labialis, an enlarged spleen, and a very rigid, tender abdomen. A few weeks later a crop of petechial and purpuric spots appeared and there were frequently recurring areas of inflammation in each lung. Cerebral symptoms soon occurred with frontal headache, blurred vision, and a number of convulsions followed by a left facial paralysis. In February, 1916, a more intense headache returned, accompanied by a complete left-sided paralysis, a slight but persistent hematuria, an enlargement and tenderness of the left kidney and a pleurisy. During the first week in March her joints were definitely and visibly affected for the first time; the hematuria continued, was much accentuated during the administration of hexamethylenamine, but lessened again on its withdrawal. During the last week of the month the frontal headache returned, further visual disturbance, a marked deafness and, coincidentally, the urine showed a large amount of sugar. In April the continued hematuria, a higher and more remittent fever, and a convulsion on the 23d, contributed to a general decline in her condition. Clinical and x-ray examinations of the sinuses, teeth, chest, abdomen, and the pelvic organs failed to disclose any other foci of infection.

Early in May her condition changed rapidly for the worse; cerebral symptoms increased, the circulation was weaker, and the hematuria increased. She was transfused June 1 and 7, the second transfusion apparently benefiting her for a few days. The bleeding, however, persisted and increased, and in spite of three more transfusions she died July 10. There was no essential change in the heart lesion during her illness. Five blood cultures made December 8, January 10, February 19, June 1, and June 21 were all sterile; one culture of the urine, July 4, showed a colon bacillus and a streptococcus; another, January 5, was sterile; a few c.c. of serum from the chest, January 8, was negative cytologically and bacteriologically; the spinal fluid, January 9, was likewise negative. Wassermann examinations of both spinal fluid and blood were negative; two of the extracted teeth furnished cultures of streptococcus viridans and one was sterile. The leucocytes were usually about 12,000; the highest count, in December, was 18,200; the lowest, May 22, being 9600; the hemoglobin (Sahli) at first was 85 per cent., May 22 was 50 per cent., and at the end of her illness it was 65 per cent.

CASE II (No. 42 in series).—An example of a typical subacute infectious arthritis (cause oral sepsis) in which the clinical diagnosis was practically certain, the fixation doubtful, and the treatment, although incomplete, strikingly successful. Female, 42 years, married for 22 years. Her first child was born when she was 23, the puerperium being normal, and at 25 the second child was born, a very difficult labor and a puerperium protracted by a "cold on left lung," which continued for three months. The third child, at 40 years, was born dead and macerated at term. There was no history of other illnesses until seven years ago, when she had the first joint trouble; and for five years she had acute or subacute inflammation of joints; they would become red, swollen and very painful; would so continue for some time, and the acute attack would then subside, leaving a permanently crippled joint. Accompanying the acute part of the trouble, she had fever and sweats. All sorts of treatment were tried, but nothing gave her any relief. Five years ago her teeth began "to drop out," and she has been losing them ever since, but those remaining "give her no trouble." For the past two years (history taken in 1914) she has been in very much better health, has had no acute joint trouble, and has even been able to get around fairly successfully. Three months ago (1914) she came to this country (from Scotland), and one month later the pain and swelling of the joints returned, first in the neck, then in the left elbow and finally in all joints, and accompanied as before by fever and sweats. She was moderately crippled, but although able to come to the office, practically all the joints had been at one time affected; her thyroid was enlarged; she had marked pyorrhea of her remaining teeth and several carious roots; her tonsils were but slightly enlarged; her heart was very rapid, but otherwise appeared normal, and her spleen could not be felt. Urine was 1036, with a trace of albumin, and a culture of the pus about the teeth gave a pure growth of streptococcus viridans, and her blood a doubtful fixation. She was advised to have all the teeth removed, and was given rather intermittently an autogenous vaccine. She would not permit the extraction of all the teeth, but did get rid of the worst roots, and subsequently there was an almost immediate cessation of the acute symptoms, and she was soon able to do her own housework. *Recent report:* A year ago the added drain of a pregnancy and an acute appendicitis was followed by a return of the arthritis, and when last seen (about 9 months ago) there was some subacute inflammation of the finger and hand joints and considerable pyorrhea at the site of the remaining teeth, which she has persisted in retaining.

CASE III (No. 20).—An example to illustrate a "frustrated Graves' disease" in which the streptococcus fixation test was strongly positive and the tonsils were the evident source of infection. Female, 38 years, married, admitted to the City Hospital with a history of scarlet fever at six years, of measles three times. She had one child, a forceps delivery, but otherwise a normal pregnancy, and puerperium. One year ago she had

tonsillitis with "rheumatism" involving both her ankles and knees; she was sick but ten days and has had no recurrence. For the past three months she has complained of dyspnea, nervousness, palpitation, and a slight cough. She was a strong, healthy looking woman with no apparent loss of weight; there was slight cyanosis and evident nervousness. The tonsils were enlarged; there was a chronic pharyngitis, a few enlarged post cervical glands. The thyroid was not notably enlarged; the lungs were clear; heart not enlarged, though at the apex was a sound suggesting a presystolic rumble. Dermographism was marked, and the patellar reflexes exaggerated. Culture of her throat showed a streptococcus, and her streptococcus complement fixation was four plus. At first the temperature ranged from 98 to 100 and the pulse averaged 100. After several days' rest in bed and the administration of bromides the temperature became normal and the pulse averaged 75. Three years later, September, 1916, she was seen again. She was then considerably better, but not well, the most noticeable improvement being during the summer months. Her tonsils had not been treated; she had then a slight enlargement of the thyroid, a tremor, and occasional attacks of tachycardia.

CASE IV (No. 69).—*An example of a double infection both located in the tonsils where a decisive fixation test of proved value would have been of great value to determine the proper treatment at once.* Female, 14 years; had the lesser diseases of childhood, but never had any serious illness. In November, 1912, she contracted a sore throat and cough. A few days later she awoke with a puffiness of her face, and during December her feet and legs were swollen. A diagnosis of acute nephritis was made; she was dieted and given hot packs for several days, improving considerably. Ever since, however, she has had a little swelling of her legs, and lately, at night especially, is so dyspneic she must sit up in bed. On the 18th of April she was admitted to the City Hospital. Her lips were slightly cyanotic; in the heart there was a suggestion of a presystolic murmur at the apex; the liver was barely palpable, and there was a slight but definite edema of the legs. During her stay in the hospital her rectal temperature ran from 98 to 99.5°; her pulse varied from 80 to 100, and her blood pressure was 110. Vision was defective in each eye (no mention being made of the eye-grounds). In the pharynx and throat there was excessive lymphoid tissue; the tonsils were enlarged and cryptic, but there was no sign of acute inflammation in them. The specific gravity of the urine varied from 1020 to 1030, with albumin present in variable amounts from a faint trace to a heavy cloud, and there were always hyaline and granular casts present. Her streptococcus complement fixation was four plus. Cultures from the throat disclosed the presence of Klebs-Loeffler bacillus 10 times in 12 examinations, there being no mention of other organisms present or what the culture showed on the two examinations negative to the diphtheria germ.

CASE V (Not included in series).—*An example to illustrate the value of a reliable fixation test so as to incriminate and more promptly treat the causative organism where two evidently possible sources existed, oral sepsis (streptococcus) and vaginitis (gonococcus).* Female, 30 years, presented a serious, active, and prolonged clinical picture thyrotoxicosis. The history of leucorrhea following a Neisser infection in 1911, but with negative smears from the vagina upon several occasions, and a doubtful gonococcus complement fixation test; as well as the lack of symptomatic benefit following skilled gynecological treatment while under our observation added to its complexity. For some years a rather marked pyorrhea had existed. In 1911 a prolonged low fever puzzled her physician on the Pacific Coast; but its abatement soon after the discovery and treatment of a caries of the jaw from an infected tooth and of an accompanying infection of the adjoining antrum strongly suggested these two foci as the etiological factors. When referred to us for a recurrence of the fever, she also presented a mild arthritis of the spine and distinct though moderate symptoms of Basedow's disease (tachycardia, tremor, nervousness, vasomotor disturbances and a unilateral thyroid enlargement). We felt justified in adding an autogenous

vaccine from an organism (*S. viridans*) isolated from pyorrheal pockets, to the painstaking dental surgery and local gynecological measures. Radiograms, at that time, seemed to confirm the dentist's opinion that the oral sepsis was limited to the existing pyorrhea. Marked improvement in all symptoms followed these measures and persisted for a few weeks after their cessation. A further course of vaccines produced a similar temporary improvement after a recurrence of her symptoms. Finally, despite another negative radiogram and the dentist's conviction that the teeth could not be the source of this recurrence, the latter was finally persuaded to extract a tooth adjoining the old location of the caries and supporting a bridge. A tiny drop of pus was found at its root, furnishing a pure culture of *S. viridans*. With the addition of a new vaccine, her symptoms soon vanished and at last report a couple of years ago, they had not recurred.

CASE VI (No. 68).—*An example to illustrate the chronicity of some oral infections, the complexity of symptoms resulting therefrom, the importance of heeding all possible etiological factors and the value of a decisive laboratory test to guide treatment.* Female, 36 years, suffering from (1) profound neurasthenia for many years; (2) two attacks of slight hematuria without demonstrable cause; (3) subject to frequent severe colds and to infection of adenoids and tonsils; (4)

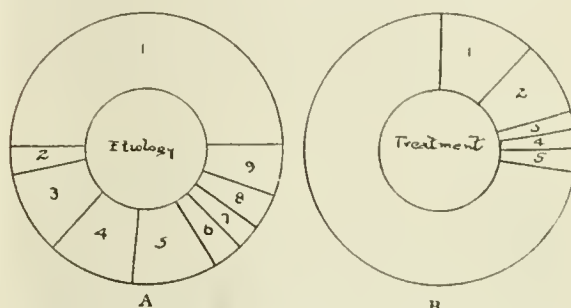


Diagram of condition before and after treatment in a case showing the vicious circle in oral sepsis.

chloranemic for years; (5) periodic development of facial edema, mostly periorbital; (6) pyorrhea for many years; (7) falling hair and brittleness of nails; (8) leucorrhea; (9) myalgias. (See the illustration.) In addition to pyorrhea a tooth abscess with a sinus which alternately closed and opened, discharging pus, had existed and had been treated from 1901 to 1912, until the patient and her dentist could be persuaded to sacrifice the tooth. Cultures from this pus showed a hemolytic streptococcus and the patient's blood serum a positive complement fixation. A strong psychical disturbance operative from 1903 to 1907 was an important factor in the patient's general condition. Her treatment for several years was symptomatic, general, psychic, local, and prophylactic both to teeth and to mucous membranes of tonsils and adenoids; but no pronounced permanent effect was produced until the tooth was finally extracted in 1913. There was found to be a much wider and more serious involvement than had been supposed, with caries of the bone and a spreading of the infection to the roots of the two adjoining teeth. The relative size of the sectors (1-5) in the circle represents diagrammatically the approximate degree of improvement existing to-day. The mild pyorrhea still existing requires frequent prophylactic treatment, but the patient's general condition is markedly improved.

CASE VII (No. 24).—*Another example of a complex clinical picture where an existing dental sepsis was complicated by a chronic infection of the tonsil, where a decisive fixation test, supported by a more prompt recognition of the apparently primary factor, might have suggested earlier and more beneficial treatment.* Female, 40 years, symptoms of acid dyspepsia (possible ulcer) in 1905, prolonged shock in 1908 followed by pronounced depression and neurasthenia to 1913, cervical arthritis confirmed by radiogram in 1910-1911, lumbago 1911, sciatica 1911, fruste Basedow's disease 1911 to 1912, myocardial insufficiency 1911 to 1913 with palpitation, dyspnea, chills and sweats at night, indigestion,

epigastric fulness and pain and with signs of a dilated heart, mitral insufficiency and an engorged liver. Her dentist, supported by negative radiograms, considered her teeth sound. The treatment followed from 1910 to 1912 and directed against the general symptoms, arthritis, cardiac condition and neurasthenia as well as in 1913 vigorous local treatment to tonsils produced, however, very unsatisfactory results: the patient evidently slowly lost ground. Finally another dentist aided by another radiographic examination reported as follows: "Extensive pyorrhea, apical disease which must have existed for years, four non-vital teeth, and a gangrenous tooth pulp." His prompt efficient treatment, including the extraction of two teeth in 1914, produced an immediate and very remarkable improvement in all the above symptoms. Since then I have only seen the patient once, but her improvement has persisted except for occasional stiffness of neck; a little fatigue and slight dyspnea upon exertion, and some remnant of her general nervous symptoms. She recently reported by letter as being in excellent condition.

An interesting and rather amusing addition to the foregoing, is the following: Tonsillectomy was advised in 1913; but the patient's fear of an operation was so great that it seemed only fair to give her the benefit of further counsel. She was, therefore, sent first to one, and then to another of two of our most brilliant and renowned diagnosticians. From both I obtained the identical diagnosis "neurasthenia," and the same advice for treatment, "remarriage"; but she still has her tonsils, she remains a widow, and since the institution of proper dental surgery, she has not required further medical assistance.

CASE VIII (No. 1).—*An example to illustrate that to a so-called "gouty" individual, a minor infection is of great moment, that a reliable laboratory test would have immediately cleared up the natural doubt as to the infectious or metabolic cause responsible for the symptoms, that prompt eradication of the former was followed by permanent cure and that too despite the patient's age and the severity of the crippling symptoms.* Female, 74 years; gout, diabetes and "rheumatism" a frequent story among her immediate ancestors. She had an acute nephritis in 1882, followed by repeated attacks of gout from 1883-1890, and had been subject to a so-called "gouty throat" during her youth. For many years she had had repeated attacks of myalgia and nodes had gradually developed upon her fingers.

Arteriosclerosis had existed for more than ten years and a good deal of disturbance with her digestion for about six years. For the past ten years nervous symptoms, neuritis, weakness and disability combined to make her a partial invalid, but in 1912 when first seen by us a subacute, but slowly progressing arthritis of both knees was the striking condition. A course of treatment including massage at a European spa produced considerable improvement, but soon after her return home, the arthritis began to progress again, became acute, and finally almost completely disabled her. Despite frequent attention to her teeth in the past, she then showed a marked pyorrhea evidently of some duration and a culture from the pus pockets revealed a streptococcus viridans, but the complement fixation was doubtful.

Slow improvement followed dental surgery and the extraction of one of the most seriously infected teeth, but frequent relapses occurred, especially when the dental measures were not frequently renewed. However, persistent, thorough surgery, insisted upon by us despite the dentist's scepticism, aided, of course, by general measures, finally accomplished a complete and thus far permanent cure. The gratifying result is well expressed by a quotation from one of our associates who recently met her on the street: "She looked ten years younger, and was walking as well as I." When last seen, (ten months ago) she complained of dizziness and slight dyspepsia; reported that neither arthritis nor myalgia had recurred; that even the stiffness of her joints had disappeared many months ago and had not recurred; that she had required no medical advice but that she had had careful prophylactic treatment of gums and teeth every six to eight weeks. Her knees were then normal.

Routine Blood Examination.

Some doubt still exists as to whether the usual routine clinical examination of the blood and, in particular, the total and differential leucocyte counts reveal any characteristic departure from the normal of a practical diagnostic importance in oral sepsis. The almost constant accompaniment of complications, or of other diseased conditions in the patients under discussion as well as the variable state of activity of the streptococcus infection, militate against the possibility of clearing up such doubt.

W. H. G. Logan,¹³ in the examination of the bloods of 162 consecutive cases of oral sepsis, found that (1) anemia is not commonly associated; 2) leucopenia is more common than leucocytosis in pyorrhea where the pockets did not involve the root end; (3) leucocytosis is most commonly found with deep pyorrhea pockets; (4) leucocytosis was found in 47 of 52 cases of periapical infection without sinus, but leucopenia may occur in such; (5) there were abnormal findings present in 48 of 110 cases of pyorrhea examined. F. Hecker,¹⁴ in the examination of 250 blood films in pyorrhea, found the average differential count to be "polymorphonuclear 45 to 60 per cent., eosinophiles 1 to 3 per cent., mast cells 1 to 2 per cent., large lymphocytes 15 to 30 per cent., small lymphocytes 5 to 15 per cent., transitionals 1 to 3 per cent., and irritation forms of Ehrlich 3 to 10 per cent. He also believes the tinting of the nucleus and protoplasm of each cell is of especial importance.

A brief analysis of a few cases from our experience recently available for comparison in this particular has, therefore, seemed justified, especially so as most of the cases have been from the private practice of one of us, have been carefully studied clinically, and have been followed up for some length of time, painstakingly, and skillfully examined and treated, and the sepsis cured or very much improved by no less competent an oral surgeon than Dr. A. H. Merritt and his associate, Dr. Van Winkle. The blood examinations were all made by one of two observers, Bradbury or W. H. Ordway, Jr. The average figures for the normal leucocyte and differential counts of adults may be struck from the following figures selected from

TABLE IV—NORMAL CONTENTS.

Author.	Lets.	P.M.N.	Lymph.	L. Mono.	P.M.E.	P.M.B.
Ehrlich	70-72	22-25	2-4	2-4	0.5	
Sahl	70-72	22-25	2-4	2-4	0.5	
Emerson	70-72	22-25	2-4	2-4	0.5	
Von Limbeck	70-80			0.6-11		
Krehl	70	25-28	2-4	1-4	0.5-2	
Coles	70-75	15-20	6-8			
Pappenheim	70-75	20-22	8	2-4	0.1	
Turck	70-75	22-25	1-4	2-4	0.1-0.5	
Morawetz	65-75	20	12	2-4	0.5	
Webster	65-75	20-25	8	2-4	0.5	
Wood	65-75	22-25	2-4	2-4	0.5	
Da Costa	60-75	20-30	4-8	0.5-5	0.5	
Rotch	60-75	24-30	3-6	1-2		
Stengel	65-70	25	3-6	3 or less		
Krause	65-70	22-25	8	2-3	0.5	
Naegeli	65-70	22-25	8	2-4	0.5	
Brugsch	65-70	20-25	8	2-4	0.5	
Morris	65-70	22-25	8	2-4	0.5	
Taylor	55-80	10-40	1-8	0.3-8	Rare	
Simon	60-70	20-30	1-6	1-4	0.2-1	
Cabot	60-70	20-40	1-10	0.5-3	0.1-0.5	
Drysdale	66	25-26	2-4	1-3	0.5	
Miller	64-28	22-25	10-56	2-7	0.66	
Runline (25 cases)	54-6	33-1	9	3-2	0.8	
Warfield	50-60	25-40	5-9	2-8	0.4-2	
Mehrtens (100 adults)	7000	56.55	37.45	4.51	0.97	0.52

We have not considered any count abnormal within the following extremes: total leucocyte 6,000 to 10,000, polymorphonuclear neutrophils 55 to 75 per cent., eosinophiles 0.5 to 6 per cent., basophiles up to 2 per cent., lymphocytes 20 to 40 per cent., and large mononuclears (includes transitional) 1 to 8 per cent.

Of 55 carefully studied cases of oral sepsis from private practice we have selected as available for analysis of the blood findings 25 cases, the others being excluded because of some important pathological condition other than the oral sepsis.

The hemoglobin, estimated by Sahli's instrument, in the twenty-five cases averaged 97.2 per cent., with a maximum of 120 per cent., a female with pyorrhea and gastric symptoms; and a minimum of 70 per cent., the only one below 85 per cent., a young woman of gouty antecedents, with chronic tonsillitis, arthritis, eczema, debility, and neurasthenia. In only three other cases was the hemoglobin below 90 per cent. These were women, one with bronchitis, another with nephritis, and the third with neuritis, cardiac hypertrophy, and a very marked pyorrhea.

The red cell count was determined in but nine cases and averaged 5,153,888, with a maximum of 5,700,000 and a minimum of 4,192,000. Including the latter only three counts were below 5,000,000: one in a woman with chronic nephritis and cardiac hypertrophy; another in an elderly male with pronounced arteriosclerosis, arteritis obliterans, and a very severe pyorrhea, and the third a woman with general debility, a prolonged neurasthenia and a very chronic but recently successfully treated antrum infection.

In this small series at least, oral sepsis in itself can hardly be credited with having produced any striking change in the hemoglobin or in the number of erythrocytes.

TABLE V—25 CASES OF ORAL SEPSIS

Dental Diagnosis.	Red Count	Hgb. %	Lots.	P.	L.	M.	E.	B.
a Necrosis root, non-vital teeth.	.....	104	6400	62.5	33.5	2.5	1.5	...
b Infected teeth, pyorrhea	.....	90	11300	60.5	38.0	0.5	1.0	...
c Pyorrhea, necrosis roots	.....	88	6900	64.5	33.5	1.0	1.0	...
d Tonsillitis chronic	5700000	90	6700	61.0	32.5	4.0	2.5	...
e Gingivitis, root abscess	.....	100	8700	66.0	21.0	2.0	6.0	...
f Blind abscess, pyorrhea	.....	100	8800	64.0	34.5	0	1.5	...
g Pyorrhea	4752000	95	6800	71.0	24.5	1.5	2.0	1.0
h Non-vital teeth	.....	100	10800	59.0	28.0	6.0	6.0	1.0
i Tonsillitis chronic	.....	122	7000	57.0	35.0	5.0	3.0	...
j Pyorrhea	.....	89	9400	75.0	23.0	2.0	...	...
k Non-vital teeth, pyorrhea	5288000	105	7600	72.0	26.0	0	2.0	...
l Decalcified root	.....	91	8000	68.0	31.0	1.0	...	...
m Pyorrhea	4720000	90	12600	77.0	18.0	3.0	2.0	...
n Inf. partially erupted tooth	.....	70	9600	81.0	14.0	5.0	...	...
o Pyorrhea	5755000	110	8700	54.7	34.7	7.6	3.0	...
p Non-vital teeth, neg. x-ray	5628000	88	7800	73.0	21.0	3.0	...	...
q Pyorrhea, abscess	.....	85	6600	58.5	38.5	0	2.0	1.0
r Exposed pulp	5040000	105	8000	75.5	13.5	6.0	5.0	...
s Gingivitis	.....	94	6600	65.5	34.5	0	0.5	...
t Root abscess	.....	100	9200	73.0	25.0	2.0	...	...
u Root abscess	5370000	120	9600	56.0	32.0	9.0	3.0	...
v Pyorrhea, gingivitis	.....	.....	7200	63.0	33.0	3.0	1.0	...
w Unsanitary bridge	.....	106	6400	59.0	39.0	2.0	...	...
x Root abscess	4192000	100	3520	60.0	33.0	3.0	3.5	0.5
y Gingivitis, non-vital tooth	.....	100	8200	69.0	26.5	1.5	1.5	1.5
Averages	5153888	97	8096	65.8	29.2	2.8	1.9	0.2

The average leucocyte count was 8,097. In but two cases were there more than 10,000 cells per cubic millimeter; a young man (10,800, 59 per cent. polymorphonuclears) with a gouty ancestry and a coexisting chronic tonsillitis, but with one of the worst and most obstinate cases of dental sepsis in our experience; the other, an elderly male (12,600,

77 per cent. polymorphonuclears) with the arteritis obliterans mentioned above. The only other patient whose polymorphonuclear count exceeded 75 per cent. was a young woman (81 per cent.) with a gouty ancestry and a coexisting tonsillitis. The only total count below 6,000 was 3,500 (60 per cent. polymorphonuclears) in a woman with antrum infection.

These twenty-five patients were all adults and although their average age was above 40 years a relatively high percentage of lymphocytes was found in many of them.

General Conclusions.—1. Even with an imperfect antigen the results of a complement fixation test for streptococci in the oral sepsis complicating or causing many forms of chronic invalidism, supports in general the clinical evidence of the etiological, prophylactic, and therapeutic importance of this organism, and emphasizes the desirability of further attempts along this line to assist diagnosis.

2. In twenty-five cases of pronounced oral sepsis the only suggestive feature exhibited by a routine examination of the blood is a high normal lymphocyte percentage, which, however, is certainly no more striking than in any collection of patients who consult a physician for some minor ailment.

LITERATURE.

1. Billings, Frank: Focal Infection and General Diseases. *J. Am. Med. Assn.*, 1914, Vol. LXIII, p. 899, (references to all articles.)

—: Chronic Infectious Endocarditis. *Arch. Int. Med.*, Chicago, 1909, Vol. IV, p. 409.

2. Rosenow, E. C.: Experimental Infectious Endocarditis. *J. Infec. Dis.*, Chicago, 1912, Vol. XI, p. 210.

—: Mouth Infection and Disease. *J. Am. Med. Assn.*, Chicago, 1914, Vol. LXIII, p. 2026.

3. Miller, Willoughby D.: Die Mikroorganismen der Mundhöhle; die örtlichen und allgemeinen Erkrankungen, welche durch dieselben hervorgerufen werden, Leipzig, G. Thieme, 1889.

4. Hunter, William: Oral Sepsis as a Cause of Septic Gastritis, Toxic Neuritis and Other Septic Conditions. *Pract.*, London, 1900, n. s., Vol. XII, p. 611.

5. —: Severest Anemias, Their Infectious Nature, Diagnosis and Treatment. Macmillan and Co., 1909.

6. Potter, N. B., and Krumwiede, C.: Some Observations upon Opsonins in Pneumonia and in Four Streptococcus Infections. *J. Infec. Dis.*, Chicago, 1907, Vol. IV, p. 605.

7. Besredka: Le Serum Antistreptococcique et son mode d'action. *Ann. de l'Inst. Pasteur*, 1904, Vol. XVIII, p. 363.

8. Besredka et Dopter: Contribution a l'Etude du Role des Streptococcus au cours de la Scarlatine. *Ann. de l'Inst. Pasteur*, 1904, Vol. XVIII, p. 373.

9. Foix, C. et Mallein, E.: La Reaction de Bordet et Gengou vis-a-vis du streptococcus dans la Scarlatine. *La Presse Méd.*, 1907, Vol. XV, p. 777.

Uppenheim, A.: Ueber Komplement Bindung bei Scharlach. *Munch. med. Woch.*, 1909, Vol. LVI, p. 2471.

Sommerfeld, P.: Ueber Komplementablenkung bei Scharlach. *Arch. f. Kinderh.*, 1909, Vol. L, p. 38.

Livierate, Spire: Ueber die Aetologie des Scharlachs. *Centralb. f. Bact.*, 1909, Vol. L, p. 422.

Schleissner, Felix: Ueber die Rolle der Streptokokken bei der Scharlachinfektion. *Folia Serologica*, 1909, Vol. III, p. 221.

Koessler, K. K. and Jessie M.: Specific Antibodies in Scarlet Fever. *J. Infec. Dis.*, 1911, Vol. IX, p. 366.

10. Kolmer, J. A.: A Study of Streptococcal Antibodies in Scarlet Fever with Special Reference to Complement Fixation Reactions. *Arch. Int. Med.*, Chicago, 1912, Vol. IX, p. 220.

Castex, Mariano R.: Recherches cliniques sur la presence d'anticorps spécifiques dans les serums des malades atteints de streptococcies diverses. *La Presse Méd.*, 1909, Vol. XVII, p. 324.

11. Swift, Homer F. and Thro, W. C.: A Study of Streptococci with the Complement Fixation and Coagulation Reactions. *Arch. Int. Med.*, Chicago, 1911, Vol. VII, p. 24.
12. Hastings, T. W.: Complement Fixation Tests in Chronic Infective Deforming Arthritis and Arthritis Deformans. *J. Exp. Med.*, 1914, Vol. XX, p. 52.
13. Logan, W. H. G.: Blood Findings in One Hundred and Sixty-two Consecutive Cases of Chronic Oral Infection Associated with the Teeth. Dental Items of Interest, 1915, Dec. (abst. *J. Allied Dental Sec.*, 1916, Vol. XI, p. 156).
14. Hecker, F.: The Study of Two Hundred and Fifty Stained Blood Films in Pyorrhea Alveolaris. *Am. J. Med. Sc.*, 1915, Vol. CXLIX, p. 889.
15. Potter, N. B.: The Vicious Circle in Oral Sepsis. *N. Y. Med. Jour.*, February 10, 1917.
- Bunting, C. H.: *Am. J. Med. Sc.*, 1911, Vol. CXLII, p. 698.
- Miller, S. R.: *Bull. Johns Hopkins Hosp.*, 1914, Vol. XXV, p. 317.
- Warfield, L. M.: *J. Am. Med. Assn.*, 1915, Vol. LXIV, p. 1296.
- Mehoteus: *Arch. Int. Med.*, 1913, Vol. XII, p. 198.

RADIOACTIVITY IN THERAPEUTICS.*

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THE action of radium depends upon many different and sometimes unstable conditions; radium in itself is a new therapeutic force whose powers upon living human tissues are still more or less unknown, not only to the general practitioner, but also to the expert radium therapist. The effects obtained by using radium are not limited to that peculiar phenomenon called radioactivity; radioactivity means the power of spontaneously emitting radiation which is possessed by certain elementary bodies. We call these radioactive substances, many of which have been isolated. Among them are ionium, thorium, uranium and radium.

Besides emitting rays powerful enough to penetrate through iron a foot in thickness and through the human body, they also give off energy in enormous quantities. For instance, an ounce of radium gives off in its transformation enough energy to lift 5,000,000 tons 30 feet. If this power could be utilized, what a wonderful agent it would make.

According to the physicist, energy is set free by radioactive changes exactly as it is set free by steam changing to water or water to ice, molecular physical changes. In chemical changes there is an action between atoms of different elements, as for example in the combustion of coal and the vast series of possible changes which produce among many other things the various therapeutic coal-tar products. A physical change on the other hand is a rearrangement of the molecules. Radioactivity differs in action and effect from either of these properties. It is a disintegration of the atoms themselves, with the phenomena accompanying it. Proportionately there is an amount of energy evolved by this greater than is produced by any chemical change. The result is obtained, but its cause is not understood. It is one of the problems of the new chemistry. Substances with radioactivity charac-

teristics are named radioelements, of which thirty-four have so far been discovered. Radium and radium emanation are two separate and distinct elements, yet one evolves from the disintegration of the other. In chemistry and physics radioactivity produces many physical and chemical changes. For instance, under its influence water is decomposed into carbon, oxygen and hydrogen peroxide; carbon dioxide is decomposed into carbon, oxygen and carbon monoxide; oxygen is converted into ozone; iodine is liberated from solutions of iodiform; ammonia is changed to hydrogen and nitrogen, while hydrogen and nitrogen unite to form ammonia. Some of the physical alterations produced by the action of the rays are interesting. The most familiar is the phenomenon of phosphorescence, which in certain substances may be more or less permanent. This phenomenon is made use of in illuminating paints. The octohedral crystals of zinc chloride, for instance, in the presence of radium become phosphorescent and remain so. A very small quantity of radium is necessary. Some of my surgical friends are now experimenting in a mechanical way by means of the illuminating quality of various radioactive mixtures. The prominence of radium in chemistry is not due alone to the interesting properties just mentioned, but to the fact that radioactivity makes it possible to experiment with the individual atom. Practically the chemist is now able to handle and demonstrate the atom as an entity. By this means it has been discovered that one element can be changed into another and that chemical and physical alterations of substances are due as much to changes in the weight and valence in the different atoms and to nuclear changes as to molecular and atomic combinations. Naturally from all these actions in the chemical laboratory the biologist has learned something of interest. One most important fact is that the rays alter greatly the vital functions of the living cell both normal and pathological.

The action of radium is conditioned upon the different effects produced by the various rays. Roughly speaking, the gamma rays penetrate 100 times as deep as the beta rays, which in turn are 100 times more penetrating than the alpha. The beta are electrons; the gamma rays are fluid light of great velocity resembling the x-rays in some of their therapeutic attributes.

The amount of raying necessary to obtain successful results depends upon many circumstances such as the quantity of the rayage, the variety of the rays, the amount of the application, the type of radiation, the structure and vitality of the tissues to be affected, also the constitutional condition, mental as well as physical, of the subject himself. There are undoubtedly certain and definite regulations which if carried out will produce the expected results, as surely as two and two make four, but the rules which govern such actions are not yet clearly or satisfactorily defined. It may be assumed, however, that a patient who has been suffering for a considerable time from malignant disease, who has been operated upon several times, whose weight has fallen off, who has no appetite or digestion, whose vitality is reduced, whose resistance is almost nil, who is suffering from the toxemia of long continued absorption, and in addition has the

*Being in part a discussion of Dr. Howard Kelly's paper on "What We Can and Cannot Do with Radium," read at the Academy of Medicine, 17 West Forty-third Street, Monday, October 1, 1917.

mental depression due to this state, does not afford a favorable case for any therapy. This is true whether the remedy be radium or the knife. Unfortunately this describes the type of malignant disease most frequently referred for radium treatment. No wonder that failure is almost inevitable. Such a result is not the fault of this valuable remedy, but it is due to the patient's weakened resistance and toxic condition as well as to our lack of exact knowledge of the powers of radium and how to make use of them. It is not that radium cannot do the work but that we do not know how to make it act to the best advantage in the proper case. We don't know the rules of the game.

In order to make the best use of the therapeutics of this powerful agent, it is necessary that the chemist, the physicist, the biologist, and a pathologist familiar with the action of this element, with an exact knowledge of the results of radioactivity in its different types on various living tissues, work in conjunction with the specializing physician and surgeon. As a result of their combined knowledge and experience, the definite place of this remedy in the treatment of disease could be established. In spite of the defects in our therapeutic and surgical equipment in the crusade against illness and death, there are many brilliant cures and some of them follow proper radium work. If we will change our usually accepted definition of "cure" to one which I think more suitable, the ratio of recoveries will be materially increased. A patient may be considered cured when relieved of all signs, symptoms, and difficulties of the disease and when his health is restored to normal condition, no matter for how long or short a period. The cure remains until the death of the person or signs of a return of the disease appear. The patient after all is the one intrinsically to be considered. There is nothing in this definition in regard to a time limit, whether it be three or five or fifty years. Death from other causes without return of the cancer even one day before the three year or the five year or any other time limit, is a cure, for the disease not having returned he remains cured of it. For instance, supposing, for the argument's sake only, that a patient from whom a malignant growth has been removed will surely have a return within five years, but long before that period is over he dies from typhoid fever or of an accident, without the cancer reappearing; he is as certainly cured of the cancer as if he had lived many years without a recurrence. Relieving a patient of the certainty of death and restoring to him the uncertainty of life is a cure. This, however, is a digression.

Radium therapy impresses the profession in varying degrees, rising from absolute scepticism of its therapeutic capabilities to supreme faith in it as a great human benefactor. Its failures naturally attract more attention than its successes, in both surgery and medicine. An exact estimate of the value of any new remedy is not possible until time and experience have proven its uses. Too little or too much radium may account for failure in individual cases.

Not enough attention is given by the surgeon to the value of radium in prophylactic work in pre-operative and in post-operative conditions. Too much reliance is placed upon its curative powers

and not enough on its palliative capabilities in the late period of malignancy.

Radium emanation is successfully given internally in many diseases. Accurate dosage and technique, knowledge of the characteristic action of the rays, of the amount and density of the necessary fillers, of the structures and tissues to be treated, as well as careful consideration of the vulnerability of the patient, are absolutely essential if one expects satisfactory results.

To particularize as to the lesions most amenable to radium therapy, there can be no question of its efficacy in certain benign and malignant skin lesions.

In relieving the skin cancers about the face radium is practically a certainty. This is fortunate, as in most neoplasms of this part of the body, the necessary surgical procedure is mutilating and leaves ugly deformities. Rodent ulcers are invariably cured if not too extensive, and even the larger ones are favorably affected if properly and persistently treated by radium applications. Neoplasms of the mucous surface of the lips and cheek have a high degree of malignancy and are an exception to this rule. Prophylactic treatment of suspicious growths or abrasions of the lip during the cancer age is advisable. Leucoplasia of the tongue responds favorably to scientifically applied doses of radium.

Recurring nodules in the skin following removal of cancerous breasts should always be treated by radium. If the treatment is persisted in with proper dosage, it is usually successful. Often the nodules absorb only under quite severe radium burns. Inoperable lymphosarcoma of the neck and mediastinum fortunately disappears quite often under heavy radium applications. The results in some of these patients treated by radium are so astounding as to be almost incredible.

In inoperative uterine carcinoma of extensive recurrence, radium offers practically the only hope. Where radium can be applied to the uterine canal in fairly large quantities, for a suitable period, where the immunological forces of the human tissues can still be stimulated, where the patient's resistance is not exhausted, and the toxemia is not too great, we may expect many favorable results.

Radium is very useful many times in cervical and uterine hemorrhages following recurring malignant ulceration; where pressure, styptics, and packing fail, radium in large quantity may produce thromboses of the vessels and thus check the flow of blood.

Brilliant results are obtained in the treatment of fibroids of the uterus by the use of radium. The symptoms improve, the tumors decrease rapidly, the menstruation becomes regular, and the patient is again a normal woman even to the extent of pregnancy if still in the child-bearing age.

Circumferential cancer of the rectum when inoperable is ideally located for treatment with radium, and numbers of such patients have been restored to health.

Striking cures of sarcoma of various types in the long bones are frequent in my experience. Notably a case seen with Dr. Sayre of spindle-cell

origin in the head of the tibia in a young woman, 22 years of age, and also one in a boy 18 years of age with a spindle-celled sarcoma of the femur, subperiosteal in origin, treated with Dr. Coley, are among the numerous ones in my recent practice.

The preceding cases are a few taken from the record book of the Radium Sanatorium. These results give sufficient evidence of what may be expected from the proper use of this remedy in selected cases.

46 WEST FIFTY-FIFTH STREET.

THE DIAGNOSIS AND TREATMENT OF OBSCURE CASES OF TUBERCULOSIS.

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IN an article entitled "Nasal Insufflations in the Diagnosis, Prognosis, and Treatment of Tuberculosis," published in the MEDICAL RECORD of Oct. 20, 1917, I described the utility of this method in the diagnosis and prognosis as well as treatment of this disease.

The average practitioner, although he is by no means ignorant of the prevalence of tuberculosis, finds the technical and indefinite methods of present-day diagnosis so complicated that he becomes indifferent to persuading his patients to have such tests applied, more especially when initial symptoms are only slightly referred to the chest and physical signs are obscure or absent. Further, he feels that when the case is diagnosed it is likely, either on his own advice or at the patient's request, to leave his hands to go to a sanatorium, as the results of home or office treatment are apparently dependent on quantities over which he seems to have too little control.

Now by my method of insufflations it is possible to regulate the disease whether in an acute or chronic form, and it is possible with certainty to predict that the varied and various symptoms will from day to day abate. Best of all, it eliminates the eccentricities of the disease and converts it into a complaint of a uniform and intelligible character.

But in this paper I want to draw particular attention to the utility of insufflations in diagnosis and show how they may assist the many physicians who are unable to draw conclusions merely from physical signs or indefinite symptoms.

The four following cases are perhaps of interest in this respect:

CASE 1.—Mrs. M., age 58, had borne five children.

Previous history: Indigestion as a young woman and body thin. Always liable to catch cold after washing clothes. Seven or eight years ago had a bad influenza cold with fever, and considers that from that time cough and trouble with chest started. Every following winter had a bad asthmatical cough. Anything would bring on an attack, which necessitated her going to bed on an average six months out of twelve.

Present condition: First seen June 20. Complains of a great deal of pain at pit of stomach, that she has no appetite, and, further, that if she eats she suffers from indigestion. Unable to sleep, and wakes up in the middle of the night coughing. Pain and tightness at midsternum, and she is shortwinded. Unable to do household washing. Coughs up much purulent sputum.

Physical signs: Dullness and weak breath sounds over back of right lung.

Treatment consisted of insufflations of tuberculin

B.E., the dosage of which varied from mgm. 1/12 to ¼ three times weekly in alternate nostrils. The patient attended at my office.

Aug. 12: Patient able to do her household washing and has not caught cold from it as formerly. General appearance improved. Has not been laid up in bed, though this is the severest winter for 45 years. Has lost dreadful feeling at pit of stomach and can take much longer and deeper breaths than formerly. No need now for sleeping draughts, as she can sleep well now all night, and does not wake up coughing and out of breath, as formerly, and unable to go to sleep again. Her children consider that she looks much better. Her appetite is good. Is keeping on the treatment without persuasion, although when first seen she said she was tired of doctors, chemists, and medicines. Has not been told that she has chronic tuberculosis. There is less dullness and improved breath sounds on right side. Sept. 1: Occasional coughs in daytime and a little sputum, which is, however, clear and watery. Her improvement is maintained. She has had some lumbago and rheumatic pains in joints. Although the weather has been very severe, she has not had to go to bed this winter in the daytime, and still attends at office, but only once weekly now.

CASE 2.—Mrs. H., aged 58, married, no children.

Previous history: Dates the commencement of her trouble 12 months back, when she went to live in a dark and gloomy house. Since then she has suffered from nervous depression, poorness of appetite with much pain and flatulence at pit of stomach, and also shortness of breath which is constantly increasing.

Physical signs: Weak breath sounds and dullness all over back. No cough. No sputum.

After a preliminary trial of stomachics and conventional lung remedies, which produced no practical result, treatment by insufflations was commenced on July 31. Patient's attendance at my office was somewhat irregular, but on Aug. 24 my note says: "Patient's appetite and flatulence much improved. Increased capacity to work and take deep breaths. She is in every way pleased. Sept. 1: Improvement continued. Able to carry on household duties."

CASE 3.—O'M., age 50, female; single.

Previous history: Bilious attacks with headaches since age of 14. Seven years ago suffered from a severe cold. Half-brother, who lives in the same house, is tuberculous. Two years ago she had to give up her business of dressmaking as she suffered severely from stomach troubles, such as loss of appetite and distaste for even the appearance of food, pains in the stomach both before and after taking food, and violent vomiting every morning. Has suffered from a severe cold with phthisicky cough for last six weeks. Had always been treated by medical men for the stomach. Did not consider there was anything wrong with chest except a little pain and tightness on left side.

Present condition: First seen July 16. Had brought up about a third of a chamberful of blood. More blood came with her cough. She was uncertain whether blood was coughed up or vomited. No examination made of chest on this date, but when it was examined some days later the physical signs were indefinite.

Treatment: Patient was given chlorotone capsules, grs. v, for sleeplessness, and phenacetine and caffeine tablets for intense headaches. Hemorrhages gradually quieted down, and on July 31 insufflations of mgm. 1/12 of tuberculin B.E. were commenced and given three times weekly in alternate nostrils. The dosage was increased from 1/12 to ¼ gradually. Temperature, which during daytime ranged from 100° to 99°, sank to normal about Sept. 9. Patient is of a very excitable type, with numerous friends, who by interminable conversation raised the temperature on occasions to over 101°. In spite of this there was a constant and steady improvement of all symptoms. Aug. 10: Headaches much better. No night sweats. Appetite good. Aug. 13: Cough not so frequent. Sleeping well. Aug. 19: Feeling very well. Sept. 7: Weak breath sounds and dullness at right apex and left base. Practically no cough or sputum. The patient at present, so far as headaches, appetite and sleeping are concerned, is in better health than at any time during the last two years.

The course which I intend to adopt in her case is a six weeks' further treatment and convalescence at

home, allowing her to get up gradually. After this she will go to the country for three months.

The importance of nose breathing is constantly impressed on her, but no props have been used.

CASE 4.—Mrs. N., age 41, two children.

Previous history: Indefinite history of pneumonia and pleurisy as a child. Five years ago, after birth of youngest child, pain developed in back and shoulders. Difficulty in talking, which brought on pain in right lung. First noticed catarrh at back of nose about this time. Has been to many physicians, who have given many opinions. Patient brought to me by husband, who fears she has tuberculosis.

Present condition: General appearance and appetite good. No cough or sputum. Suffers from pain beneath right scapula, which passes through lung to the front of chest. On physical examination apparently some dullness on right side back and front. The possibility of a hydatid was considered and an x-ray photograph taken with negative results. The only other symptoms are frequent headaches and catarrh at the back of the nose.

Treatment commenced on July 26 and consisted of biweekly insufflations of tuberculin B.E. at my office. Aug. 24: Headaches are somewhat relieved. Pain in chest is no better. As pain is apparently of a neuralgic character, akin to a girdle pain, patient has been given a sodium salicylate mixture, and insufflations have been discontinued. Sept. 9: Pain apparently relieved by mixture.

Diagnosis: If there is any tuberculosis in this patient's system, it is of so slight a character as not to require treatment. Her general condition is excellent and her pain is probably neuralgic.

As showing the advantage of my method in diagnosis, it is worth noticing that three out of these four patients ascribed their most distressing symptoms to the stomach. The patient with the hemorrhage had been treated by different physicians for some years for gastric complaints and neurasthenia. It is even more interesting to note that, except for a complaint of shortness of breath, these patients did not consider that there was much wrong with their chests. Physical signs on examination were also not very convincing.

That loss of appetite is so common a symptom early in tuberculosis is of considerable help in diagnosis, for improvement in this direction may be expected at the end of the first fortnight of treatment by insufflations. Such benefit to digestive tone not only confirms diagnosis, but encourages the patient to continue a treatment which is obviously beneficial.

But there are also other symptoms improvement in which show that our diagnosis is correct. A surprisingly common one is sleeplessness, and this not merely as a result of cough. In many of my cases I commence by prescribing in addition to the use of insufflations one or two 5-grain capsules of chloratone at night if required. The patient is told to leave off taking them as soon as possible, and this they usually do in two to four weeks.

Headache again is a symptom the relief of which by insufflations confirms diagnosis. In my work on tuberculosis this question of headache has perhaps given more trouble than any other matter. With a theoretical assumption that all the ailments of the nose and chest could be beneficially influenced by establishing a proper circulation of air through the nose and proper nose-breathing, I was at first much surprised that this gave but little if any relief in the headache of tuberculosis. And since my technique was very faulty in my earlier cases, I was inclined to consider that the application of sun-dried sputum or dead tubercle bacilli to the

nasal mucous membrane actually produced headaches. It is more than possible that this is the case when using such bulky products as I then employed.

The very mass of the vehicle, such as sugar of milk, may clog the openings of the sinuses. But if minute quantities of powder are employed, and my present method is to divide one 1 mgm. tuberculin B E tablet into eight, ten or twelve powders, thus giving doses of 1-8, 1-10, 1-12 of a milligram, then there is no question but that they actually and distinctly relieve and ultimately dispel the headaches. One of my patients, who had been in the habit of taking five or six phenacatine and caffeine tablets daily, in three weeks' time dropped their use entirely.

Without desiring to theorize too much, it is conceivable that nature congests the nasal mucous membrane and sinuses with blood and lymph in order to draw from them all the available antibody. If this is quickly and easily produced, then the necessity for the congestion ceases, and no headache appears.

In my former papers (references below) much stress has been placed on the necessity for the use of props to ensure nasal respiration, and this I consider essential in so far as regards the establishment of a permanent immunity. Up to quite recently I have also always employed them in treatment, as otherwise I feared that congestion and inflammation of the nasal sinuses would occur, but their necessity is not absolute. In only one of the cases cited above were props employed during treatment, and in this case really on account of post-nasal catarrh. I shall, however, impress upon all these patients the necessity of using props to ensure immunity in the future, unless they are able to educate themselves to nose-breathing, a very considerable difficulty, if not impossible at their time of life.

Anemia is another symptom the relief of which helps to establish a diagnosis. Unfortunately I have no blood tests to confirm my opinion, but facial appearance is very distinctly benefited. The muddy, sallow look so commonly seen in the chronic semi-invalid tuberculous patient is replaced by a skin of healthier tone and color. In acute cases the hectic flush is reduced to a pallor, such a pallor as is seen in the convalescence from any severe fever, and this in its turn is replaced by a skin of normal appearance.

The fact that nasal insufflations not merely relieve but abolish night sweats is not of course of great value in diagnosis, for as a rule with such a condition the diagnosis is already made.

Some relief to tubercular malaise may, like the improvement in appetite, be noticed at the end of a fortnight. It is not, however, an unmixed blessing, especially in the over-energetic type of tuberculous individual, since it leads him to believe that he is much better than he is and by over-exertion to bring about a relapse. I am in the habit of telling my patients that they should never try to do more than one-quarter of what they think themselves capable.

The ability to take deeper breaths and better to fill the chest with air is also an aid to diagnosis. This may be expected any time between the second

and fourth week. It can be confirmed on physical examination by signs of drying in the chest and improved breath sounds.

It is clear that my method of diagnosis by nasal insufflations is continued as a method of treatment, and since symptoms are certainly and definitely relieved and the disease controlled, the question of permanent cure must be considered, if only from a theoretical standpoint.

Practicing almost entirely as a surgeon, I was inclined at first to take, both on theoretical grounds and as the result of experiments, an extremely rosy point of view in this matter. But a longer experience and discussion with clinicians expert in tuberculosis work, though it has not diminished my beliefs, has yet enabled me to appreciate their scepticism, the result of many years of observation. A tuberculosis physician of high repute in America expressed to me the opinion that the question of cure could hardly be solved without a series of 5,000 cases which had been under observation for a period of at least ten years. Such an undertaking is of course impossible for the individual and is not within the province of the research-worker.

The question of the cure of tuberculosis is an appreciation of the factors controlling it, and of these the most important is the subject of this paper, namely "early diagnosis." Analyzing the cases mentioned shows that all are past the prime of life, and the average period during which it is certain they have suffered from tuberculosis is not less than five years and almost certainly more, when the indefinite character of the initial malaise is taken into account.

All these patients, though past the recuperation period of life, and with systems soaked, if one may use the expression, with the causative factors and products of the disease, are yet able in a really short space of time to show most definite improvement, sufficient, in fact, for them to carry on their ordinary duties.

From a diagnostic point of view it is worth noting that, though they had consulted many physicians, tuberculosis had never been diagnosed.

Pathologically, of course, these patients are not cured. There is for certain an enormous amount of fibrosis, which is unalterable, especially at their age.

Clinically they may relapse because they are certain to be careless about nose-breathing, and though feeling well and even free from physical signs, they may yet have many unhealed foci of disease. But to show that it is reasonable to be optimistic, I will cite the case of my original patient, who was treated with sun-dried sputum. Four years ago he appeared to have but a short time to live. Regarding the case as hopeless, I asked him to make the experiment of sniffing his sun-dried sputum up into the nose. At the present time, though over sixty, he has obtained a good position and looks better than I ever saw him before. He takes, however, great pains to breathe through the nose.

Assuming that in the future physicians give credence to my theories, and take the same interest in the nose of the adult as they do in children with postnasal growths, then it is possible to hope that cases of anemia and malaise in young adults will

be diagnosed and treated by my method, even before there are any physical signs.

And it is not merely a question of stopping at treatment, but just as in children we operate for postnasal growths, so in young adults we shall either by operation, the use of props, or education in nasal breathing be able to maintain a permanent immunity.

The outlook to me, not merely from theoretical consideration but from practical observations, is so hopeful as to make me believe that the whole question of the prevention, the treatment and the cure of tuberculosis is solved. Early diagnosis is dependent on the general interest of our profession in these theories, and for the present, at all events, on an application of my method.

Although it is certain that with the progress of time better ways of treating tuberculosis will arise, yet I want to point out that insufflations fulfill the general requirements of an intelligent treatment. It is easily applied by any physician; it has a definite effect on the disease in all its stages and varieties; it can be used in all cases and produces definite results in all cases; its effects are such that all symptoms and not merely some are relieved, and it definitely brings down the disease to a quiescent stage within a reasonable period of time. There are no harmful complications, unless it is very improperly applied.

I must, however, utter a word of warning. This is not a remedy which, like diphtheria antitoxin, almost immediately dispels the disease, and on no account must the importance of rest, good food, avoidance of overcrowding, and depressing influences be forgotten. Above all things beneficial is rest in bed and sanatorium treatment, or at least a holiday after convalescence is really established. The pertinacity of patients should not permit them to get about too early or to override a physician's judgment, and all cases should be regarded in the same light as enterics. My own experience with treatment by insufflations is that the patients are calmer and more willing to follow advice than in ordinary circumstances.

A difficulty physicians may experience is to persuade their patients to have a series of insufflations to establish a diagnosis, and it is not always advisable to suggest that tuberculosis is suspected. Under such circumstances a little harmless subterfuge is allowable, and the patient can often be persuaded when told that the insufflations are for the relief of headache or nasal catarrh. If at the end of a fortnight the patient's condition is improved, there is not much difficulty in continuing the treatment.

A second attack in tuberculosis, though not necessarily an expression of unsuccessful previous cure, since the patient may be reinfected, is nevertheless positive evidence that he is not immune. In addition, therefore, to early diagnosis and treatment it is necessary to be able to establish immunity before discussing the word "cure." Hence the question how much value can be placed on the immunity produced by nasal respiration?

If in a patient already infected with tuberculosis it is possible by insufflating dead tubercle bacilli or, better still, Tuberculin B E definitely to improve the symptoms, there is obvious justification for stating that the nasal mucous membrane is capable of pro-

ducing antibodies. And it is almost certain that it is this constant production of antibodies through the bacilli of the air falling on the nasal mucous membrane, which enables some people to be immune from tuberculosis all their lives.

Nasal respiration is not, however, the simple process which many believe. I have dealt with this side of the subject fully in my Australian publications, but it may be as well to reiterate some of the conclusions arrived at.

It is all important that nasal inspiration take place along and through the upper area of the nose, that is in the region of the upper and middle turbinates. An individual with such a capacious nose that the air passes without hindrance almost straight through to the trachea and bronchi is almost as badly off as a person who with pinched nostrils is only able to breathe through the mouth. The passage of air in inspiration through the nose must be such that it is slowed down sufficiently for the contained microbes to be deposited on the nasal mucous membrane. Only in this way can a constant supply of antibody be furnished to the lymph and blood.

When the air contains an excess of microbes, the deposit may be in excess of the capacity to deal with it, and the condition known as a cold in the head is produced. During this time, which is probably dependent on many factors, the formation of antibodies must be in abeyance. Starting with a certain number of factors, an appreciation of which is best understood by reading former papers, it is possible to produce infinite variations. The more I study tuberculosis, the more do these variations coincide with the eccentricities of the disease.

From a practical point of view it is impossible by the use of insufflations for a period of six weeks to immunize a patient for a period, say, of a year. There may be a cumulative capacity, but in reality it is an essential that the supply of antibody be constant.

Clinical tuberculosis can, therefore, on theoretical grounds be produced, not only by invasion, but by a breakdown in resistance. Take, for example, a patient with tuberculosis in the system, who yet produces sufficient antibody daily to keep it clinically in abeyance. Such a patient has an attack of measles with its accompanying coryza and concomitant diminution in the production of antibody. The result is that the tuberculous focus breaks out, as it is no longer neutralized and held in check. Such an aspect of the subject has already been put forward in my paper "Autosecretion in the Treatment of Cancer."

Of course, by the use of insufflations of tuberculin B E it is possible at any time to temporarily raise the quantity of antibody produced, but most important of all is its normal constant production.

If a case of suspected tuberculosis presents itself, there are certain definite lines to be followed. 1. Its diagnosis. 2. Its treatment. Of cardinal importance in the latter is that the patient be restored to his normal condition, and this necessitates real rest after convalescence. To be content with less is to place the patient in a position of unstable equilibrium between his infection and his production of antibody.

His production of antibody under normal circum-

stances is almost certainly sufficient to immunize him from infection, but if he returns to arduous work or trying circumstances with unhealed foci of disease, then it is more than probable that his production of antibody will be insufficient for his requirements. The patient must be impressed with the importance of making a fresh start in life from a sound basis, and he may then truly expect a permanent immunity.

The methods of establishing a proper nasal respiration have been dealt with in former papers and need no further elaboration. By improving methods of early diagnosis, employing definite treatment, paying attention to the importance of a complete restoration to health, and by operation or props enabling a constant production of antibody, it is possible with a considerable degree of reason to discuss the reality of the cure of tuberculosis.

LITERATURE.

1. "The Prevention of Pneumonokoniosis and Pulmonary Tuberculosis." *Australian Medical Gazette*, Dec. 30, 1913.
2. "Adenoids." *Australian Medical Gazette*, Jan. 31, 1914.
3. "Pulmonary Tuberculosis and Other Disorders." *Australian Medical Gazette*, Feb. 21, 1914.
4. "The Nose as a Safeguard Against Disease." *Australian Medical Gazette*, April 18, 1914.
5. "The Prevention, the Treatment, and the Cure of Tuberculosis." *MEDICAL RECORD*, Feb. 6, 1915.
6. "Nasal Props and an Operation for the Incapable Nose." *American Medical Review of Reviews*, 1915.
7. "Epithelial Function in Relation to Disease." *MEDICAL RECORD*, Sept. 18, 1915.
8. "Autosecretion in the Treatment of Cancer." *MEDICAL RECORD*, April 22, 1916.
9. "The Treatment of Tuberculosis by Nasal Insufflations." *MEDICAL RECORD*, 1917.

SOME OBSERVATIONS ON GALL-BLADDER DISEASE AND ITS SURGICAL TREATMENT.*

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It is well within the memory of many physicians present when gall-bladder disease was considered a medical condition. Operations were rare. This was due to the rather misunderstood symptom-complex of gall-bladder disease and the natural averseness of the physician to have these cases operated upon. A diagnosis was not positive unless the patient had one or more attacks of gallstone colic followed by jaundice. Jaundice is still believed by many to be a necessary confirmatory sign, but a study of the symptoms of the patients in the large clinics dispels this idea. Jaundice, in fact, is rarely seen as compared to the number of cases operated upon. A constant muddy or brownish complexion without any other symptoms is indicative of gall-bladder disease. I have noted a few cases of this type finally terminating in cholelithiasis.

It was also considered essential that the pain be at all times characteristic; namely, in the right upper quadrant, colicky in character, and radiating to the right shoulder. As a matter of fact, the pain is variable. More or less uncomfortable sensations

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located in the epigastrium and referred to the back and the adjacent regions, a sense of nausea after eating, and eructations of gas may be referred to gall-bladder disease. Special note should be taken of these symptoms in a patient past forty, fair, and fat. A continuous burning pain in the epigastric region may be significant of gall-bladder disease. The patient may never have had any acute colicky pains and still harbor gallstones.

Thanks to the surgeon and the more refined acuity of diagnosis on the part of the physician, various stomach complaints are now referable to the gall-bladder. The surgeon has led the way for the clinician to perfect his ultimate disposition of the case. The living pathology as revealed by the surgeon at operation has been the means of making better diagnoses. Still mistakes are made.

The differentiation from duodenal ulcer and a high appendix is important, though one sometimes is absolutely unable to separate the two. In duodenal ulcer the diagnosis is usually easy on account of the hunger pains and their occurrence two hours after a meal. The pain, which is usually relieved by the taking of food, may awaken the patient in the early morning hours. A high appendix will defy the diagnostic ability of the best clinicians and surgeons. We have all erred in the differentiation of the acute and chronic affections of these organs. I can recall many cases where the abdomen was opened for gall-bladder trouble and a post-cecal appendix was found with the tip in the right upper quadrant. In either case no great error has been committed from the operative standpoint, as the incision must be high in both instances. Gall-bladder disease may be confounded with certain other affections of the abdomen. This possibility of error is well illustrated in a case recently operated upon. A young man, aged seventeen, complained of severe pain in the right upper abdomen directly under the costal border. There was rigidity in this area and the patient had a little rise in temperature. These symptoms subsided but returned again in two weeks. X-ray examination confirmed the diagnosis of gallstones. Operation revealed many enlarged glands in the mesentery and omentum varying in size from a pea to a walnut.

Gallstone colic will often simulate labor pains in the later months of pregnancy. In the early months the two kinds of pain can be separated, but in the later months, when the uterus is above the umbilicus, I have seen errors in diagnosis. It has been the peculiar experience of many physicians that gallstones have their inception during pregnancy. I believe this to be the result either of a toxemia, an infection, stasis, or a high cholesterol content. It is evident why four out of five women should have gallstones when we consider the factors just mentioned.

It has been conceded for some time that the cause of gallstones is an infection. The infective agents may be numerous on account of the many avenues of infection to which the gall-bladder may be open. One source that has received considerable attention is the appendix. An ardent advocate of this mode of infection is Dr. Deaver. The distribution of the lymphatics and often the close relationship of these viscera make inflammation by continuity and contiguity not impossible. One never finds a diseased

gall-bladder without a diseased appendix. There is only one flaw in the deduction that appendicitis is always the cause of gallstones; namely, the appendix may have been removed years before the gall-bladder symptoms. The other avenues of infection may be along the common duct and through the blood. That infection occurs through the blood is unquestioned on account of the relation of gall-bladder disease to typhoid fever, but I doubt that many cases of gallstones result from infection up through the common duct on account of the sterile condition of the contents of the duodenum.

As diagnostic aids the chemical, pathological, and x-ray laboratories have been invoked. The cholesterol test has been studied in the chemical laboratory and has been found of considerable use in the differential diagnosis. I have had no experience with this test, but I will give you the results of Prof. Hawk and Dr. Lindenbauer with the Autenreith-Funk test on the serum of the patient. In 100 cases of suspected gall-bladder disease operated upon there was a high cholesterol index in 98 cases, all of which revealed gallstones. Certain diseases, including severe diabetes, pregnancy, arteriosclerosis, syphilis, nephritis, and sapremia may cause a high cholesterol index.

The x-ray is an important adjunct but must not be relied upon to make a diagnosis. I would much rather prefer the statement of the general practitioner that he has seen the patient in an attack. I do not want to belittle the value of the x-ray, but I do not consider it an essential adjunct in making a diagnosis of gallstones. The greater the number of instruments of precision, the greater it seems to me is our diagnostic sense obtunded. But the layman is so well educated as to the possibilities of the x-ray that it seems an act of omission on the part of the physician if a picture is not suggested. Therefore in gall-bladder disease I do not consider it essential to take an x-ray but it is simply done to satisfy and allay the mind of the patient. A positive x-ray diagnosis is of some help, but a negative diagnosis must not be considered in deciding for or against operation in a case of gallstones. Only a few weeks ago we operated in this hospital on a woman with all the symptoms of gallstone disease, the diagnosis being confirmed by the x-ray. The operation sustained the diagnosis.

The pathological laboratory has taught us that bile in the great majority of cases is sterile. This is providential when one considers the leakage that at times takes place during operation on the gall-bladder and the ducts. It is a comparatively rare occurrence for peritonitis to follow leakage of bile.

The medical treatment of gall-bladder disease, especially gallstones, has been a failure. The various resorts to which these patients are sent may allay the symptoms for a while, due to a change in their dietary and mode of living, but eventual cure is unattainable. The traditional treatment of giving a pint of olive oil is still popular with the laity and profession. It is problematical if this does any good. It is solace for the mind of the physician that he is doing something for his patient. The various chologogues of the older physicians have been found wanting and the newer and later preparations heralded as a cure for gall-bladder trouble have also been found utterly inefficient.

The prolonged medical treatment of gall-bladder disease leads to changes in the pancreas, infection, carcinoma of the gall-bladder and pancreas, and secondary inflammation of the pancreatic lymph nodes causing that form of lymphangitis so well described by Deaver. Some cases of the tragic type of pancreatitis could be prevented by means of a timely operation on the gall-bladder. Diabetes may even be secondary to neglected cases of gall-bladder disease on account of the secondary changes in the pancreas. I recently operated on a woman seventy years old with gallstone disease who had 8 per cent. of sugar. It was thought by all those in attendance that there was some relationship between the gall-bladder disease and her diabetes. After operation the sugar disappeared but acetone made its appearance, and the patient died six days after operation. We were compelled to operate in this case on account of the excruciating pain which required at times a grain of morphine to relieve. The pain was due to a stone trying to force its way into the duodenum from a pathological anastomosis with the gall-bladder. The cystic duct in this instance was occluded and the gall-bladder was atrophic.

It is proven now that cancer follows the many slight traumatisms inflicted by gallstones. For this reason alone if for no other an early cholecystectomy is paramount. During the past year I have been compelled on three occasions to close the abdomen without giving the patient any relief, due to the presence of carcinoma of the gall-bladder, pancreas, or liver. Schroeder, quoted by Mayo, says that 15 per cent. of the patients with gallstone disease develop cancer.

The logical solution of the cure of gall-bladder disease is the surgical extirpation or drainage of the gall-bladder. Not so very long ago most gall-bladders were drained before the exact pathology and nature of gall-bladder disease was understood. The stand must be taken that a gall-bladder once diseased is always diseased. In this respect it is in the same category with the appendix.

Drainage of the gall-bladder is now limited to some forms of pancreatitis in individuals with continued fever without assignable cause, and in patients with upper abdominal symptoms especially referable to the gall-bladder, in the absence of gallstones.

There still seems to be some discussion in the current literature as to the propriety of performing a cholecystectomy in preference to a cholecystostomy. There is no doubt, however, in the minds of the surgeons who have watched the immediate and ultimate progress of patients where gall-bladders have been removed that the results were far superior to those in which the gall-bladders were simply drained. In cholecystectomy one avoids that long-continued drainage which is obnoxious to the patient and which requires no end of attention on the part of the nurses. Convalescence is quicker and the patients are undoubtedly more comfortable. Cholecystostomy has its field, but it is becoming more and more limited. Even in cases where there is evident change in the pancreas and a pancreatic lymphangitis is present the gall-bladder ought to be removed and the cystic duct drained. To drain the cystic duct is not as easy as draining the gall-

bladder, but to the experienced surgeon this is no obstacle. In 1914, according to Mayo, 83 per cent. of gall-bladder operations were cholecystectomies. At the present time it is about 98 per cent.

It is almost the invariable rule now of most surgeons to remove the gall-bladder in the presence of gallstones or disease of the mucosa of the gall-bladder. The strawberry gall-bladder is especially troublesome and ought to be removed.

In doing a cholecystectomy a somewhat oblique incision is made, beginning in the epigastric region, the anterior sheath of the rectus muscle is incised in a straight line, the muscle is separated in the same plane, the posterior sheath is incised, which leads one to the peritoneal cavity. Two large abdominal pads are placed over the stomach, transverse colon, and neighboring intestines. Two large Deaver retractors then make tension on the gastro-hepatic and gastrocolic omenta, exposing by this means the gall-bladder and its ducts. At this point there is at present a technical controversy as to whether the gall-bladder should be removed from above downward or below upward. I prefer to do the operation from below upward, beginning at the cystic duct, because the blood supply is at once attacked. A cystic duct forceps is now clamped on this structure, which is severed, and then the common duct is probed; if found patulous nothing more is done to it. If the cystic duct is not wanted for drainage it is ligated and another hemostat catches the cystic artery; the gall-bladder is now peeled off the liver, the cystic artery is tied, the bed of the gall-bladder is sutured and a drainage tube is placed at the site of the severed cystic duct to drain any accidental escape of blood or bile. The wound is then closed.

It does not consume any more time to do a cholecystectomy than it does to do a cholecystostomy, and the mortality is not so high in the former as compared to the latter operation. The great danger of doing a cholecystectomy is injury to the common bile duct. This ought to be a rare complication of the operation if one isolates the ducts well. Nevertheless this accident happens to the best surgeons. Sixteen months ago I did a choledochoduodenostomy because one of our best local surgeons destroyed the common duct. This case is the subject of another paper and will not be discussed at this time.

Adhesions following a cholecystectomy are more numerous than after a cholecystostomy. If at some later time the bile ducts must again be explored great difficulty is encountered on account of adhesions. On the other hand, the removal of the gall-bladder takes away an important landmark. This was formerly a pertinent argument against a cholecystectomy, but with our increased familiarity with the pathology following the removal of the gall-bladder the difficulty of finding the common duct has been minimized. Recently it was shown experimentally on animals that where bile was spilled in the abdominal cavity during operation adhesions were more numerous than when the operation was performed in a clean field.

The question of recurrence is an important topic in the present discussion as it is the one phase that interests the clinician and surgeon alike. The surgeon is held to strict accountability for this occurrence. It can be said without quibbling that after a

cholecystectomy recurrence of symptoms is far less frequent than after a cholecystostomy. Symptoms return after cholecystectomy in less than 2 per cent. of cases while cholecystostomy shows about 15 per cent. of recurrences.

A study of the anatomical arrangement of the ducts is important in cases of recurrence of symptoms. In the many twists and turns a duct takes at times a stone may lodge in its recesses and escape even the careful search of the operator. On account of these peculiarities the common and hepatic ducts ought to be probed carefully at every operation.

In conclusion, I think it has been shown that gall-bladder disease belongs essentially to the field of the surgeon.

That gall-bladder disease is due to an infection through the blood lymphatics and by way of the common duct.

That the various laboratories have been of great assistance to the physician.

That the operation of cholecystostomy is confined to a very limited number of cases.

That the operation of cholecystectomy is far superior in every respect to cholecystostomy.

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INTERNAL SECRETIONS AND PEDIATRICS.

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STUDY of any work on endocrinology shows us that animal experiments and experiments with artificial gland extracts make up a very large part of the subject matter. There is relatively little on physiology and pathology, save theories, and this is especially true of the young child. Even when disease processes begin in childhood the patients usually present themselves at a considerably later period and most cases of clinical "infantilism" are necessarily reported during adolescence and maturity. Arrested development does not stand out conspicuously in the first period of childhood and the sexual gland activities are not in evidence until the beginning of adolescence.

The relationship between disorders of internal secretion and diseases and anomalies of childhood may be studied in a twofold manner. First we take the most conspicuous affections of this period and endeavor to connect them with defective or irregular action of the glands. Second, we take the leading glands and consider what kinds of disease might be determined by absence or disease of these bodies.

By the first method we take such great developmental affections as rickets and idiocy and, with certain exceptions, we do not find that the internal secretions are definitely implicated either directly or indirectly.

By the second method we find that absence or disease of certain structures causes definite diseases but these are either rare or occur, like endemic cretinism, only in certain localities.

It is evident that "freaks of nature," "curiosities of medicine," etc., as they affect young children are palpably due to a considerable extent to disorders of internal secretion. Here belong certain forms of dwarfism, gigantism, precocious puberty, etc. But it is also evident that in many common ailments

there is an endocrinic element even if this cannot be proved. The most striking assertion of endocrinologists is that many sudden deaths in childhood, irrespective of the particular disease, are really due to exhaustion of the adrenal glands, perhaps in association with the status thymicolymphaticus.

Apparently not a few cases of internal gland disease are secondary to local inflammations, etc., in which the gland is compressed or incited to overaction. This is often the case with affections of the hypophysis where any affection of the base of the brain could implicate the latter.

In the adult there is a recognized technique for examining the endocrinous system which is only partially applicable in the young child whose pilous, dental, and sexual apparatus is still undifferentiated. In regard to the congenital absence or removal of glands of internal secretion, only the thyroid and the gonads are available for study in man on a large scale, the latter because of the custom of castration in childhood.

Endemic cretinism is by no means directly due to loss of thyroid tissue but is a very complicated condition. Serious lesions of the endocrinous system affect the gonads secondarily. Metastases from mumps, etc., to the gonads practically do not occur in childhood. Very early castration of boys causes a form of infantilism from non-development of secondary sexual characteristics, but without true effeminacy. Early castration of girls has an analogous result, but in a certain number of cases masculine traits develop. In eunuchoidism so called the endocrine system may not be demonstrably involved, while in pseudohermaphroditism it is probably not involved at all. In very rare cases metastasis of mumps to the pancreas has caused destructive changes in the latter with diabetes.

In absence, removal, destruction, or disease of thyroid tissue we see the development of congenital and acquired forms of myxedema, which are so well known to pediatricists that a description is hardly necessary. It will suffice to state that in athyreosis and hypothyroidism we see arrested development of bones and external soft parts and impairment of the psychic and most of the somatic functions. The general result is one form of infantilism with muscular quiescence and mental apathy. Metabolism and thermogenesis are much inhibited, the latter in part because of the inactivity of the sweat glands.

Destruction of the pituitary body is usually followed by acromegaly but this sequence is not inevitable, for either affection can occur without the other. Conditions here, however, are far more complex than in the thyroid, because the hypophysis is apparently composed of three different organs, each with its own independent role. Hence the varying and bizarre results which follow overgrowth, hypoplasia, or stimulation of its tissues, from local factors; to say nothing of its inter-relations with other endocrine glands, and the possibility of involvement in a general infectious process.

Enlargement of the pituitary body during the growing period causes gigantism, enlargement after the cessation of growth causes acromegaly. Hypopituitarism occurring early in life causes infantilism and dwarfism with arrest of sexual develop-

ment, with or without obesity, increased tolerance for sugar, etc. So called dystrophia adiposogenitalis is not regarded as an affection of childhood.

We have little exact knowledge of the thymus in man. After castration in both sexes it persists and may exercise some function. Its complete removal in animals arrests the development of the bones. We know even less of the parathyroids in man. Their removal in animals quickly causes death from convulsions (tetany).

We may consider endocrinology from the special viewpoints of the neurologist, the pediatrician, the specialist in internal secretions, and the therapist.

The neurologist seems to regard the subject as **belonging especially to his province**. The reasons are not far to seek, for two of the important structures are seated within the skull (hypophysis and pineal gland), while tetany and other motor disorders appear to stand in some relation to the parathyroids. Perhaps the most weighty reason, however, is the fact that thyroid insufficiency and to a certain extent underfunction of other glands are so closely associated with arrest of mental development. Hyperthyroidism in its more pronounced forms is also regarded as a neurosis. In the recent work of Jelliffe and White on diseases of the nervous system, the endocrinopathies are discussed exhaustively in the early chapters as part of the necessary foundation of neurology; but aside from cretinism and myxedema it does not appear that child pathology plays a very extensive role.

Neurological journals contain a considerable literature on endocrinology, very largely in connection with the mental characteristics of dwarfism, infantilism, and eunuchoidism. Weygandt¹ shows, however, that endocrine disorders form only one factor among the causes which combine to arrest the development of body and mind. On the other hand, with pronounced lesions or anomalies of these bodies, the mind may be normal, *i. e.*, it may not share in the somatic disturbances.

It is evident that many kinds of anomaly of growth and development, while showing pronounced individuality, are yet closely related. These may stand in relationship with glandular structural or functional anomalies, or the endocrine bodies may not be involved at all. Aside from infantilism of several distinct types, dwarfism, and eunuchoidism, there are child senilism, mongoloidism, the hypoplastic constitution or status thymicolymphaticus, dystrophia adiposogenitalis, and so called pluriglandular insufficiency. Starling² describes numerous cases of eunuchoidism, several of which were seen during childhood.

In Aschaffenberg's "Handbuch d. Psychiatrie," the volume on imbecility and idiocy (1915) is devoted very largely to affections due to anomalies of internal secretion. Wagner von Jauregg writes at great length on myxedema and cretinism, while Weygandt discourses extensively on what he terms glandular infantilism. The latter includes the status thymicolymphaticus and thymic idiocy, dysthyroidism (myxedema, hypothyroidism, Graves' disease), dysgenitalism (gigantism and obese states), dyspituitarism (acromegaly, dystrophia adiposogenitalis), dwarfism of hypophysis origin, and disturbances of the pineal gland.

A special section is devoted to pluriglandular affections. In some conditions we see defect in certain organs with compensatory overaction of others. In real pluriglandular insufficiency, however, there are defects of a number of the endocrinous glands, so that we may see side by side hypothyroidism, hypopituitarism, and some of the phenomena of Addison's disease along with secondary hypoplasia of the genitals. In these pluriglandular cases arrest of mental development or a form of infantilism may coexist. If idiots and backward children in institutions are closely studied we may find evidences of pluriglandular insufficiency in a certain number and it is in such cases that some hope of relief may be held out.

Not only may thyroid medication alone be of use but there are remarkable cases on record in which pluriglandular therapy has produced astonishing success. Cases of this type were reported by Dupuy in 1912. The type of case to benefit most was that of slightly backward children of dwarfish stature and disproportion, hypoplasia of the sexual organs, troubles of dentition and ossification, general hypotonia, and defective circulation. The therapy comprised thyroid, hypophysis, and suprarenal extracts with testicular or corpus luteum extract in certain cases. Excellent results were obtained in 22 cases. The only drawback from the pediatricist's viewpoint is that these subjects had largely passed into the period of adolescence. One girl of 14 showed very remarkable improvement in growth, height, mental state, and general health.

If we glance through any modern work on pediatrics—for example, the latest edition of Holt (1916)—we shall find full descriptions of sporadic cretinism due to congenital absence of the thyroid and of the acquired form of infantile myxedema, also termed hypothyroidism. These conditions are well recognized and well known to the pediatricist, and need not be detailed here. We shall also find good accounts of enlarged and persistent thymus and status thymicolymphaticus, and mention of the fact that this condition stands in close relationship with fatal convulsions and sudden death under all sorts of conditions. We are, however, unable to explain this relationship, nor is there any way in which we can proceed against this condition save by surgical removal or perhaps the *x*-rays. The frequent association of enlarged thymus with rickets and the fact that a condition resembling rickets follows thymectomy in dogs do not necessarily prove anything. Pediatricists admit that while the parathyroids probably have something to do with the production of tetany and perhaps other spasmodic affections, the role is not a major one, and, further, parathyroid substance seems to have little or no influence over tetany.

Graves' disease is admittedly very rare in childhood, but according to Holt some degree of hyperthyroidism is very common, especially in girls from 8 to 15. There is no exophthalmos and the pulse may be but slightly accelerated, with a tendency to palpitation. The children are active, restless, irritable, and emotional, with moist hands. The thyroid body may show very slight enlargement. As a rule the condition is outgrown.

There are numerous complicated conditions associated with arrested growth and sexual development

and at times with accelerated growth and precocious puberty in which several of the endocrine glands are doubtless involved. Here belong cases of so-called infantilism in which as a rule implication of the glands cannot be demonstrated. In certain cases there are growths implicating the hypophysis, pineal, or adrenal glands. But tumors of these organs do not necessarily give rise to these disease pictures. It is probable that in endemic cretinism several glands are involved.

It is well known that a number of clinicians have advocated that diseases of the glands of internal secretion be made a separate branch of clinical medicine. Dr. Sajous, the dean of these men, would term this specialty hemadenology. Quite recently a society has been formed to push the development of this line of activity and during the present year a new quarterly periodical named *Endocrinology* has seen the light. In the July-September number of this journal we find editorial matter devoted to the subject "Present-Day Endocrinology from the Standpoint of the Pediatrician." The editor states that no specialist can be more interested in endocrinology than the pediatricist and cites four points of interest, as follows: cretinism and myxedema are associated with the thyroid; spasmophilia with the parathyroids, inspiratory stridor and sudden death with the thymus, and collapse in diphtheria, etc., with the adrenals.

On the other hand the results of study of the immense literature are disappointing. Autopsies frequently show that supposedly diseased endocrine glands were normal. Some would make internal secretions responsible for almost the whole of pathology but if the entire literature for a year were boiled down and distilled there would be little of value to add to the sum of our knowledge. Great emphasis is laid in the negative results reached by Hammer after a most exhaustive study of the thymus. By counting all the Hassall's corpuscles in a gland he proved that size bears very little relation to the actual amount of parenchyma. Variations of the latter could not be associated with general anomalies, but an enlarged thymus may cause much local mischief as a mechanical nuisance. While the editor is naturally optimistic about the future practical value of his subject he calls for more facts and less theorizing.

Let us now take up the subject of endocrine therapeutics, the rational use first, followed by the more or less empirical employment.

It does not appear that we have more than one form of rational and dependable organotherapy in this branch of clinical medicine; to wit, the use of thyroid preparations in congenital and acquired myxedema. Bramwell apparently cured a case of so-called pancreatic infantilism, a very rare affection, with pancreas preparations. But in a single case we cannot be sure that the improvement was not spontaneous. We may feel assured that so-called hypothyroidism is a *bona fide* condition, due practically to deficiency of thyroid tissue and always to be benefited greatly by thyroid treatment. The result is not only fairly constant but is usually promptly seen. If the use of the drug is intermitted we see a relapse. In no other single gland of the body do we see analogous behavior—in neither the thymus, parathyroid, hypophysis, suprarenal, nor pineal. In cases in which there is a probable general disorder

of the chromaffin system thyroid medication is rationally indicated, with or without other preparations, because of the part played by this gland in regulating the action of the others.

Empirical therapeutics must be kept distinct from the rational use of these preparations; for if a given condition improves under thyroid medication this does not mean that it was due originally to thyroid insufficiency. In certain cases the character of the improvement suggests that the morbid state could have been due, in part at least, to insufficient action of a given organ, but in other instances no theory can explain the results. No one really knows why thyroid medication can cure bed-wetting in children. Hypophysis extract has apparently prevailed over such conditions as rheumatoid arthritis and rickets in childhood. Suprarenal extract is said to be of value in cyclical vomiting of childhood and also in certain cases of backwardness of growth and development associated with weak muscles and sluggish minds. Croftan claimed that he obtained good results from pancreas extract in diabetes of childhood.

A good account of endocrine medication in childhood is given by Waller³ as follows: "Thyroid remedies have an inconstant action and while small doses often help nocturnal enuresis large ones may aggravate it. But it will not do to say that nocturnal enuresis is due to thyroid insufficiency. The thyroid substance probably acts on the pituitary or adrenals. Thyroid extract is often of great value in urticaria in children, especially when chronic. At the same time it can cause urticaria. The extract probably activates some gland which controls calcium metabolism. Even in cretinism the action of the thyroid in provoking growth should be related to its power over calcium metabolism, especially in the long bones. Thyroid treatment will render acid saliva alkaline and perhaps indirectly ward off dental caries, while excessive doses have the opposite effects. Thyroid substance in excess can cause tetany; while in small doses, perhaps by its action in promoting calcium metabolism, it acts as a nerve sedative in tetany and epilepsy. Thymus extract in theory ought to be of value in phosphorus metabolism and also calcium metabolism, because most of the calcium in the body is present as phosphate. In prescribing for children it is well to use several extracts at once. Thyroid and suprarenal extracts often give better results than thyroid alone. The author believes that excitable, nervous, energetic children owe this disposition to slight overproduction of thyroid. The latter is apt to render subjects wakeful. Thyroid extract is of great value in convalescence from the diseases of children, especially when they do not eat well. It is often of benefit in both diarrhea and constipation."

Dr. M. B. Gordon⁴ also gives a good account of organotherapy in childhood. The thyroid gland is, of course, a specific for myxedema and sporadic cretinism, as regards both the physical and mental symptoms. The degree of thyroid inadequacy may range from such pronounced conditions to single and mild phenomena of hypothyroidism. Under the latter head the author includes tiring easily, slight puffiness of the eyelids and face, and pigmentations of the skin; all of which may respond to thyroid medication. A cold skin and sluggish circulation may also be classed here; and there is evidently a thyroid factor in cases

of eczema, psoriasis, and scleroderma. In children with hereditary syphilis, a condition noted for its action in arresting growth and development, he has found thyroid substance of value. Even in rickets and convulsions the same treatment is occasionally followed by remarkable benefit. Chorea and asthma are sometimes favorably influenced. But caution must always be employed while giving thyroid preparations, for there is sometimes an idiosyncrasy against them and they are expressly contraindicated in circulatory diseases and diabetes. Like Waller, the author finds the tendency to produce the very affections which it relieves. Parathyroid extract, while hardly a specific, seems to be of occasional value in motor disturbances (tetany, chorea, convulsions). This remedy should be given only in hypodermic solution. Suprarenal extract is recommended in the acute infectious diseases of childhood with low blood pressure, especially diphtheria and pneumonia. However this is used only in the form of adrenalin injections and hardly belongs under organotherapy. Hypophysis extract has thus far hardly won a place in pediatrics.

The writer will conclude the article with a brief summary of his personal experience:

The internal secretions play an important part in the animal body but their real value in pediatrics offers a large field for investigation. No one will doubt the usefulness of thyroid in cases of athyreosis and hypothyreosis, but in the latter where the functional defect is very mild, the disease is quite often overlooked and treatment is begun quite late—naturally the result is not very encouraging.

Indiscriminate use of thyroid will certainly bring discredit on the drug. In a case of infantilism of the Lorain type which was under my care for several years⁵, I administered thyroid for about 15 months without any improvement. Quite often the drug had to be discontinued on account of gastrointestinal disturbances which it causes. Although the Lorain type of infantilism is not supposed to be affected by thyroid, still, Brissaud of Paris had found the thyroid rudimentary in one autopsy. I presume that in a case of this type where thyroid by mouth causes gastrointestinal disturbance, it is highly possible that transplantation of the gland might have been followed by better results.

The disappointment in the use of the drug is at times due to an improper dose. It is best to begin with small doses for an infant—one-fourth to one-half grain, twice daily, and proportionately larger doses for older children—to be increased every two or three days until five or even eight grains are given t.i.d. The amount ought to be increased to the point of toleration, and then reduced again. The drug must be administered for years, otherwise the patient may deteriorate.

As to the maximum dose of thyroid an interesting case is related by Dr. A. Jacobi.⁶ In a cretin six years old under hospital treatment, he was obliged to increase the dose of thyroid to 36 grains per day, which was taken for several days without signs of thyroidism. When the maximum dose was reached the general improvement was rapid.

I have seen good results in thyroid treatment in small doses in cases of malnutrition, which was perhaps due to hypothyroidism. In severe cases of the exudative diathesis of Czerny, accompanied by a

severe eczema, particularly in very stout children, which did not respond to diet and ordinary medication, the improvement was rapid within a few days of administration of the drug.

Epinephrin I have found very efficacious in nephritis following acute infectious disease, particularly scarlatina nephritis.

Pluriglandular insufficiency deserves special consideration. Pineles's suggestion that there is a relationship between the various ductless glands and that at times more than one organ is altered in function and perhaps in structure, has been proven to be correct. The empirical treatment with polyglandular extract has certainly done much good in many a case of this sort.

In severe cases of rickets, where no improvement was shown by change of diet and prolonged use of usual remedies, marvelous improvement and even cure has followed the administration of small doses of thyroid extract in combination with pituitary extract. It is strange that treating these cases with thyroid alone or pituitary alone, did not show much improvement. I will cite two cases of the many that have come under my care.

Alice D., 12 years old, after a severe attack of mumps, became peculiarly nervous. She became cranky, somewhat stupid, did not get along well at school, complained of a tired feeling, stopped growing, and became very stout. I saw her a year later when she was 13 years old, and found that her hair had become somewhat coarse, and her skin, which was very supple before the sickness, somewhat hard. The menses were absent. Her weight was 125 lbs., height 58 inches. Urine acid, blood normal. She complained of general debility and pain in the ovarian regions. I thought that the attack of mumps might have affected her thyroid gland so I gave her thyroid substance for about 4 months.

Although she lost about 10 lbs., her general condition did not improve, nor did she grow. I lost sight of her for about six weeks. On her return from the country, after a careful examination, I found that the case presented symptoms of polyglandular insufficiency; the dry skin, coarse hair, and adiposity were due to hypothyroidism; the pain in the ovarian region was from ovarian insufficiency; the stoppage of growth was perhaps due to hypothyroidism, the stupidity to the pineal insufficiency and the asthenia to adrenal trouble. I then combined all these drugs, and after administering them for two months there was a marked improvement.

After 10 months of polyglandular treatment she gained 2½ inches in height, her menses began to grow, she began to menstruate regularly, her hair became soft, her skin supple and she was much stronger and brighter.

A case of acromegaly with some myxedema and albuminuria was described by me some time ago. The patient has been under my care for about 23 years. I continue treating her intermittently with thyroid, pituitary extract and at times epinephrin and it seems that her ailment is not progressing. She always feels much better when she takes the drugs, and claims that these capsules relieve her headache immediately.

REFERENCES.

1. Weygandt: *Monatssch. f. Psychiatric*, Vol. XXXV.
2. Starling: *Zeitschrift f. d. ges. Neurol*, etc., 1912, XVI, 235.
3. Waller: *The Practitioner*, 1915, XCLV, 281.
4. Gordon, M. B.: *American Medicine*, April, 1914.
5. Hymanson, A.: *Arch. of Ped.*, 1908, p. 932.
6. Jacobi, A.: *Therapeutics of Infants and Children*.
7. Hymanson: *MEDICAL RECORD*, July 1, 1899.

50 EAST NINETY-SIXTH STREET.

Military Medicine.

SANITARY FUNCTIONS OF THE ARMY SURGEON.

THE army medical officer, like the sailor, must be a handy man. It is not enough that he is able to treat disease and wounds after the most modern and approved methods, but he must be fully competent as a sanitarian and hygienist. In fact, it may be said that in a general way his capabilities in this direction are of even greater importance than his skill as a surgeon or physician.

An epidemic of disease will quickly kill or incapacitate more men than shells or bullets, and it is safer by far to prevent disease than to attempt to cure it. Therefore, the military surgeon should have a thorough practical knowledge of sanitation and hygiene, or he will not fill his position effectively. Among the duties which fall to the lot of the surgeon of the regiment, as pointed out in the report of the Surgeon General of the Army for the fiscal year 1917, are the enforcement of the maintenance of thorough camp policing, of prompt and effective disposal of refuse, of the destruction of flies, and of the proper sanitary condition of the latrines and bath houses. He must see to it that the men keep as clean as possible. This insistence upon personal cleanliness is not for esthetic reasons, but because it is now recognized that a large proportion of the contagious diseases are transmitted by personal contact, and because other serious maladies are disseminated by means of insects which live on the human body. Personal cleanliness does not consist only in keeping the body clean, but in keeping the mouth, nose, and throat in as aseptic a state as possible. It is obvious that it is extremely difficult under existing conditions of warfare for men to keep even moderately clean, and one of the hardest problems to solve at the various fronts in Europe has been to provide washing facilities, or rather disinfecting facilities, for those who have been living in the trenches for two weeks or so. However, it is an important function of the army medical officer to enforce personal cleanliness on the soldiers of his command. Army regulations require that each man shall wash his hands before each meal and immediately after visiting the latrine. That the hands and nails should be kept as clean as possible is most essential to health and to the prevention of infectious diseases, for hands carrying infective material are a frequent means of spreading disease. Careful food inspection is another important part of the army surgeon's duties, for carelessness in this respect will result assuredly not only in the spread of disease by means of food infected by insects, but will also cause gastrointestinal troubles.

The army surgeon must be a capable sanitarian and hygienist, and now that so many civil medical practitioners have taken military positions the need for including training in sanitation and hygiene in the medical curriculum has been amply demonstrated.

OTOLOGY AND THE WAR.

IN an instructive article on "The Prevalence of Ear Injuries and Diseases in the French Army," published in *The Journal of Laryngology* for November,

1917, Dr. W. Sohier Bryant of this city calls attention to the urgent need of an aural service in connection with the Army Medical Department. This has been foreseen, in a measure, by the alert surgeon-general of our army, and many otolaryngologists have been called upon for advice and for active service with the army in the field. Yet it may be doubted if even they, thus far without practical experience of war conditions, know how much they will be needed.

Dr. Bryant, now a major in the Medical Reserve Corps of the U. S. Army, has been on the other side for some time, in fact, since before we entered the war, and has made excellent use of his time in studying the conditions both at the front and among those evacuated to base hospitals. The observations which form the basis of the paper above mentioned were made last summer while he was temporarily serving in the French army as *médecin traitant d'otorhino-laryngologie*. His surprise was great to find such a large proportion of ear injuries and defects among the wounded, their number amounting to about the same as that of the ocular troubles; that is to say, six or seven times as many as might have been expected. In the "zone des armées," at the front, the percentage of ear cases in the evacuation hospitals was 16, and in the "zone des étapes," in the rear of the other zone, the percentage was 6.25, this figure naturally rising during periods of inactivity at the front, and falling during the active periods, when a large number of men with bodily injuries were received; in the interior, the ear cases formed 9 per cent. of the total sick.

The writer estimated that about 80 per cent. of these ear cases would show considerable impairment of function, permanently interfering more or less with the future civil occupations of the patients. This impairment of industrial capacity has a twofold bearing—the crippling of the individual and the increase which this will entail in the pension list. From the figures which he has gathered Dr. Bryant estimates that the allowance of pension claims for ear disabilities will amount to a minimum of 24 per 1,000 of the fighting force per year. The necessity, therefore, in the interests both of the individual and of the State, of a sufficient force of otologists in the medical corps is made very evident by Dr. Bryant's timely investigation. In former wars medical interest revolved around the treatment of the deaf soldier after he had left the army. Now, otologists among the Allies, especially the French, are striving to erect in the army itself a specialist organization for dealing with otolaryngology. Although much has been done in this direction, Major Bryant implies that much still remains to be done to cope with the tremendous increase in injuries, generally serious, to the hearing apparatus.

IS TRENCH-SHIN AN ABARTICULAR RHEUMATISM?

WHETHER the so-called "trench-shin" is really a disease entity or only a symptom of "trench-fever" is a question about which much can be—and has been—said on both sides. For example, McNee, Renshaw, and Brunt,* who were the first to publish a complete, accurate study of trench-fever, and

*"Trench Fever." By McNee, Renshaw, and Brunt. *British Medical Journal*, Feb. 12, 1916, p. 225.

Houston and McCloy,* who agree with them, hold that trench-shin is a symptom of it, while Chambers,† McLean, and others describe it as a separate disease. We cannot examine here the arguments advanced by these differing exponents, nor can we go at length into a description of the disease, but only mention briefly one ingenious theory advanced by Chambers, namely, that it is an abarticular rheumatism.

The pain of trench-shin is a dull, aching one, increased by any sort of movement, especially by walking; there may be pain also in any other part of the body, particularly in the back, and a characteristic feature of these pains is that they miss the joints, although they may be severe in the bony prominences around the joints. It is this peculiarity which has led Chambers to allude to it by the above name.

The points which harmonize to a greater or lesser degree with this viewpoint are the obscure etiology and pathology, the character of the pain, the moderate leucocytosis, and the redness and tenderness over the seat of pain. Against the classification of this condition as a rheumatism are the insufficiency of the evidence adduced and the resistance of the pain to the salicylates, aspirin, and phenacetin.

Interesting as the above question is from an academical standpoint, we should not forget that the disorder, whatever it is, removes every day numbers of soldiers from the fighting line and in some cases keeps them from active duty for many months. We have before us the more serious problem of etiology, prevention, and treatment, and we should not be led astray by the "labelling mania."

Some of the Limitations of Military Orthopedic Surgery.—In a paper read by M. O'Gorman Hughes of Sydney, at a meeting of the New South Wales Branch of British Medical Association on October 26, 1917, and published in the *Medical Journal of Australia*, December 1, 1917, the author said that he did not wish to appear as an apologist or as a pessimist, but two years' surgical work at No. 4 General Hospital had resulted in a certain amount of disillusionment. After reading the brilliant results of several orthopedic surgeons and especially the reported results of secondary nerve suturing, one was apt to think that given the material one had only to go and do likewise. We are, however, at once confronted with very different conditions from those ordinarily obtaining in civil practice. Sepsis has been the rule and if not apparently active, is often only latent and ready to recrudescence on the slightest interference. One can imagine weeks, sometimes months, of patient waiting till septic wounds are healed before one dares to attempt operative treatment, and later one can picture the despair of the patient and operator when sepsis spells failure. In the long bones pus cavities have been found three months after the wounds have healed, so that it is no easy matter to lay down definite rules for the length of time to wait before interfering. Another source of trouble is the great scar ring about many of the wounds, scars in the

skin, fascia, and muscle. These conditions not only render an operation more difficult, but obviously interfere with quick clean repair. The length of time spent in waiting before operating on nerves is a serious drawback, and in the meantime it is particularly essential to maintain the nutrition of the muscles, to prevent their lengthening and contraction, and also to prevent adhesions of joints and tendons. Unfortunately, in many cases this is very difficult and consequently subsequent treatment is increased. The following is a brief summary of some of the cases that have come under Hughes' personal observation.

Out of seven cases of arthroplasty for bony ankylosis of the elbow, the results were good in six. The remaining patient had a flail joint, owing to marked atrophy of the muscles about the elbow. In two cases bone flaps were used: that is a piece of the separated bone with periosteal covering was united by chromic catgut to the cut surface of the humerus. In both instances the bone flaps necrosed and had to be removed, but fortunately did not spoil the result. In the other five cases muscle flaps were used.

In nine cases of arthroplasty for bony ankylosis of the fingers a bone flap was used with one exception and the latter was the only case requiring a second operation. At the second attempt a bone flap gave a movable and useful joint. Most of these patients still require massage and movements. There was one arthroplasty of the temporo-mandibular joint, an excellent result being obtained with a flap of temporal fascia. We had three cases of bone grafting for defects of the mandible, tibia, and radius. On only one occasion when dealing with the radius was primary union obtained and a successful result.

Adherent scars of skin to muscle limiting movement have done well, sometimes after a simple excision and at other times after interposing a piece of fascia lata and fat under the skin. The fascia lata has a great capacity for resisting sepsis and remained in situ even when the wound suppurated. One of the best illustrations of this sepsis-resisting power was in the case of an old urethral fistula. After five failures at home and abroad to close it, healing readily took place when a piece of fascia lata was stitched over the opening in the urethra and the skin sutured, fascia lata was also very useful for repairing a gap of 7.5 centimeters in a flexor tendon.

In operating on nerves for paralysis, the results were brilliant. When the disablement was due to the pressure of a bullet and the latter was removed movements which had been absent for months could be readily, but somewhat incoordinately performed on the day after operation. Results were equally good but not so immediate, often freeing nerves from the pressure of scars or callus. In all cases where the nerve was found to be divided and the ends separated by scar tissue or joined in bulbous union, the ends were freshened and sutured. At all times it was possible to approximate the freshened ends with chromic catgut without undue stretching and only once did suppuration occur. Almost always the site of union was encased in a piece of fat. The limb was kept flexed for, at least, three weeks, and the

*Houston and McCloy. *Lancet*, 1916, Vol. II, p. 632.

†"Trench Shin an Infectious Fibrositis?" By Graham Chambers. *Lancet*, 1916, Vol. II, p. 752.

paralyzed muscles kept permanently shortened by suitable splints. The first operation was performed two years ago and the last three months ago. The operation has been found to improve sensibility to hard pressure in some of the patients, but in no case has there been an appreciable return of muscular power. The chief causes of failure in Hughes' opinion are: 1. The long interval between the dates of injury and operation, and 2, the difficulty of obtaining perfect apposition, especially in the case of the smaller nerves. If the general result is to be failure to restore muscular function want of success must be admitted and resort must be had to tendon transplantation.

Military Antituberculosis Program.—The National Association for the Study and Prevention of Tuberculosis, in cooperation with the Surgeon General, the Y. M. C. A., and other agencies announces the completion of a program for the prevention of tuberculosis in the Army. The program includes a follow-up for every man discharged from the army on account of tuberculosis and also a thoroughgoing health education campaign among the soldiers. An obstacle to the follow-up program was Section Eleven of the Selective Service Regulations regarding the second draft, which forbids giving a record of a man's condition to anyone except certain designated officials. The officers of the National Association have placed before the War Department the importance of this work and have been influential in persuading them to open the records of rejected men to state and local boards of health throughout the country. Inasmuch as this section of the regulations does not apply to men dismissed from training camps after they have passed the draft boards, the Association has arranged with the Surgeon General and the division surgeons in camps to receive the names of all men thus dismissed. These lists are divided up by States and forwarded to State associations and State Boards of Health for follow-up work. The Medical Department of the Army has perfected its machinery for weeding out these cases. The Association is cooperating with the Government in providing sanatoria for those men who have been discharged from the service on account of tuberculosis. Such men will be cared for as near their own homes as possible in sanatoria accommodations provided by the Government.

Deaths in the American Expeditionary Force.—The list of deaths sent to the War Department by General Pershing on January 15 was the longest yet sent for any one day. Exclusive of two engineers, who lost their lives as a result of the action at Cambrai, on November 30, there were 37 soldiers in this day's list. Of these 39 deaths, 26 were due to pneumonia. The heavy death list from pneumonia is attributed to the severe winter weather in France, though intimations are not wanting that the force in France is not properly clothed.

Deaths in United States Army Camps.—The War Department reports that for the week ending January 11 there were 235 deaths among the National Guardsmen and the National Army. Of these 235 deaths 149 were caused by pneumonia. Both the hospital admissions and the non-effective rates increased in the National Army and National Guard camps, with pneumonia generally prevalent. Among

the Guardsmen there were 342 new cases of pneumonia, and in the National Army 340. The meningitis situation continued to improve in both the National Guard and the National Army. Epidemics of German measles and mumps prevailed in many of the camps. Scarlet fever increased in the National Army and decreased in the National Guard. Camp Doniphan, Okla., reported the largest number of new cases of pneumonia, 50, while Camp Wheeler reported the next largest number, 47. Camp Travis, Texas, headed the National Army camps with 94 new cases of pneumonia, against 72 the week before. Camp Pike, Ark., was second, with 41 new cases. Camp Lee, Va., reported 24 new cases against 59 for the week before. Reports of a high mortality at Camp Wadsworth, Spartanburg, have been officially denied. The statistics of the camp show that in three months the admissions to the hospital have numbered 2,470; during three months there were 233 deaths, or a mortality rate of 0.44 per cent., which the record states has been unequaled by any hospital, military or civil, in the country.

University Behind the Lines.—A report from the Canadian Headquarters in France states that a Canadian division has established a university behind the lines. Classes will be held in such places as brigade divisional schools and Y. M. C. A. huts. It has among its senate and staff men of recognized academic standing throughout the Dominion. Lectures on a wide range of subjects are provided.

New Rockefeller Hospital.—Plans have been perfected and the contracts let for converting the Billings estate on Washington Heights, New York, into a war hospital. This property, comprising fifty-seven acres of land, was purchased about a year ago by John D. Rockefeller, Jr., with the idea of eventually giving it to the city for a park. The plans for the war hospital call for the expenditure of \$500,000 for remodeling the buildings already on the property and the erection of additional buildings necessary to the completion of a hospital system.

Red Cross School for Cripples.—The American Red Cross announces the gift of \$50,000 by Jeremiah Milbank to be used in establishing a school for the reeducation of disabled soldiers and sailors. The school will be housed at 311 Madison Avenue, New York, in the building formerly occupied by the College of Physicians and Surgeons. The activities of the institute are already in operation, the staff having been engaged in study and preparation for the work during the past six months. The committee in charge of the enterprise consists of Douglas C. McMurtrie, Director, and Lieut. Col. C. H. Connor, of Washington, is Chairman; Jeremiah Milbank, Vice Chairman, and the other members are Captain Sidney Burnap, M. O. R. C., and Dr. Richard M. Pearce, of Philadelphia.

Red Cross Aid for Italy.—On the recommendation of the special Italian relief commission, the American Red Cross has appropriated \$4,771,990 for military and civilian relief in Italy for the seven months, beginning last November 1.

The Gatti-Casazza Ambulance.—The directors of the Metropolitan Opera Company have voted to present an ambulance to the Italian Government in the name of the manager, Mr. Gatti-Casazza, to commemorate the end of his first ten years of service.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, January 26, 1918.

CONGENITAL WORD-BLINDNESS.

It would perhaps be supposed that such a serious cerebral defect as congenital word-blindness could be easily picked out in the young children, and such cases segregated, almost at once in our schools. The histories of these patients, however, show that quite often they go to school several years, either keeping up with their classes by sheer quickness in memorizing lessons, or being considered mentally backward because they fail to learn to read. Although acquired word-blindness as an isolated condition has been known since 1877, the first paper on the congenital form appears to have been by Morgan in 1896. Since then many writers, especially Hinshelwood, have given great attention to the subject.

Whenever a child fails to learn to read after a reasonable amount of effort has been made to teach him, this condition should be suspected. It will sometimes happen that the child in question learns his letters easily, reads figures and musical notes readily, and may be highly intelligent. It must be remembered that in learning to read the child first stocks his visual memory with the letters of the alphabet, the seat of this knowledge being the left angular gyrus, while the auditory memory center, in the temporosphenoidal lobe, receives the sound of the words as spelled. Words may then be recognized by spelling them aloud or by conjuring them up in the mind, letter by letter—a slow process, of course. The next stage in reading is much more difficult of attainment, being the storing up in the visual memory of the words themselves, so that each word becomes, not a combination of letters, but a symbol, recognized at once and conveying a definite idea.

The word-blind child never reaches this stage. Assuming that the center for the visual memory of words and letters is in the angular and supra-marginal gyri of the left side of the brain in right-handed people, and *vice versa*, the more important part being in the angular gyrus, we conclude that in these children there is some abnormality of this area, due to disease, injury at birth, or faulty development. Any condition diminishing the number of the cortical cells within this area, or interfering

with the blood-supply, would lower the functional activity of the center, and hence diminish the power of retention of the visual images of words and letters which is absolutely essential for the successful accomplishment of the act of reading. Varying degrees of damage to this center are accompanied by varying degrees of defect. Cases have been reported in which the first few members of a family escaped this defect, but the rest had it. Such cases point to a defective development of this cerebral area, occurring in the early stages of the embryonic growth.

If it will be remembered then that congenital word-blindness is much more common than is generally supposed, occurs more frequently in boys than in girls, may exist alone, even in an individual who reads figures, spells, and reads music correctly and is unusually intelligent, we shall be able to pick out these cases more often.

The prognosis, too, is not so gloomy as is frequently stated. These children will not get along in the crowded school-room, where they can get only the same, or at the best a little more attention than the rest of the class. They should be educated to read in a very special manner. In most cases this can best be done by teaching the words letter by letter and thus appealing to the auditory memory, but in some of the cases the present-day method of teaching, that is, the recognition of words as a whole, will be found best. It is only, of course, when the defect is unilateral that we can expect results, so when the difficulty in learning to read is associated with a general failure of the intellectual powers it usually means that both sides are pathological and hence there is nothing to build on.

TESTING THE STATE OF THE HEPATIC FUNCTIONS.

A GENERATION ago there were but few ready resources available for obtaining an idea as to the functional capacity of the liver. The presence of bile in the liver was only a corollary of the existence of icterus. Urobilinuria was believed to point to some defect in hepatic metabolism while the presence of tyrosin crystals signified destruction of the hepatic parenchyma. Professor Gautier of Geneva, writing in the *Revue Médicale de la Suisse Romande* for Oct. 20, states that clinical evidence of a dependable sort as to functional incapacity of the liver, especially in its milder aspects, is still very defective. There are many resources available for exploring the hepatic functions, and this fact alone implies that none is conclusive. Some old ones are still employed, although their value is questionable; others are recent and have hardly made good. During the past few years the entire subject has been repeatedly written up.

The alimentary glycosuria test is very old, having been suggested as far back as 1875, although it did not find its way into text books until many years

later. For a considerable time, of late years, it has been highly regarded, and only recently have doubts been thrown upon its value. Recent work in Switzerland has led to a conclusion already formulated in 1902 by Ducamp that it is indecisive in its results. We can, however, admit that something is wrong with a liver which cannot use up 150 grams daily of glucose. In regard to bile in the urine, when both coloring matters and salts are present the significance, so far as hepatic function goes, is *nil*. If, however, either product is found alone—in other words, if biliary dissociation is present—one may suspect the existence of a non-obstructive icterus or a cirrhosis of the liver. In cirrhosis we may find bile salts in the urine with urobilinuria, but no bile pigment. The author has found this dissociation in a considerable number of cases of infectious icterus, cirrhosis, and cholangitis. The subject of urobilinuria as related to hepatic insufficiency is no longer a simple matter because urobilin and its congener urobilogen are known to occur under most varied conditions. In connection with other positive finds, however, urobilinuria may possess value.

The unsatisfactory evidence afforded by the urine has inspired studies of the blood to determine the presence of bile salts and pigments, but this has been found impracticable. Of much more value is the research for the particles known as hemoconia, of ultramicroscopic character, the presence of which in the blood may point to structural lesions of the liver.

The author mentions research of the stools, study of the nitrogen partition of the urine, glycuronuria, and other fields of activity in connection with the diagnosis of hepatic insufficiency, and finds a source of error common to all methods thus far used. Not one of them bears exclusively on the functions of the liver, for to a greater or lesser extent the organism at large is involved in the mechanism. Herein lies the great difference between theory and practice.

ANNUAL REPORT OF THE SURGEON GENERAL OF THE U. S. PUBLIC HEALTH SERVICE.

THE annual report to the Secretary of the Treasury of the Surgeon General of the Public Health Service for the fiscal year ending June 30, 1917, has been published recently. The field work of the organization has been conducted through seven divisions, as follows: Scientific Research, Foreign and Insular Quarantine and Immigration, Domestic Quarantine, Sanitary Reports and Statistics, Marine Hospitals and Relief, Personnel and Accounts, and Miscellaneous.

Scientific research for the last three months of the fiscal year was mainly concerned with health problems arising from the entrance of this country into the war. Now that America is engaged in raising a large army and placing it in camps in different parts of the country, the problem of stamping

out or of controlling communicable diseases is of greater importance than ever before. Typhoid fever, formerly the greatest scourge of military camps, is, on account of the efficacy of antityphoid inoculation and of other means of prevention, well under control, but trachoma, which has been a grave menace to the efficiency of the armies of Europe, has to be dealt with. The report points out that careful inspection of recruits by the military authorities and treatment of those found to have the disease must be supplemented by efforts of health officials to keep the disease from being transmitted from civil to military populations at the different cantonments.

Interesting studies with regard to pellagra were made during the year under the direction of Surgeon Joseph Goldberger. The investigations as to the intimate association of pellagra with diet have had most illuminating results. They have shown that the disease can be prevented by appropriate diet and can even be cured by dietetic treatment. A great deal of useful work has been done in relation to trachoma, and as mentioned before, it is incumbent on health authorities throughout the country that the disease should be kept away from the military camps.

Carl Voegtlin has been continuing his studies on the physiological significance of vitamins in nutrition. During the year it has been determined that exposure of meat to a temperature of 120° C. for three hours does not destroy the antineuritic vitamin contained in the food. This observation would seem to indicate that the canning of meat is a procedure which does not necessarily destroy the antineuritic vitamin. Another interesting investigation undertaken to determine the toxicity of commercial preparations of emetine resulted in demonstrating that the various preparations do not differ appreciably in toxicity. Typhus fever, which was rife along the Mexican border, has been studied carefully by the service. It seems to have been established completely that lice are chiefly if not wholly responsible for its spread and consequently sole reliance in the way of prevention has been placed on rendering incoming travelers free from lice and excluding those obviously ill.

With respect to the needs of the Service, it is pointed out in the report, that one of the most important is that of making national quarantine complete. Another somewhat pressing need is that of an increase in the number of commissioned officers in the Service. The bill to establish a Sanitary Reserve Corps of the Public Health Service was passed by the Senate in June, 1917. In the House of Representatives, however, a committee to which the joint resolution was referred, reported a substitute measure. An organization such as proposed in these two measures, consisting of trained sanitarians and health officers

would be of the greatest assistance in the case of epidemics and of other public health emergencies. The passage of a bill authorizing the establishment of an organization of this nature, is therefore earnestly recommended to the consideration of the National Legislature. The officials of the Public Health Service have always done such efficient work in the prevention of disease and in caring for the public health that Congress must see to it that no obstacles are put in their way, especially at this time of peril to the country.

THE CURE OF LEPROSY.

AMELIORATION, or even arrest of certain cases of leprosy, under intensive treatment, is often enough reported, but authentic instances of permanent cure extending over many years are rare. Failure to find the bacilli cannot be regarded as evidence of cure, and serodiagnosis does not appear to be trustworthy. The provocative use of iodide of potassium may possess decisive value. Dr. Cleves Vargas, now of Bogotá, but formerly head of a leprosarium at Agua de Dios, believes that he has cured several lepers, and reports one case in detail in a man of 55 who had once cohabited with a female leper (*Revista de Medicina y Cirugia de la Habana*, November 25). The patient insisted that the first lesion noted was a nodule in the balanopreputial fold. Upon his entrance into the institution he presented a pronounced case of mixed leprosy and Hansen's bacillus was found in the lymph. He was at once placed on an abundant and nutritious diet, but was given no meat or fats and no alcohol, save a little beer. He was made to exercise out of doors until he sweated profusely, and was also given hot baths and decoctions containing eucalyptus and similar drugs. Chaulmoogra oil he received internally and by inunction. After six months, improvement was noted, and at the end of a year he was apparently cured. The integument was quite normal, sensory disturbances had disappeared, and bacilli could not be found in the lymph or elsewhere. The responsibility for discharging him from the institution was great, and four physicians had to concur in the diagnosis of recovery. For three days he took large provocative doses of iodide of potassium, but bacilli were not to be found in the secretions, and no suspicious lesions appeared on the skin or mucosæ. The patient was therefore discharged.

ACUTE EPINEPHRITIS IN MALARIAL FEVER.

FRENCH authors have called attention to a marked suprarenal syndrome in malarial fever which was perhaps regarded as functional, and analogous to similar behavior in other acute infections. A fatal case reported in the *Brazil-Medico* for October 13, by Fraga, appears to show that this organ may be acutely inflamed in malaria. The case was one of three in which, clinically, the suprarenal syndrome was present. In the fatal case the comatose patient showed muscular resolution, eyes open and staring, pupils dilated, nose cold and moist, mouth half open, lips retracted, breathing stertorous, surface cold, and covered with clammy sweat, pulse filiform, apex beat imperceptible, heart sounds extinguished, axil-

lary temperature 94.1° F. The spleen was greatly enlarged, and the lower border of the liver a finger's breadth below the costal arch. The patient was in this condition when first seen, and tropical malaria was at once suspected. A blood examination showed the presence of the *Hematozoon falciparum*. The autopsy, made 12 hours after death, showed both suprarenals congested and enlarged; each weighed 10 grams, with greatest diameter 7 cm. The hematozoon was seen in the capillaries of the cortex, one to a field. The histological alterations were those of an inflammatory process. Dr. Fragas' paper was read before the Medical Society of the Bahia Hospital, and he was felicitated by his colleagues for his priority in reporting a case of this type (clinical diagnosis with full autopsy confirmation).

News of the Week.

Meeting of the General Medical Board of the Council on National Defense.—This body held its regular meeting in Washington, D. C., on January 13, 1918, at which time resolutions were presented and adopted on the deaths of Dr. Theodore Janeway and Dr. Everett J. McKnight and sanitary reports were received from the various committees of the General Medical Board. The report of Admiral Braisted expressed gratification over the fact that his request for a meningitis segregation camp in Florida had been granted. It is hoped to isolate in this camp all meningitis carriers and to care for them until they are again safe. Surgeon General Gorgas, in his report, dwelt upon the present state of the health of the army. He cautioned against the possible mistake of referring the pneumonia epidemics solely to the cold weather, and was inclined to the opinion that this was only an indirect cause, the real cause being the closer housing of the men in cold weather. Dr. S. McC. Hamill reported that the committee on child welfare was centering its attention on a program covering the welfare of the mother, as well as all forms of child welfare work. He presented resolutions aiming to secure the closer cooperation of the medical schools of the country along lines of child-welfare work. Dr. Francis D. Patterson presented a program for the reconstruction, rehabilitation, and reeducation of disabled men, covering medical and surgical treatment, vocational training, the securing of employment, and the maintenance of medical supervision. He also emphasized the necessity of educating employers up to the point of recognizing the need of cooperation on their part in the proper utilization of the reconstructed soldier. Dr. Joseph Schereschewsky outlined the aims of industrial surgeons to provide against unnecessary human waste in industry and society during the war by the avoidance of preventable deaths and disabilities from accident and diseases and improving the sanitary conditions under which people in industry work and live. Dr. Edward P. Davis of Philadelphia submitted a report advocating the establishment of an auxiliary medical service corps which would utilize the services of men who, either by age or physical disability, are disqualified from receiving a commission, but who, nevertheless, are potentially of service to the country. For the Com-

mittee on General Surgery, Dr. J. Bentley Squier of New York reviewed the progress that was being made in classifying the various surgeons of the country with reference to their professional qualifications and personality. He stated that up to the present time 21,000 applicants for the Medical Reserve Corps had been coded in such fashion that at a moment's notice the medical authorities of the War Department may secure almost any desired type of information regarding any individual in the service or waiting for commission. Dr. Rosalie Slaughter Morton, reporting for the women physicians, stated that this committee had on its registration the names of 1,796 women physicians, or approximately one-third of all the women physicians registered in the United States. It is hoped that these women may at least help meet the need of internes, laboratory workers, radiographers, and anesthetists. Dr. Victor C. Vaughan submitted the report for the Committee on Cooperation which emphasized the necessity for close cooperation between civilian authorities and military authorities in the regulation of health matters concerning both of these branches. In the State of Michigan, where very close cooperation existed, infectious diseases occurring in the civil population are immediately reported to the military authorities in the nearby cantonment by telephone or telegraph. This enables the military authorities to institute efficient quarantine. Such cooperation should be established between all civilian and military health authorities throughout the country. The General Medical Board adopted resolutions endorsing the plan of daylight saving and will lend its influence in securing the passage of a law directed toward this end.

Plague in China.—A pneumonia type of plague is prevalent in Fengchen, China, and in other parts of the Shansi Province. Appeals for help are being sent broadcast by the American doctors who recently went into the province to investigate the plague conditions.

Daylight Saving Bill.—The Committee on Interstate Commerce of the House of Representatives of New York State has under consideration a bill which provides that the clock be advanced one hour in April and moved back in September. The Health Department expresses the opinion that health authorities everywhere should welcome this movement as distinctly in the interests of public health since it will promote outdoor life and all the benefits that go with it.

Course in the Treatment of Infected Wounds.—The Long Island College Hospital announces a practical course in the Treatment of Infected Wounds for medical officers of the Army and Navy. The course consists of ten daily sessions, except Saturdays, from 9 to 12 o'clock. The classes are limited to six members. A new class will be started the first and third Mondays of each month.

New York State Medical Society Remits No Dues.—The Kings County Medical Society, as well as a number of county medical societies throughout the State, has remitted the dues of its members in the service for the period of the war. Under the By-Laws of the State Medical Society three dollars of the dues paid by each member of a county society go to the State Society. The State Society now

announces that it will not remit any dues, but will expect the usual tax of three dollars for each member. This means that the dues of those in the service will have to be paid from the treasuries of the county societies or by an additional tax on the doctors not in the service. As the Kings County Medical Society has about 110 of its members in the Federal service it is disposed to be sharply critical of the attitude of the State Society.

Civil Service Positions Open.—The Civil Service Commission of New York State announces the following examinations: *Medical Adviser*, Division of State Insurance Fund, State Industrial Commission salary \$2,500. *Resident Physician*, State Agricultural and Industrial School, Monroe County; salary \$1,500 to \$2,000, with maintenance for the physician and his family. *Assistant Physician*, Regular or Homeopathic, for State hospitals and other positions of similar nature in various State and county institutions. The salary is \$1200 with \$100 increase each year for four years. For further information and application form address the State Civil Service Commission, Albany, before February 11.

Dr. Haven Emerson, ex-Health Commissioner of New York City, has been commissioned major in the Medical Reserve Corps, and has been assigned to duty in the Surgeon-General's office.

Dr. James Barrett has been elected city physician of South Portland, Me., to succeed Captain L. S. Lombard, now in the service.

Dr. James B. Atwater has been elected to the Board of Health of Springfield, Mass., to fill the vacancy caused by the resignation of Dr. Frederick D. Davis.

Dr. May S. Miles of Greensboro, N. C., has been elected president of the Guilford County Medical Society for the ensuing year.

Dr. George Gray Ward, Jr., has been appointed Chief Surgeon and Surgical Director of the Woman's Hospital to succeed Dr. Clement Cleveland resigned.

Dr. William J. Mayo of Rochester, Minn., was awarded a gold medal by the National Institute of Social Sciences at its annual banquet in New York City, on the evening of January 18. The medal was bestowed in recognition of Dr. Mayo's humanitarian work. At the same time medals for services in their special fields of work were presented to Dr. Thomas W. Salmon, Professor C.-E. A. Winslow, Professor Irving Fisher, and Dr. John A. Kingsbury, ex-Commissioner of Charities of New York City.

Harvey Society Lecture.—Prof. John Gordon Wilson of Chicago will deliver the next Harvey Society lecture at the New York Academy of Medicine on the evening of February 9, at 8.30 o'clock. His subject is "The Effect of High Explosives on the Ear."

The Associated Physicians of Long Island will hold their twentieth annual meeting at the Long Island College Hospital, corner of Henry and Amity streets, on January 26. Medical and Surgical Clinics will be held from 10 A. M. until 1 P. M. The annual business meetings will be held at 2.30 and will be followed by the scientific session.

Crime Decreases in New York State.—The annual report of the Secretary of State transmitted

to the Legislature, on January 15, shows that there were 6,980 persons confined in the penal institutions of New York State on January 1, 1916; 6,517 on January 1, 1917, and 5,916 on January 1 of this year. There were 1,423 fewer convictions in the courts of Special Sessions during 1917 than during the previous year. Of 67,969 persons convicted 64,243 were males. Of 7,930 persons convicted of graver crimes 5,084 were natives of the United States, 2,881 were married, 7,440 could read and write, and 7,274 professed to be of temperate habits. Only 2,902 had been convicted of previous crime. The trades and pursuits furnishing the largest number of criminals, respectively, were laborers, clerks, chauffeurs, salesmen, farmers, waiters and carpenters.

Calls Heroin an Unnecessary Drug.—The Whitney Legislative Committee which has been investigating the drug evil has resumed its hearings. Dr. Charles F. Stokes, formerly physician in charge of the New York City Colony Farm at Warwick, N. Y., in his testimony before the committee recommended the establishment of another farm colony especially for the treatment of drug addicts. He also expressed the belief that the medical profession could do without heroin and that the manufacture of this drug should be stopped.

Street Accidents in December.—The Bureau of Statistics of the Police Department of New York City reports a decrease in the number of street accidents in December, 1917, as compared with December, 1916, the figures being 1,576 for December, 1917, and 1,800 for December, 1916. The report calls attention to the fact that the heavy snowfall compelled pedestrians to keep to the crossings and believes this accounts for the reduction in the number of street accidents. The total number of persons killed or injured decreased from 1,950 in December, 1916, to 1,701, in 1917. It was observed that during this month as at former times the largest number of street accidents, one-third of the entire number, occurred during the three hours from 5 to 8 P. M.

Prohibition Bill Before New York State.—The Anti-Saloon League has introduced a bill before the Legislature of New York which would make New York State bone dry from October 1, 1918, for the period of the war and for a period of demobilization of one year thereafter. The bill would permit the manufacture and sale of alcoholic liquors for medicinal, mechanical, scientific, or sacramental purposes where such manufacture and sale are not now excluded by the vote of the people.

Clinic for the After-care of Infantile Paralysis.—The State Department of Health is conducting a third series of clinics for the after-care of infantile paralysis at various places throughout the State. The clinical staff of the traveling unit consists of Dr. Le Roy W. Hubbard and four nurses experienced in this work. Since the Department of Health undertook this work last year 160 clinics have been held in various centers of population at which 3,800 individual examinations have been made. To date 76 operations have been performed. Braces or some form of apparatus have been furnished to 527 cripples. All of the cases seen at the clinics have been visited repeatedly by the State supervising nurses.

Smallpox at the Cattaraugus Indian Reservation.—Quarantine at the Cattaraugus Indian Reservation has been raised, only a few cases still being in isolation. During the recent epidemic there have been in all 96 cases of smallpox isolated.

The Wetumka Medical Society, at its regular meeting in Wetumka, Okla., on December 28, elected the following officers for the ensuing year: *President*, Dr. J. A. Hemphill; *Vice-President*, Dr. O. S. Burrow; *Secretary-Treasurer*, Dr. C. A. Hicks.

St. Louis Hospitals Share Fund.—The Hospital Saturday and Sunday Association of St. Louis has just divided a fund of \$43,951, the result of its annual campaign among fifteen hospitals of that city. This year's collection exceeds that of last year by \$7,275.

An Appeal to the President.—At the annual meeting of the National Institute of Social Sciences, held at the Hotel Astor on Friday, January 18, the following resolution was adopted: "Resolved, that the President of the United States be urged to institute adequate measures for the conservation of the health and the promotion of the physical efficiency of the nation during the period of the war."

Obituary Notes.—Dr. FREDERICK MORSE WILSON of Bridgeport, Conn., died at Colon, Panama, on December 17, aged 66 years. He was graduated from Tuft's College Medical Department in 1875.

Dr. WILLIAM HENRY LATHROP of Lowell, Mass., died after a brief illness at his home in that city at the age of 77 years. He was graduated from the University of Pennsylvania, in 1865, and served as an assistant surgeon with the Army of the Potomac during the Civil War. Dr. Lathrop formerly resided in Detroit, where for some years he was editor of the *Detroit Review of Medicine* and physician to the Detroit Retreat for the Insane. He located in Lowell, Mass., in 1883, where he continued to practise medicine up to the time of his death.

Dr. GLENN MITCHELL LITSINGER, a graduate of the College of Physicians and Surgeons, Baltimore, in 1898, and a member of the faculty of the University of Maryland, died of septicemia, at his home in Baltimore, on December 26, aged 45 years.

Dr. JOHN HARRIGAN, a Brooklyn obstetrician, died of heart disease at his home, on December 30. He was a graduate of the Long Island College Hospital, in 1874. He served in the medical department of the Union Army during the Civil War and was a member of the staff of St. Mary's Hospital for more than twenty-five years.

Dr. THEODORE G. FINLEY of Los Angeles, Cal., died in the Sisters' Hospital in that city, on December 17, aged 42 years. He was graduated from the College of Medicine of the University of California, in 1908. He was formerly assistant superintendent of the Los Angeles County Hospital and at the time of his death one of the surgeons of the Los Angeles Gas and Electric Corporation.

Dr. ROBERT CHILTON ATKINSON died at his home in St. Louis, Mo., on December 31, aged 76 years. He was a graduate of the Medical Department of Tulane University, in 1867. Dr. Atkinson was appointed a member of the Board of Health of St. Louis in 1884 and served for a term of four years, when he was appointed secretary of the State Board

of Health, serving in that capacity for two years. He was a member of the Board of Hygiene of the public schools and medical director of St. Ann's Foundling Asylum. For eighteen years he occupied the chair of children's diseases in the Marion Sims Medical College, retaining the same position after the college had been absorbed by the University of St. Louis.

Dr. WILLIAM HENRY SANDERS of Montgomery, Ala., died at his home in that city after an illness of more than two years, on January 2, aged 79 years. He was graduated from Jefferson Medical College, Philadelphia, in 1861, and served through the Civil War as surgeon in the Confederate Army. Dr. Sanders was State Health Officer of Alabama for 20 years, retiring about a year ago because of ill health.

Dr. MARY L. FARNUM, formerly of Woonsocket, R. I., died at the Good Samaritan Hospital in Portland, Ore., on January 2, aged 54 years. She studied medicine at the Woman's Medical College, Philadelphia, and completed her medical education in Germany. Since removing to Portland, ten years ago, she has devoted herself to philanthropic work along medical lines.

Dr. JAMES O'DONNELL, a graduate of Bellevue Hospital Medical College, in 1892, and for twenty-seven years a practising physician of Paterson, N. J., died in St. Joseph's Hospital in that city after a brief illness, on January 7, at the age of 50 years. He was for six years president of the staff of St. Joseph's Hospital.

Obituary.

WILLIAM HANNA THOMSON, M.D., LL.D.

NEW YORK

DR. WILLIAM HANNA THOMSON, for over fifty years a conspicuous figure in the medical life of New York, died at his home in this city on January 18, in his eighty-fifth year. He was the son of a missionary, and was born in Beirut, Syria, in 1833. At the age of nine years he was sent to America to be educated, and returned to Syria at the end of eight years with the degree of A.B., obtained at Wabash College in 1850. Remaining in Syria several years, he came back to this country to complete his medical education, which he had begun in Beirut, and was graduated from the Albany Medical College in 1859. After graduation he removed to New York City, and was for a couple of years assistant physician at the quarantine station at this port. During the Civil War he served as medical inspector in the Navy. In 1868 he was appointed physician to the Charity (now City) Hospital, and was also for many years attending physician to Roosevelt Hospital. For some time he was professor of medicine at the New York University Medical College. He was a member of the Medical Societies of the County and State of New York, of the Association of American Physicians, and of the New York Neurological Society, and a fellow of the American Academy of Medicine and of the New York Academy of Medicine. Dr. Thomson contributed largely to medical literature and also wrote along other lines, being the author of two widely known books, "Brains and Personality" and "Life, Death and Immortality."

Correspondence.

PINK PALMS IN INFLUENZAL PNEUMONIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—A number of clinicians have at times expressed the belief that the palms of the hands in patients who are ill with typhoid fever often take on a peculiar chrome yellow appearance. This is largely dependent in its development upon how thick the skin of the palms of the hands has become through toil. It is not constant, but, nevertheless, in some patients the chrome yellow color is certainly noticeable. I have not seen any record of a pink and mottled erythematous, or dusky erythematous, color of the palms of the hands, noticeable from the base of the thumb to the wrist and from the base of the little finger to the wrist in influenzal pneumonia, but clinically I have observed this quite frequently. The appearance is somewhat similar to the discoloration caused by the contact of an unduly hot hot-water bag applied to the abdomen. I have noted it more frequently in severe cases than in moderate ones and I have come to regard it as indicative of a particularly severe infection. As one would expect, this symptom is best seen in those whose hands are not hardened by manual labor.

H. A. HARE, M.D.,

Professor of Therapeutics and Diagnosis,
Jefferson Medical College.

CORNER SPRUCE AND EIGHTEENTH STREETS,
PHILADELPHIA.

THE USE OF A FACE MASK IN COMMUNICABLE DISEASES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In the issue of the MEDICAL RECORD for August 12, 1916, a letter of mine is published which contains the following statements: "*I therefore suggest that the faces of the patients, as well as that of the attendants, should be protected by a fine mesh net.*" While this will not give a protection of 100 per cent., it may assist to some degree in checking the disease. The employment of this means will bring no hardship to the patients or to the attendants." This suggestion occurred to me after observing for some time the somewhat careless intercourse of physicians, nurses, and the little patients of pyliomyelitis in a ward of a large hospital under the care of the Board of Health. The Health Commissioner to whom I made the above suggestion informed me that "the advisory committee considered that no benefit to the public or to the individual can be expected from following the procedure proposed." That was the last of it. I closed my letter by saying: "In looking over the names of the advisory committee it occurred to me that it would be humane and in accordance with sane public health rules, if some of the members (of the advisory committee) who rush from places of infection to their private patients would accept my proposal."

I was reminded of my letter by reading in the issue of the *Journal of the A. M. A.* for January 12 an article by Dr. George H. Weaver of Chicago (from the Memorial Institute for Infectious Dis-

eases), entitled "The Value of the Face Mask and Other Measures." In the Durand Hospital, in which patients with a variety of contagious diseases are housed they have tested the protective value of face masks worn by patients, nurses, and physicians. The masks they have used "consist of a double thickness of gauze, so shaped as to fit closely over the face from the chin well over the nose, and held in place by two tapes tied behind the head." Weaver states that "coincident with the use of masks there has been an absence of diphtheria or bacillus carriers among the physicians, and only a limited amount of throat infections."

"We feel that great protective usefulness resides in this mechanical measure, and think that it might be used to advantage also by persons caring for pneumonia patients. . . . The mask not only protects the healthy person from infection and from becoming a carrier, but also prevents a carrier from spreading infection to others. Masks can be used to good advantage in households in which are patients of diphtheria, pneumonia, scarlet fever, epidemic meningitis, or other diseases spread by nasopharyngeal discharges."

The standing of Dr. Weaver needs no comment from my side, except, perhaps, of saying that it is not lower than the standing of the members of the above mentioned advisory committee of the New York Board of Health. Weaver's statement merits consideration, *especially at present, with reference to pneumonia patients.*

There is a moral to this tale. A commissioner of health should permit himself to be openminded, and take under consideration a common-sense advice even when the advisory committee considers it as being of no benefit to the public. The appointments to membership in the advisory committee are, as we all know, not always dictated merely by the specific merits of the appointees.

S. J. MELTZER, M.D.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.

REGISTRATION OF PATIENTS WITH INCURABLE DISEASES NO LONGER DEMANDED.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In a letter to the MEDICAL RECORD, published on November 24, 1917, I called attention to the official blanks issued by the New York State Department of Health, which contained a demand for the registration, in common with that of drug addicts, of patients suffering from incurable disease to whom morphine had to be administered. This I contended was an illegal interpretation of the law, which should be resisted at all hazards by the physicians as a breach of professional privilege.

Later on, the appearance in this city of the attorney of the State Board of Health, Mr. Joseph A. Warren, as an advocate of an amendment to the drug laws creating a specially licensed class of physicians to prescribe for drug addicts, gave an opportunity of calling his attention through the public press to this illegal requirement of his board, as a matter more worthy of his attention than the creation of a new specially privileged class of medical licensees by the State.

According to a letter received from the State Board of Health by a physician of this city, these

blanks are no longer issued by this department. In this letter the physician was advised to report his cases on his own letter heads, which, of course, contained no such requirement as the one objected to.

Inasmuch as this abrogation of the State Board's requirement in this instance has not been publicly announced so far as I am aware, I think its promulgation is worthy of publication in your journal to show what may be accomplished by a proper defense of the rights of physicians, even when advanced by individual members of the profession in the absence of concerted action by the organized medical bodies.

JOHN P. DAVIN, M.D.

117 WEST 76TH STREET.

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

RED CROSS WORKING IN FRANCE—AN AMERICAN HOME FOR SOLDIERS—THE NEW BREAD REGULATIONS.

PARIS, December 10, 1917.

THE American Red Cross recently opened an Exposition of Gifts for its work at 136 Avenue des Champs Elysées for the duration of one week. Each day there will be a lecture by the heads of various departments explaining and illustrating their particular work. Dr. William Palmer Lucas, who is the director of the service for children, spoke on what the American Red Cross is trying to do for the children of the war. Mr. James R. Barbour, general secretary of the Red Cross, and M. Firmin Roz each delivered a short address, explaining briefly what the society had accomplished and what its duties consisted of in centralizing war relief work under a national organization.

Dr. Lucas showed on a map of France eight different centers where the work for the children had been organized, speaking particularly of the work for the refugee children at Toul and for the rapatriés at Evian and other bases in that vicinity. He said that the medical service had been greatly developed at Toul, where 400 children who had been brought from the districts in the North, where the gases had played such a prominent part in the German work of destruction, were being cared for in the hospitals. Small hospitals had been established in other villages near, making three medical centers, and he spoke interestingly of the traveling dispensaries as relieving suffering among the children in an efficient manner. Dr. Lucas also spoke of the work at Chalons in charge of Dr. Davis and the cooperation in that vicinity with the American Fund for the French Wounded. In speaking of the efforts made at Evian he said that though this work was still young it had already proved of the greatest good and was by far the most heartrending of all the work for children. A hospital of 100 beds had been established at Evian and the Casino had been turned into a home for receiving all of the rapatriés before they were sorted and distributed to the hospitals and homes. Particular attention was being paid to preventing disease from spreading, especially in the case of the tuberculosis patients, which branch of the Red Cross was growing to be one of the most important.

Dr. Lucas also explained the work at Lyons, where 2,000 children are being cared for, and laid stress on the fact that a social service to visit the French homes and cooperate with the mothers would be one of the future aims of the Red Cross in making a study of how to reduce infant mortality. He also spoke of the recreation work for the children that was being developed and the necessity of cooperating with the various French societies.

The formal opening of the Home Service for American Soldiers Abroad took place yesterday in the way of a reception at its rooms in the Hotel Liverpool, rue de Castiglione. The Service is well named, as it serves for a cozy home for the boys who long for one, and Mrs. Weeks and her friends seem to know what the boys like best. Hospitality is given in abundance, so there is no doubt as to the success of the undertaking. The Service was organized by Mrs. Weeks in memory of her son, Kenneth Weeks, and his comrades who have been victims of the war—Kiffin Rockwell, Victor Chapman, James McConnell. The rooms are comfortable, and offer a welcome to all American soldiers for tea, and the members have already expressed their gratitude for such a service, though it has been organized only two weeks.

The French Minister of Agriculture and Supplies has drawn up the decree relating to bread consumption, the requisition of cereals, and the making of flour, and this decree has been signed. The principal articles are as follows: The bread rations to be allowed to each consumer, according to his or her social condition, are as follows: (1) Persons engaged in hard manual labor: Males of more than 16 years of age, 600 gr.; women of more than 16 years of age, 500 gr. (2) Persons engaged in light trades: Males of more than 16 years of age, 400 gr.; women of more than 16 years of age, 300 gr. (3) All consumers not included in the above categories (maximum per head and per day): Males of more than 16 years of age, 200 gr.; women, 200 gr.; children of both sexes, 200 gr.

In communes or agglomerations of communes of more than 20,000 inhabitants the prefects are empowered to issue individual bread cards after consultation with the municipal councils. These cards are not transferable. At the same time as the card the communal office will distribute to consumers one or more books of tickets containing as many tickets for 100 grams as are allowed in the monthly bread ration. These books will be available only for the month for which they are issued.

When the holder of a bread card is away from his habitual place of residence at the end of the month, he can renew his card at the mairie of the commune in which he happens to be, on condition that bread cards be in use in that commune. The mayor will deliver a provisional card in exchange for the old one and return the latter to the mairie in the holder's place of residence.

Soldiers on short or extended leave receive an individual card corresponding to the amount of the highest ration during the said leave, and the card is delivered by the mairie at the place of residence indicated on the soldier's leave papers.

Persons who make a sojourn in a commune where the bread card is in force will, upon request, be furnished by the communal bread office with a "carnet" comprising a number of tickets corresponding to the visitors' consumption during their sojourn or until the end of the current month. In the event of the holders remaining for a long period the card is renewed. When the holders leave the commune the cards and carnets are to be handed in at the mairie, together with those not made use of.

Any cards found to have been lent or sold to another person will be confiscated. It is also forbidden to scratch or otherwise disfigure them. In principle, no card lost or destroyed will be replaced, but all such cases should be reported to the communal office.

The bakers and other vendors of bread or equivalent products will be furnished with flour in proportion to the quantities sold by them represented by the tickets. Those who disobey the regulations will have their supply stopped during a certain number of days, independently of any legal proceedings that may be taken. In hotels, restaurants, and other establishments where meals are served, it is forbidden to serve per meal and per consumer: (1) More than 100 grams of bread if the price of the meal is more than 4 fr.; (2) more than 200 grams of bread if the price of the meal does not exceed that sum.

146, AVENUE DES CHAMPS ELYSÉES.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 10, 1918.

1. The Examination of Soldiers for Tuberculosis in the U. S. Army. Edward O. Otis.
2. The After-Care of the War Cripple. E. A. McCarthy.
3. Paroxysmal Tachycardia of Ventricular Origin. F. A. Willins.
4. The Recognition of Surgical Kidney. Benjamin Tenney.
5. Membranous Croup. D. M. Lewis.
6. Some Effects of Massage on the Colon. Franklin W. White.
7. Lipoids in 131 Diabetic Bloods. Horace Gray.

2. The After-Care of the War Cripple. — E. A. McCarthy shows that in the last three years' war the experience of our Allies has brought out the fact that the wounded soldier must be considered from a different aspect than ever before. Instead of being pensioned and allowed to shift for himself he must be made over, repaired, and brought up to a period of service. He points out what the condition of Great Britain would be today, with 600,000 crippled soldiers for whom no special preparation had been made at the beginning of the war, had she not inaugurated those marvelous curative workshops for the rehabilitation of her disabled soldiers by the aid of orthopedic surgery. He mentions Col. Sir Robert Jones of Liverpool as the leader in this curative measure. Thus indolent and often discontented patients are converted into happy men who soon begin to feel that they are becoming useful members of society and not mere derelicts. These men are given employment with the tools they understand or an occupation suitable to their disability. According to Major E. G. Brackett, director of orthopedic surgery in the Medical Department of the United States Army in this country, our Government intends to adopt the system now in vogue in England, with a few changes. The Government will establish in France about 35,000 orthopedic beds, divided into units or hospitals of about 2500 beds. In this country also there will be constructed several reconstruction or rehabilitation hospitals, which will be mainly orthopedic in their nature, but will include other specialties as well as general medicine and general surgery. The purpose of the latter hospitals on this side of the water will be to take care of those

cases which can be transported without danger to the patients who need further surgical treatment and training along industrial lines for their future service in life. These men will be those who will be unfit for further military service on account of their disabilities. These American soldiers, until entirely cured and educated or trained along industrial lines, will be kept under army discipline and will not be discharged from the army until they are ready to perform usefully such service in civil life as their reconstructed crippled condition will permit. McCarthy points out what a wise decision this is on the part of the United States Government. This condition is met with so much in civil life, where industrial accidents disable a man, but there is no law to compel him to take up any other industrial work suited to his crippled condition. McCarthy, in discussing this new move on the part of the Government with reference to the establishment of reconstruction hospitals, calls attention to the fact that this is a very serious piece of work, since there are already 30,000 or over finely equipped hospitals in this country. Is it wise to deplete these already existing institutions of some of their staffs, or, instead of the reconstruction hospitals, should the general hospitals, as at present constituted, be expanded to carry on the work intended by the Government in these reconstruction hospitals? Since the number of doctors in this country, as compared to the population, is not very large, should not conservation be practised here just as well as in other departments of life? The American Hospital Association appears to be opposed to this new plan of the Government, because the hospitals realize their duty is to care for the civil population, and with depleted staffs the problem becomes one difficult of solution. The question also arises whether the civil hospitals, caring, as they do today for the many industrial cases, may not profit to a great extent in knowledge and education by taking care of the war cripple, and thereby become a greater benefit to the civil community in the future after the scars of this great world conflict have healed. The soldier has made a great sacrifice for his country; it is our duty to see to it that he gets the best possible service that can be had on his return from the front. The Government, in establishing these new hospitals, has this in view, but the scarcity of doctors and the care of the community itself are to be considered.

New York Medical Journal.

January 12, 1918.

1. Instruction and Supervision of Expectant Mothers in New York City. Jacob Sobel.
2. Wassermann Complement Fixation Test for Syphilis. J. Wheeler Smith.
3. Operative Methods for the Cure of Hemorrhoids. Arthur A. Landsman.
4. Mastoiditis. George E. Steel.
5. The Role of Minor Surgical Procedures in the Development of Thromboangiitis Obliterans. Israel Gottlieb.
6. Chloroform Poisoning. Charles E. Hyde.
7. Disposal of Sewage. Harry Greenstein.

1. **Instruction and Supervision of Expectant Mothers in New York City.**—Jacob Sobel, Chief of the Division of Baby Welfare, Department of Health, New York, considers that the problem that faces New York with reference to this condition of expectant mothers and loss of infant life is in part as follows: (1) Forty-one per cent. of all deaths under one year of age are due to congenital diseases. (2) Approximately 37 per cent. of all deaths under one year of age occur during the first month of life; of this percentage at least 27 per cent. take place during the first ten days of life. (3) About 75 to 80 per cent. during the first month of life and approximately 90 per cent. of all deaths during the first ten days of life are due to congenital diseases. (4) During the thirty-year period from 1884 to 1914 the death rates from diarrheal, respiratory, and contagious diseases have been markedly reduced—approximately 75 per cent., 53 per cent., and 88 per cent. respectively—while the death rate from congenital diseases has been reduced only 1.5 per cent. In fact, during the past five years, the infant death rate from congenital diseases has remained practically stationary. (5) The death rate during the first month of life has remained practically unchanged for many years, while the total infant mortality rate and the rate from the second to the twelfth months of life have progressively declined.

(6) Congenital diseases take the first place in the list of "baby killing" diseases, with respiratory diseases second, and diarrheal diseases third. (7) The majority of deaths due to congenital diseases are dependent upon the health and environment of the mother before the birth of the child. (8) The number of maternal deaths incident to child bearing, while showing a reduction per 10,000 women from fifteen to forty-four years of age and per 1000 labors, is still too high for an enlightened community. (9) The death rate from conditions associated with pregnancy, other than puerperal sepsis, has declined, per 10,000 women of child bearing age, from 3.79 in 1898 to 2.9 in 1916. The puerperal sepsis death rate per 10,000 women of child bearing age during the same period has decreased from 2.58 in 1898 to 1.02 in 1916. There has also been a decrease in the puerperal sepsis death rate, based upon 1000 labors, which include stillbirths and living births, from 1.97 in 1908 to 1.55 in 1916. From other conditions associated with pregnancy per 1,000 labors, the rate has declined from 5.26 in 1908 to 4.58 in 1916. (10) That more women between fifteen and forty-four years of age died in the United States from conditions incident to maternity than from any other cause except tuberculosis, is the statement of the Children's Bureau at Washington. Sobel gives a complete outline of the work done by his department and also the Bureau of Child Hygiene of the Department of Health in furthering prophylactic and preventive measures in this direction, especially among the poor of New York. He states definitely that the mothers supervised comprise for the most part poor mothers of foreign extraction and of various races, mainly German, Russian, Austrian, Irish, Italian, Negro, and Polish. Thirteen per cent. were Americans and 87 per cent. of other races, divided as follows: Italian, 58 per cent.; Austrian, 11 per cent.; Russian, 10 per cent.; Irish, 4 per cent.; Negro, 2 per cent.; Polish, 1 per cent.; German, 1 per cent. There were few people of moderate means among this number. This should not, however, convey the impression that this class does not need supervision during the period of pregnancy. The mothers of moderate means, as well as the rich, require quite as much attention, perhaps even more, than do the poor. In point of fact, an analysis of the deaths of infants, by small sanitary districts or census tracts, has shown that the infant mortality rate from congenital diseases is greater among the rich than among the poor.

Journal of the American Medical Association.

January 12, 1918.

1. Angina Pectoris: Clinical Experience with Two Hundred Cases. James B. Herrick and Frank R. Nuzum.
2. The Administration of Epinephrin by Intraspinal Injections in Acute or Subchronic Cases Accompanied by a Low Blood Pressure. John Auer and S. J. Meltzer.
3. Cutaneous Medicine in Its Relationship to Industrial Accident and Health Insurance, Based on California Experience. Harry E. Alderson.
4. The Diagnosis of Higher Grades of Mental Defect. William H. Higgins.
5. The Value of the Face Mask and Other Measures in Prevention of Diphtheria, Meningitis, Pneumonia, etc. George H. Weaver.
6. Greenstick Fractures of the Forearm: Correction of the Deformity by Continuous Elastic Traction. Wesley Grove Vincent.
7. Bismuth Iodoform Petrolatum Paste in the Treatment of Recent Wounds. M. L. Emerson.
8. Spontaneous Rupture of the Renal Artery. W. A. Lincoln.
9. The Distribution of Meningococci in the Upper Respiratory Tract of Carriers. R. D. Herrold.

5. **The Value of the Face Mask and Other Measures in Prevention of Diphtheria, Meningitis, Pneumonia, etc.**—George H. Weaver outlines the prophylactic measures employed in the Durand Hospital, Chicago (a hospital for contagious diseases), including the use of the Schick test for diphtheria by which, he further states, active diphtheria practically has been eliminated from the nursing staff. Carriers, however, of diphtheria bacilli continued to be detected by weekly throat cultures. From Nov. 1, 1914 to June 1, 1916, ten carriers were found, that is, 23.25 per cent. of forty-three nurses. About June 1, 1916, the practice of wearing gauze masks covering the nose and mouth when caring for active diphtheria patients was introduced and since then but six carriers have been detected among the seventy-three nurses on duty, that is, 8.2 per cent. Between June 1,

1916, and Dec. 1, 1917, when gauze masks were worn when all patients with scarlet fever in the acute stages were being cared for, no cases of this disease have been observed among the seventy-three nurses on duty. Nine cases of scarlet fever had developed in three years previous to the above dates. In recent years so much emphasis has been laid on contact infection in contagious diseases that the possibility of infection through the air at short distances has been sometimes forgotten. Infection through the air for relatively short distances, that is, within a few feet of the patient (or carrier), is quite possible in case the specific agent is present in the secretions of the nose and throat when forcibly thrown out in small particles in forced expiratory efforts, as in coughing, crying, or sneezing. The masks employed consist of a double thickness of gauze, so shaped as to fit closely over the face from the chin well up over the nose, and held in place by two tapes tied behind the head. A mask is never worn twice until sterilized and washed, and is always replaced by a fresh one when evidently contaminated or when it becomes moist. Most of the nurses wear them constantly when on duty. The attacks of tonsillitis, pharyngitis, and rhinitis that were relatively frequent before the masks were used also have almost disappeared in the last year. Last spring fourteen epidemic meningitis patients were cared for in the hospital. When caring for these patients nurses and physicians always wore masks. Systematic nasopharyngeal cultures, repeated at short intervals, failed to reveal a single carrier of meningococci among the nurses and doctors who took care of these patients. The physicians in the hospital always wear the gauze masks when doing intubations and taking throat cultures, and to a considerable extent when examining patients. Coincident with this use of masks there has been an absence of diphtheria or diphtheria bacillus carriers among the physicians, and only a limited number of throat infections. Weaver favors the wearing of the masks by those coming in contact with cases of pneumonia and epidemic meningitis, especially in those that deal with epidemic outbreaks, such as occur in military camps, gauze masks might be used with advantage by all physicians, orderlies and nurses. The importance of carriers in these diseases is apparently very great, and that those about such patients become carriers quite frequently is evident when not less than 12 per cent. of carriers of meningococci occurred among the personnel of a hospital in which epidemic meningitis patients were treated. The mask not only protects the healthy person from infection and from becoming a carrier, but also prevents a carrier from spreading infection to others. Masks can be used to good advantage also in households in which are patients with diphtheria, pneumonia, scarlet fever, epidemic meningitis, or other diseases spread by nasopharyngeal discharges.

The Lancet.

December 22, 1917.

1. The Fitzpatrick Lectures on Medicine, Magic, and Religion. W. H. R. Rivers.
2. A Lecture (Abstract of) on the Relation between Chemical Constitution and Physiological Action. F. L. Pyman.
3. Fifth Analysis of Cases of Tetanus Treated in Home Military Hospitals during Part of December, 1916, all January and February and Part of March, 1917. David Bruce.
4. A Modern View of Tetanus. Fred Ransom.
5. Analysis of 102 Consecutive Cases of Tetanus Treated at Sir J. J. Hospital, Bombay, India, from October, 1915, to July 31, 1917. Navroji Ardeshir Cooper.
6. On Certain Forms of Albuminuria and Polyuria: Their Cause and Cure. Edgar F. Cyriax.

3. Fifth Analysis of Cases of Tetanus Treated in Home Hospitals During Part of December, 1916, All January and February and Part of March, 1917.—David Bruce gives this report, which is a continuation of the work on tetanus begun in August, 1914. This is the fifth analysis submitted and it shows a decided decrease in the mortality rate, 19 per cent., over that of the first analysis, which gave a mortality of 57.7 per cent. He considers that whatever the cause—the prophylactic dose of serum, better surgical treatment, quicker diagnosis, more thorough therapeutic treatment, etc.—the result is gratifying. In regard to the proportion of wounded men who contract tetanus in

home hospitals, the number may be roughly put down at 1 per 1,000, but since the number of wounded in England has not been published, it is impossible to tell this with exactness. This last analysis deals with 100 cases and shows that if the symptoms of tetanus appeared within ten days of receiving the wound the mortality was 40 per cent.; if from the eleventh to the twenty-fourth day, 25 per cent. The remaining 66 cases, with an incubation period of from 25 to 786 days, averaged a mortality of 13.6 per cent. This last incubation period of 786 days is a doubtful case, according to David Bruce. The man was reported to have had three attacks of tetanus. The last attack, with such a lengthy incubation period, was probably due to a nervous, hysterical condition which was mistaken for tetanus. It has been demonstrated, however, that the tetanus bacilli may remain quiescent for long periods at the site of old wounds, so that 786 days would not seem to be an impossible incubation period. The shortest period of incubation was 3 days, the longest 239. There were only 10 cases with a short incubation period and 69 cases with an incubation period of more than 22 days. Statistics are showing that the average incubation period has been steadily lengthening since the beginning of the war. Bruce attributes this change principally to the prophylactic injection of antitoxin. In the first year of the war there were 47 per cent. of cases with a short incubation, while the last analysis showed a reduction to 10 per cent. In 1914-15 there were only 6.4 per cent. of cases with a long incubation period; this has risen to 69 per cent. During the first year of the war many of the wounded did not receive the prophylactic dose of antitoxin, hence the number of acute cases with a short incubation period. Of the 100 cases under consideration in this last analysis, 81 were classed as cases of general tetanus and 19 as cases of local type. In the 81 cases of generalized tetanus there were 58 recoveries and 23 deaths, a mortality of 28.3 per cent. All of the cases of localized tetanus recovered. There were 6 cases in which tetanus followed on an operation with 1 death. In none of these cases was a prophylactic inoculation of antitetanic serum given before the operation. As a result the Tetanus Committee advises that when operations are performed at the site of wounds, even if they are healed, the prophylactic injection of serum should invariably be given. Among the 100 cases, 73 received a prophylactic injection of serum in France. Twenty-one cases received secondary prophylactic injection; 8 received three injections, 4 received four injections, and 1 received five injections. Of the 73, 60 recovered and 13 died, a mortality of 17.7 per cent. Of the remaining 27 cases, 13 gave no history of prophylactic treatment, 11 of which recovered and 2 died. The remaining 14 cases gave no history of prophylactic injection of any kind; of these 10 recovered and 4 died. In the 100 cases reviewed the mortality was 19 per cent. While but 73 of these cases were recorded as having received a prophylactic injection in France, the whole of them were treated with antitetanic serum. Eighty-one recovered, 19 died, giving a mortality of 19 per cent. The various routes of injection of the antitetanic serum were employed with no definite results as to the advantage of any special route, nor was the influence of the amount of dosage brought to any definite conclusion. David Bruce sums up the results of his fifth analysis as follows: (1) In the 100 cases of tetanus under review the mortality was only 19 per cent. (2) The incubation period tends to become longer, due to the prophylactic injection. Hence there are only 10 cases reported with an incubation of 10 days or under. (3) Only 14 cases are reported to have received secondary prophylactic injections of antitetanic serum in home hospitals. (4) In regard to the therapeutic effect of antitoxic serum the evidence is still inconclusive.

4. Modern View of Tetanus.—Fred Ransom, member of the War Office Committee on Tetanus, points out the fact that the onset of this disease varies considerably in different animals, and for this reason he divides animals, including man, into three classes, according to the form in which the disease commences. In guinea-pigs and mice the first symptoms after subcutaneous or intramuscular injection appear in muscles in the immediate neighborhood of the point of injection, producing what is known as local tetanus. In man and

the horse certain muscular areas are usually first affected, irrespective of the site of injection—in man the masseters and muscles of the neck, in the horse muscles of the neck and tail. This may be called tetanus or *tetanus descendens*. In frogs and fowls the symptoms are general from the onset. The course of the disease depends upon the amount of toxin administered; if sufficient, the local as well as the descending form will develop into more or less severe general tetanus; or if the dose is small the attack will not pass beyond the local or specific phase. Ransom, together with H. H. Meyer, offer the following explanation of local tetanus, as well as the etiology of tetanus as the result of their experimental work on this disease. When tetanus toxin is injected subcutaneously it begins at once to pass from the lymph spaces into the lymph vessels and in a few minutes can be recognized in the lymph of the thoracic duct. It thus reaches the blood stream, not much being absorbed by the blood-vessels direct from the seat of injection. This distribution continues, until in about 24 hours the lymph and the blood contain per cubic centimeter about the same amount of toxin. The result is about the same if the toxin is given intravenously. After neither of these routes of injection can toxin be detected in the cerebrospinal fluid, not even when doses far exceeding the lethal dose have been given. If by means of lumbar puncture the toxin is injected into the subarachnoid space without injury to the pia or cord it passes rapidly into the blood stream, and after the usual period of incubation general tetanus ensues. If, however, the toxin is injected intravenously and immediately afterward the spinal cord is injured by the injection of a drop of normal salt solution, then the general tetanus is preceded by a local tetanus in the muscles corresponding to the injured segment of the cord. If the injection of toxin is made direct into the cord a local tetanus corresponding to the injured cells ensues, and the period of incubation is greatly shortened. If an animal is first protected by the administration of a large dose of antitoxin so that no free toxin can exist in the blood, and then a small dose of toxin is injected into a motor nerve, a local tetanus corresponding to the distribution of the injected nerve results. Injection of toxin into a purely sensory nerve does not cause either local or general tetanus. The conclusion they draw is that the toxin is carried to the central nervous system along the motor nerves. The cells of the central nervous system do not pick up the toxin from the blood or the lymph; the only route by which cells can be attacked is via the motor nerves. Under this condition the toxin traveling along the motor nerves reaches their centers before the rest of the toxin, which has first to be absorbed and distributed, has time to become effective, and the result is a local tetanus. Certain areas can be protected by injecting antitoxin into the motor nerve. The sensory nerve trunks are not implicated in the transport of toxin from the seat of infection or the blood stream to the central nervous system, but they are susceptible if brought into immediate contact with the toxin. Muscular rigidity will not be the result, but hyperesthesia in the sensory areas corresponding to the injected posterior root. This condition Ransom and Meyer have termed *tetanus dolorosus*. They further believe that the transporting medium is the protoplasm of the neurons. The action of prophylactic injections of antitetanic serum has tended to limit this condition to local tetanus, and to remove man from the class of animals predisposed to descending tetanus to that in which local tetanus prevails. The injections do not necessarily prevent the occurrence of local tetanus, because some of the toxin formed at the point of injection is rapidly taken up by the motor nerves in the vicinity and can be effective; but they can ward off general tetanus. The writers consider that under present conditions the occurrence of trismus as a first or early symptom in man is an indication of insufficient or ineffective use of antitoxin as a prophylactic. With reference to the therapeutic use of antitoxin, the toxin in nerves and nerve cells is inaccessible to antitoxin. The only toxin which can be effectively neutralized is that in the blood and lymph; it is not taken up by the nerves, nor does it ever reach the nerve cells. It does not pass in any large proportion into the cerebrospinal fluid after intrave-

nous injection. Moreover, as antitoxin reaches the blood stream quickly from the cerebrospinal fluid, it would, if in excess, neutralize any toxin in the circulation. In the therapeutic use of antitoxin everything depends upon time, and hence the immense importance of careful research for the earliest symptoms and the unhesitating employment of serum upon their recognition. The prompt use of antitoxin may neutralize just that amount of toxin in the blood, which if it reached the nervous system, would turn the balance against the patient. Ransom points out the fact also that in human beings the diaphragm is very early attacked in this disease even before the jaws; then respiration will be to some extent interfered with because the inhibitory relaxation of the muscle tends to be converted into a contraction (pain in the chest).

Berliner klinische Wochenschrift.

October 29, 1917.

Therapy of Obstinate Cases of Malaria.—Auprecht, after some discussion of the treatments generally employed offers the following formula for obstinate cases of this infection which he fancies is of some service:

R. Acid, arsenic..... $\frac{1}{2}$ grain.
Quinin. hydrochlor..... 75 grains.
Succ. liquisit, q. s.

for 100 pills.

S. Two pills three times daily.

In the more urgent cases Auprecht reduces the number of pills to two daily and prescribes uridine hydrochloride in the dose of ten grains three to four hours before the expected time of the febrile paroxysm.

Death from Cardiac Disturbance in Diphtheria.—R. Rohmer, giving a summary of his researches carried out during the past ten years on this question, comes to the conclusion that the cause of sudden collapse during the evolution of diphtheritic intoxication should be looked for in the changes arising in the myocardium itself. However, disturbances in the innervation and conduction (the auriculo-ventricular dissociation demonstrated by the phlebogram) may increase the cardiac work and hasten its paralysis. On the other hand, the part played by renal insufficiency is amply demonstrated by numerous clinical and anatomical verifications; it acts by the intermediary of vascular hypotension or by a slowing down of the cardiac contractions. Consequently, the treatment of serious cases of diphtheria should above all include hypodermic injections of adrenalin, which now have a tendency to become general in Germany. The association of pituitary extract will also, according to Rohmer, increase the efficiency of the treatment by prolonging the action of the adrenalin.

Münchener medizinische Wochenschrift.

October 30, 1917.

The Clinical Aspects and Etiology of Volhynia Fever (Werner-His Disease) (concluded from the issue of October 16.—F. Munk and H. da Rocha-Lima, having studied and carefully examined the lice carrying the germs of typhus fever, have been able to confirm the intracellular development of the Rickettsia-Provazeki organism, the etiological agent of the disease. The Rickettsia met with in patients suffering from this infection and those developing in the lumen of the intestine in the louse are only exceptionally encountered within the cells. In order to put in evidence this differential character microscopic sections must be made, as cover-glass preparations are insufficient to demonstrate the intra- or extracellular situation of the organisms. As to Volhynia fever, the writers do not feel that their researches authorize them to attribute its etiology to the Rickettsia (*R. pediculi* and *quintana*). Besides, the transmission of the disease by lice is not the only way, because the urine likewise is a vehicle of transmission. The virus of the infection survives during the febrile phase of the disease, so that it may very well be admitted that there is a reasonable possibility of dissemination by cured carriers of the virus.

Has War Exercised an Influence on the Composition of Mother's Milk?—Momm and Kraemer have undertaken a series of analyses of the milk of nursing women of the poorer city class, all of whom offered a certain

amount of emaciation due to privation resulting from the war. They found that the milk was, generally speaking, not greatly changed in its composition. The writers offer the following comparative table:

	War-Time.	Normal.
Sp. gr.....	1.0249	1.0298
Water.....	85.41 per cent.	87.58 per cent.
Dry extracts...	13.53 per cent.	12.2 per cent.
Fats.....	3.61 per cent.	3.74 per cent.

Deutsche medizinische Wochenschrift.

November 1, 1917.

Partial Sinoauricular Block in Man.—H. Straub reports two cases of bigeminate pulse. The phlebograms and the electrocardiogram showed that the condition was really an arrhythmia involving both auricles and ventricles. Its site must, therefore, be above the auricle, that is to say, sinusal or sinoauricular. The writer believes that the first named location is to be discarded. The fact that the interval separating two groups of systoles is equivalent to twice the interval of these systoles necessarily offers the following explanation, namely, that the sinus beats normally at the rate of 103 pulsations per minute. Of the three following impulses, only two reach the auricle, the third being intercepted on its way to the auricle. This rhythm of two in three can suddenly become transformed into a bradycardic rhythm, quite regularly struck at at one for two, and this occurred in the second case recorded in the paper. The writer is of the opinion that these phenomena may throw some light on the genesis of paroxysmal tachycardia and permanent bradycardia. He is not inclined to explain the process by changes in a neuromuscular bundle, which for that matter does not exist, but by a disproportion between excitation and excitability in the area of the primitive cardiac tube.

Reactions of Immunity, Produced by the Weil-Felix Bacillus and Their Etiological Significance in Typhus Fever.—E. Friedberger, basing his views on experiments of agglutination, precipitation, the deviation of the complement, on the presence of Pfeiffer's phenomenon, and on the inoculability in the guinea-pig, affirms that the Weil-Felix bacillus is pathogenic of typhus fever. He is decidedly opposed to the theory which attributes this disease to a protozoön developing in the louse and which considers the Weil-Felix reaction as purely secondary. Everything points to a bacterial infection, the agent of which can only be the bacillus of Weil-Felix. For these reasons this organism should be called the bacillus of typhus fever.

Wiener medizinische Wochenschrift.

November 3, 1917.

Scorbutus at the Front (continued from the issue of October 27).—E. Schindler has endeavored empirically to solve the question of the genesis of scorbutus by giving certain fixed diets for different groups of cases. From his observations it appears that essays in the treatment of this process in the circumstances permitted by the conditions at the front, show that an abundant diet of fruit and vegetables, particularly uncooked (sour kroust, sorrel, lemon or other juice), rich in vegetable acids and aromatic bodies, rapidly cure the process and even act in a prophylactic way. At all events the experiments of the writer are opposed to the acidogenous theory, likewise to the theory of demineralization. The comparative action of the various vegetables has no relation whatever with their content of the various ions (K, Na, Ca). Everything points favorably to the part played by vitamins in preventing the development of this pathological process.

Lateral Radiography of the Sternum.—L. Lilienfeld merely refers to the value and technique of radiograms taken in profile of the sternal region, which requires no analysis of the paper.

La Presse Médicale.

December 3, 1917.

Initial Azotemia and Its Prognosis.—Widal, Weill, and Pasteur Valéry-Radot report on some interim work following the publication in 1914 of an essay on azotemia. A number of cases of Bright's disease originally studied have been followed up. Much has been learned

about the significance of blood urea when the latter exceeds 1 gram per liter, and the authors have transferred the problem to the initial phase of azotemia when the blood urea ranges between 0.5 and 1.0 gram per liter. This low figure corresponds also to minor azotemia, and in its consideration certain outside factors have to be borne in mind, such as the intake of protein food, the intake of chlorine, the presence or absence of edema, the state of diuresis, and perhaps other factors. All of these elements must be removed or discounted. Minor or initial azotemia may be expected under a variety of circumstances aside from progressive cirrhotic processes; for example in acute nephritis, including so-called war nephritis; while it also may come and go in chronic nephritis under similar conditions, i.e. there is a tendency to acute exacerbation. Hence azotemia may not be progressive but regressive, and allowance must be made for such behavior. As the regressive type is transitory, such cases can be made to exclude themselves. On the other hand an azotemia of more than 3 grams per liter presents no problem, for the patient has not long to live; and one between 2 and 3 grams per liter is hardly a problem, for the individual patient will very likely succumb in a few months, perhaps in a few weeks. When the azotemia is between 1 and 2 grams per liter the problem consists in securing for the patient the year or so of life which may be coming to him; for if his blood pressure be not controlled he may die suddenly from some accident, and this likelihood is by no means absent in azotemia below 1 gram per liter. Generally speaking, a blood content of urea below 1 gram per liter, but not less than half a gram, presents a complicated condition for reasons already stated. It may mean a stationary lesion, as in a case stated in which during four years 1 gram per liter was never exceeded. Or it may mean an intermittent evolution in which the initial azotemia disappears for a given period only to return in a less degree. In a third type we see oscillations about the half-gram mark, while the fourth type is progressive throughout. Hence, by the term initial azotemia the authors do not imply a condition in its first stage which is bound to grow worse, but rather a condition which may regress, remain constant, intermittent, or become progressive. It is a danger signal.

Hospitalstidende.

September 5, 1917.

Two Cases of Cancer of the Stomach with Initial Diagnosis of Malaria.—C. Rovsing reports cases as follows: 1. Male, 47; history of beriberi and malaria; admitted to Th. Rovsing's private clinic with diagnosis of latter. There was a crisis of fever every third or fifth day. During several years previous he had suffered—following hospital diagnoses—from staphylococcus sepsis, hematuria, and pyelitis. A study of the stomach chemistry led to a diagnosis of pyloric stenosis, possibly cancerous. The only symptom which appeared to implicate the stomach had been attacks of vomiting, which stood in some relationship with the fever, being followed by defervescence. No tumor could be palpated. Laparotomy revealed a large mass in the stomach wall without extragastric extension or metastases. Resection was performed by Polya's method with good recovery. Case II closely resembled Case I. The patient was a man of 49 who for some years had suffered from recurrent attacks of fever which subsided after vomiting. Fever was continuous for 4 or 5 days and was not controlled by quinine or arsenic. The spleen was somewhat enlarged and anemia was shown of blood counts. Tests of stomach contents showed retention and a diagnosis of pyloric cancer was made, confirmed by operation. The patient succumbed from recurrence. Neither of these patients had presented digestive disturbances, and there had been no reason for suspecting the presence of cancer. The association of gastric retention with fever and finally vomiting with defervescence is rare in literature. A "five-day fever" associated with stomach cancer was noted by Halla in 1844, while Hampeln reported cases much like the author's later in the same year. In 1889 Bühring wrote a thesis on intermittent fever in the course of cancer of the stomach.

Book Reviews.

THE PRINCIPLES OF GYNÆCOLOGY FOR STUDENTS AND PRACTITIONERS OF MEDICINE. By BLAIR BELL, B. S., M.D., Lond. Gynecological Surgeon, Royal Infirmary, Liverpool; Lecturer and Examiner in Clinical Gynecology in the University of Liverpool; Sometime Examiner in Gynecology and Obstetrics to the Royal College of Physicians and Surgeons, England, and to the Universities of Durham and Belfast; Arris and Gale Lecturer, and Hunterian Professor, Royal College of Surgeons, England. Second Edition. Large octavo of 551 pages with 363 illustrations. Price, \$6.50. New York: William Wood and Company, 1917.

WHILE this book has been revised wherever it seemed necessary, the author frankly states in the preface that the alterations have been comparatively few for two reasons: first, because recent additions to our knowledge required only occasional changes in the text; and, second, because of lack of time to rewrite extensively on account of war conditions.

Fortunately, this is a book that required but little change owing to the unusual excellence of the former edition. Here we have a work that follows a plan far different from the usual track. It is not a compilation, but is a practical book based on the author's extensive experience, and describing the methods he has found most useful. Much stress has been very properly laid on the value of a thorough knowledge of gynecological physiology, anatomy and pathology; for certainly without such a knowledge intelligent treatment is next to impossible. Besides excellent descriptions of the various pathological processes that affect the genital apparatus, there are numerous illustrations and photomicrographs showing the gross and microscopical pathological anatomy. Numerous illustrations are also called to the aid of the text in connection with the descriptions of the normal appearances of the genital structures, forms of treatment and operative technique.

To give a firm foundation for the study of the subject, nearly 100 pages are first devoted to the development, normal anatomy and physiology of the genital organs. Methods of examination are next discussed and illustrated, then the various congenital and acquired conditions which one meets in gynecological practice are taken up in logical sequence. Finally, there are chapters devoted to the preparation for operation and after-care of the patient, and to the description and illustration of the technique in the more common gynecological operations, both vaginal and abdominal. In the Appendix there is a short chapter on electrotherapeutics in gynecology which is contributed by J. Curtis Webb, and a chapter entitled: "Classification of the Causes of Certain Symptoms." This latter, if properly used, should be of much value.

The book is well printed and bound, the numerous illustrations are almost uniformly excellent and to the point, the text is lucid and well written, as well as being authoritative, and as a result the book can be unhesitatingly recommended for use by both student and practitioner.

A TREATISE ON ORTHOPEDIC SURGERY. By ROYAL WHITMAN, M.D., M.R.C.S., Eng., F.A.C.S., Assistant Professor of Orthopedic Surgery in the College of Physicians and Surgeons of Columbia University, New York; Professor of Orthopedic Surgery in the New York Polyclinic Medical School and Hospital; Associate Surgeon to the Hospital for Ruptured and Crippled; Orthopedic Surgeon to the Hospital of St. John's Guild; Consulting Orthopedic Surgeon to St. Agnes' Hospital for Crippled and Atypical Children, White Plains, to the New York Home for Destitute Crippled Children and to the New York State Board of Health; Member of the American Orthopedic Association; Corresponding Member of the British Orthopedic Society; Member of the New York Surgical Society, etc. Fifth edition, revised and enlarged. Octavo of 906 pages illustrated with 704 engravings. Price, \$6.50 net. Philadelphia and New York: Lea and Febiger, 1917.

WHITMAN'S book is a real orthopedic surgery and not a mere compilation of pathology, signs, and symptoms of orthopedic conditions with exhaustive directions for the application of plaster and braces and with occasional brief suggestions for real surgery. The author

has done much for the advancement of his specialty. He has originated methods of treatment and devised operative procedures that have been accorded almost general acceptance, though sometimes rather tardily and apparently rather grudgingly on the part of some of his confrères. In addition to this, Whitman has been a close student of the literature of his subject, has had many years' experience as a teacher of both undergraduate and postgraduate students, and possesses distinct literary ability; hence it is not surprising that his work has already reached a fifth edition and that we can classify the work as a real orthopedic surgery.

As the author remarks in the preface, the recent epidemic of anterior poliomyelitis and the crippling accidents of war have enforced a general recognition of the importance of orthopedic principles as applied both for prevention and "reconstruction." The book has, therefore, been carefully revised with the purpose of presenting the broader aspects of orthopedic surgery in scope and detail as defined by its literature and by the work of representative clinics in this and other countries. He also calls attention to the fact that the most distinct advance of orthopedic surgery in recent years has been toward the prevention of deformity. These principles have been kept in mind, and the result is a book that reflects current opinion and current practice perhaps better than any other in this field.

However, the chapter entitled "Military Orthopedics" is a great disappointment. The small space (12 pages) devoted to this subject—a subject of world-wide interest now and for many years to come—is woefully inadequate; and we feel that the chapter might almost as well have been omitted entirely. Possibly the author felt that detailed exposition of this phase of the subject should be left to those having greater experience in this particular field, or until he himself has had greater opportunities for observing and treating a sufficient number of cases; but, whatever the reason, one would hardly think that the author of this puny effort could be the same man who has written so admirably and at times brilliantly on the subjects covered in the remainder of the volume.

TALKS ON OBSTETRICS. By RAE THORNTON LAVAKE, Instructor in Obstetrics and Gynecology, University of Minnesota; Obstetrician-in-Charge of the Out-Patient Obstetric Department of the University of Minnesota, etc., etc.; One Time Assistant Resident Obstetrician to the Sloane Hospital for Women in New York. Price, \$1. St. Louis: C. V. Mosby Company, 1917.

THIS little book suggests a quiz or pocket compend, but is not intended for either purpose. Dr. Litzenberg, the author's superior in the teaching body of the University, contributes a brief introduction in which the volume is classed as unique. It consists of thirteen chapters on special features of midwifery practice, including sepsis, toxemias of pregnancy, hemorrhage, forceps, podalic version, occipitoposterior positions, face presentations, cesarean section, etc., etc., with an additional chapter on Rules in Obstetrics. Placenta previa is considered under hemorrhage and eclampsia under toxemias so that more ground is covered than at first sight appears.

TROUBLES MENTAUX DE GUERRE. Par JEAN LEPINÉ, Professeur de Clinique des Maladies Nerveuses et Mentales à l'Université de Lyon. Collection Horizon. Prix, 4 francs. Paris: Masson et Cie., 1917.

THE clinical section of the work deals with acute, chronic, and special affections. Under the first named are considered confusional, depressive, and commotional states, acute organic diseases, and alcoholism. Under chronic affections we find various forms of dementia, including paresis and chronic confusional and delirious states. Under special affections are discussed the mental symptoms of chronic organic diseases (excepting paresis) and of epilepsy, hysteria, and psychasthenia. The second section of the book deals with the forensic aspects of war insanities in respect to desertions, arson, theft, simulation, etc. Seven types of individuals require consideration in respect to the value of their testimony. A special chapter is devoted to the management of these men. A work like this should have many bearings on insanity and psychiatry in general and should cause some modification of prevalent views, especially in regard to commotional syndromes.

Society Reports.

THE AMERICAN CONGRESS ON INTERNAL MEDICINE.

Second Scientific Session, Held in Pittsburgh, December 27 and 28, 1917.

DR. REYNOLD WEBB WILCOX, PRESIDENT, IN THE CHAIR.

(Concluded from page 87.)

Friday, December 28—Second Day.

Some Problems of Cardiovascular Disease.—Dr. EDWARD E. CORNWALL of Brooklyn, N. Y., read this paper. The author stated that the central pumping system, including the tubes, might be subjected to unusual wear and tear. This system with its dependent branches might be considered as a whole; and looked upon in this way its defects need not be necessarily denominated "arteriosclerosis," nor "chronic nephritis," nor yet "myocardial disease"; these were merely pathological manifestations in the principal foci, so to speak, and could not each be considered as a clinical entity. The damage to the pumping system as a whole presented many problems, but the speaker would confine his discussion to two of them—heredity and prophylaxis. Prophylaxis in this condition deserved more attention than it generally received at the hands of the profession. Cardiovascular disease, the author stated, was as important in the second half of life as bacterial disease was in the first half. The loss to the world, by the premature shortening of useful activities was undoubtedly greater. Among etiological factors, heredity played a prominent part. The quality of the pumping apparatus was inherited, just in the same way that a constitutional susceptibility to tuberculosis might be said to be an inheritance. An inherited metabolic insufficiency was often a pathological condition predisposing to cardiovascular disease. Apoplexy, diabetes, gout, heart disease, obesity, chronic headaches were all factors often to be noted in the heredity of patients whose vascular apparatus showed early signs of wear and tear. Many, by adopting a certain modified mode of life, escaped the consequences of such an heredity. Excessive work, either physical or mental, was one potent factor in producing early degeneration of the vascular apparatus. Late hours and excitement forced the cardiac apparatus to maintain permanent arterial overpressure. The immense task of transforming material from the outside world into suitable agents for nutrition of the body was laid upon metabolism, as also the elimination of the waste products. The poisons of infectious diseases—syphilis, rheumatic fever, typhoid, laid a heavy burden on the system, and often did permanent damage to the circulatory apparatus. A very common cause of damage too was chronic poisoning by tobacco, alcohol, or caffeine. Thus it might be stated that *easy life* and *easy diet* were essentials in dealing with these cases. The term "easy life" needed no further elucidation. The term "easy diet," however, was not so easy of explanation. Modern life had changed the habits of the organism in one or two generations from the natural, simple country life to the artificial life-under-strain of cities, with a resulting great increase of deaths from cardiovascular disease. Therefore, the "easy diet" must reduce to a practical minimum the work of the organism in feeding and fueling itself, and in cleaning out the furnace. There must be quantitative as well as qualitative regulation. Different articles of food might have the same proportions of food elements, but, from the point of view of their consequences in the body, they might be very different. Thus spinach and cabbage; or again, dextrose and saccharose, had the same constituents, yet differed widely in physical value. Lean beef, milk, eggs might have the same amino acids, yet in their by-products might produce a very different effect. In some proteins the broken down products were subject to putrefactive action in the intestine; others were susceptible to the action of acid-forming bacteria; these latter, which soured on spoiling, such as milk and cereals, did not load the body with products of putrefaction. However, the body became accustomed to battling with a certain amount of putrefactive poison, so that a

certain amount of such proteins could be used. In this connection it could be said vegetarianism did not meet the needs of the body. To quote Holy Writ, "Man cannot live by bread alone . . ." By thinking in terms of amino acids—in what the body needed without losing nitrogenous weight, it was found that vegetables did not correspond to the body needs. Perfect proteins, in terms of amino-acids, were animal flesh, eggs, and milk. Milk contained the amino acids in a desirable form. Thus, while vegetarianism was not suited to body needs, a lacto-vegetarianism was possible, although a small amount of meat was permissible. The author further stated that the symptoms of arteriosclerosis were simply nature's efforts to counteract existing damage. Sometimes nature lost control and overdid her efforts. Only where pressure was high enough to injure the system, was treatment indicated. All other efforts should be directed toward removing the conditions which make treatment necessary; and the most important part of this treatment was the "easy diet."

Dr. R. W. WILCOX of New York said that it was a little dangerous for a speaker to quote Holy Writ. Another quotation might be found to refute the first. He believed that there was one individual mentioned in the Bible who subsisted seven years on grass. Nebuchadnezzar was the name of this person. Dr. Wilcox said that he was interested in the question of vegetarianism. Very few persons were really true vegetarians. He knew of one man, a physician, who was a strict vegetarian, and it was remarkable to note in this connection that the more nearly the person approached a non-animal diet, the more sweets they were apt to consume. They were also apt to be inordinate users of tobacco. So-called vegetarians often consumed a considerable number of eggs in their diet. In Europe there were many vegetarian restaurants, but the only really palatable article they offered was chocolate, which was frequently really delicious, and the only excuse one would have for patronizing them. The speaker said he wished to express appreciation of Dr. Cornwall's scholarly paper and he hoped the response by discussion would be generous.

Dr. C. EVERETT FIELD of New York said that he considered this subject to be of tremendous importance. They should all appreciate Dr. Cornwall's scholarly presentation of the subject. In his own work, as director of the Radium Sanatorium in New York, his attention was constantly called to the study of cases in this condition. The Germans had written for ten years on the value of radium in internal treatment, and the cases sent to them were those of diet, where all known treatments had failed. Many cases ran a blood pressure of from 180 to 240, with extreme kidney or heart lesions. It could be said that if any result was obtained from the administration of radium, it came from the action of the rays on the body metabolism—that is the body ferments. Even with the tiniest dose of radium water there was an enormous increase of solids in the urine, with corresponding vascular dilatation. It is true that the pressure should be slowly and gradually brought down, but where one could bring about an improvement in the action of the kidneys, dilatation was a safe procedure. The patient might have been on an extremely restricted diet for 6 years and yet the blood pressure could be brought down 30 points. These results showed a fair permanence. Dr. Field said he had noted continuance of results after 3½ years. The importance of these conclusions was enormous. The number of active business men who were going down daily with cardiovascular disease was appalling. The first symptoms of degeneration of the cardiovascular system must be studied. As Dr. Cornwall had stated, if one could head off the first beginning of degeneration, the changes in the valves before degeneration started in the blood vessels, then it could be asserted that the profession had solved one of the most important problems of internal medicine that it had ever dealt with.

Dr. TICE of Chicago said that it would seem at the present time that the question of diet was of the utmost importance in dealing with cardiovascular disease, which was, in turn, closely associated with the question of *tonus*, or cardiac power. Diet played a large part, both in the production of the disease and in the restoration of cardiac efficiency. An important point was the

reserve power of the heart and its ability to return to tonus. The question was not so much as to whether the actual disease was myocardial or aortic, but what was the functional ability still possessed by the heart. This again hinged not only upon the question of actual change and vascular capacity, but also upon whether or not the heart was receiving the proper amount of nutrition. Whether this was to be corrected by the regulation of diet, or whether it was to be corrected by attention to other metabolic disturbances, by increase of elimination, by radium therapy, mechanical therapy, or any other one might use. The whole thing rested upon the reestablishment of cardiac tonus, which practically meant cardiac function.

The president said he would like to suggest a correction to the first speaker, who had said "cardio-vascular dilatation." Presumably he meant "vascular dilatation."

Dr. BAAR of Portland, Oregon, said that the first thing radium did was to cause leucocytosis. Whether the increased leucocytosis had anything to do with increased metabolism, and thereby elimination of toxins and consequent prevention of arteriosclerosis was as yet purely a speculative question. When one asked if radium stimulated enzymes and hormones, one was surely dealing, as yet, with abstract metaphysics. So far as one knew there was leucocytosis and nothing else. He thought internists must stick to what they really knew. Leucocytosis was still as much of a conundrum as it was 2000 years ago. One could not say anything new about it.

Dr. BARAC of Pittsburgh said he would like to touch upon one or two important points. For the last 12 or 15 years he had been specially interested in the subject of cardiac hypertrophy. He would like to bring to the minds of those present the fact that efforts at cardiac compensation occurred frequently in adolescent boys and youths of college age. One did not have the opportunity to study girls at this age so much, but in boys it was perhaps the result of increased muscular activity. Often in these subjects, up to and during the college age, one found the apex prominent and there was an increased area of dullness, although one did not state that a boy had an hypertrophied heart because the dullness went beyond the average limits. This might be only functional and not pathological. The speaker had had an opportunity to see many college boys and in the Carnegie technical schools from 3000 to 5000 were examined every year and frequently there was found a condition of cardiac hypertrophy. In regard to athletics, Dr. Barac said the men who trained for the Marathon race of 25 miles were in training 5 months of the year. These men showed increased blood pressure and enlarged hearts on physical examination. In these cases there was a true hypertrophy. Shortly after the maximal effort, many of them showed broader hearts with symptoms of dilatation. Within a few weeks many of these hearts returned to the normal size, so that as soon as there was relief of the excessive strain the condition disappeared. This showed that the hypertrophy was in response to the demand of the organism. One man who came to the speaker for 15 years had been in the practice of keeping in training to run 25 miles, for no other reason than that he thought he was smart to do it. This man had a permanent hypertrophy of the heart. Another thing that was apt to happen when these college boys ran 5, 10, or 15 miles, was that most of them come back showing albumin, red blood cells, and even casts in the urine. This condition could be produced within five minutes after commencement of the effort. It was not surprising that casts could be thus produced by excessive effort for a few minutes, but the point to be borne in mind in connection with this sign was that an albuminuria might be very transient and when a patient came into the office with this symptom, it did not necessarily follow that it was a serious condition. The history of medicine after the Civil War showed that there were many cases of damaged hearts. One wonders if there would be any interesting and startling results recorded now in the army, as many men who had lived sedentary lives would be obliged to undertake long marches. It was probable that many of these would show enlarged hearts and many latent weaknesses would be developed. There was a class of cases

which came in the hypertension class. These patients exhibited all the symptoms of hyperthyroidism. They had the nervous symptomatology, sugar in the urine, and exophthalmos, associated with hypertension. After ten days or so of treatment by rest in bed, a remarkable change was brought about in the nervous condition. They no longer showed signs of the "excessive kinetic drive" of Crile. This class of patient was remarkably amenable to treatment and breaking the vicious circle would produce a remarkable improvement in the state of hypertension. During the past few years the speaker said he had noticed several patients of the large, obese type, having a low blood pressure—110 systolic; they also had albumin and casts in the urine. These cases had rapidly, that is within a year, progressed to the stage of hypertension, 160 to 180 systolic pressure, which showed how quickly the hypertension might develop. These symptoms were apt to have their beginning in early college days, but in middle life they developed very rapidly.

Dr. BAAR of Portland, Oregon, said that one could have some very interesting speculative ideas in regard to this matter. He had not seen the matter published anywhere of which he would speak. A year ago he noticed a man 70 years of age, who had had a prostatectomy done. This man had a blood pressure of 140. A week after he left the hospital Dr. Baar took his blood pressure and found it to be 240, but there were no subjective symptoms at all, no albumin, no casts, absolutely nothing pathological. The man was treated with prostatic tablets, and the pressure dropped to 170 and stayed so. He wished to mention this for the sake of priority, not because one could prove any definite connection with the subject on hand.

Dr. A. CAILLÉ of New York said he would like to express his appreciation of Dr. Cornwall's presentation. The writer had approached the subject from a point of view that led one to hope that the medical profession was at last getting away from "tinkering." A slight improvement in nomenclature might be suggested; he would prefer the term cardiovascular diathesis, instead of cardiovascular disease; that, however, was a minor point. As to the importance of a restricted diet, he fully agreed with the speaker. A carbohydrate diet, with milk derivatives, was indicated in these conditions. He would like to say a word about high blood pressure. He understood Dr. Cornwall to mention that the adjustment of diet and vasodilators were indicated. He, Dr. Caillé, had found that a venesection, done two or three times a year, would carry these patients on for many years, and could afford considerable comfort, without much trouble.

Dr. IVES of New York said that he wished to discuss this paper from the standpoint of food and metabolism only. He felt that when they went into the question of amino-acids, they were getting somewhat beyond their depth. Speaking in terms of eggs, meat and milk they could work their conclusions out clinically. It must be remembered that not all of these patients with cardiovascular disease were adults, and therefore it was not always a case of faulty metabolism and high pressure. Some of the problems had to be considered from the point of view of toxemia. There was always some damage to the cardiovascular tract in infectious disease. The doctor spoke of rest—rest was an imperative factor for a much longer time than during the actual illness. From the standpoint of high pressure, mention had been made of prostatic tablets. In senility it was to be remarked that there often occurred a low pressure, a hypotension. With these patients one should advise a course of thyroid or pituitrin, and the pressure curve would respond beautifully. This showed that there was something depressive in the lack of internal secretion, even with cardiovascular disease. A course of thyroid or pituitrin would restore the patient to normal health.

Dr. HEINRICH STERN of New York said that the alimentary tract of the occidental human being was not fitted to elaborate completely the vegetable nutrients or their contents. They must not forget that in the oriental races such as the Japanese—a much smaller race—the alimentary tract was from 3 to 6 feet longer than in the European. This extra 3 to 6 feet undoubtedly served some special purpose in metabolism. According to experiments made in Tokio there was no diet

more suitable to the Japanese than the one they were best fitted to elaborate. He understood that the Japanese did not use milk at all, nor did they make use of milk derivatives, including butter and cheese.

The President said that he was interested in the reference to "tinkering" in medicine. He would like to refer to the use of the sphygmomanometer in clinical medicine. In the examination of 1,300 men, veterans of the Civil War, a very frequent symptom that was observed was an extremely low blood pressure. At the same time there were a great variety of serious forms of heart disease. It was unnecessary in a society of this scientific prominence to observe that the sphygmomanometer was of no more and no less use or importance than the clinical thermometer. High or low pressure was not to be considered *per se*. It merely afforded an opportunity for investigating as to the cause thereof. It was to be hoped that the object of this organization would be to stop "tinkering" and get to the bottom of things. This paper of Dr. Cornwall's showed that they were fulfilling their mission as internists.

Dr. E. E. CORNWALL, in closing, said that there were very many interesting points which had been brought out by the discussion. In the first place, as to the name cardiovascular disease. It was, he admitted, a clumsy name, but it meant a wearing out, a clinical syndrome. Other names were much better perhaps—cardiovascular renalism would be a better term, but one had become accustomed to the other and it was understood to express the general syndrome. As to Dr. Baar's remark about their having learned nothing in 2,000 years about leucocytosis, he could not quite agree with him; we had learned the name at least. In regard to the use of dilators, anything like the use of dilators was absolutely wrong in the majority of cases. They must understand that these symptoms were a manifestation on the part of nature that she was trying to compensate the damage. It was when nature overdid her part and injury was threatened to the vascular structure, then and then only had they any right to use the artificial methods of relief and to save the rest of the organism at the expense of the mechanism. He felt that the use of dilators was a great deal overdone. As regards venesection, that was a mighty good thing to do sometimes. It had saved lives many a time. When there was a low diastolic pressure an artificial dilator should never be used. In regard to amino-acids, which had been spoken of in a somewhat slighting tone, this was merely a way of expressing the amount of digestive proteins in the proportions required by the body. The vegetable proteins could not be as conveniently used in body metabolism. As to vegetarians, those who ate eggs were not strict vegetarians. In regard to the length of the alimentary tract, no doubt a shorter alimentary tract required a little meat, but the tendency today was to eat too much. A certain amount of meat was useful. A person born with a constitutional predisposition to gout, apoplexy, Bright's disease or cardiovascular disease should take a low animal protein diet. The phenomenon of low blood pressure being seen in old persons was not unusual. It was frequently seen in such persons as were comparatively healthy and getting along very well. There were one or two factors perhaps which produced this symptom. The first was chronic tobacco poisoning. This would lower the systolic pressure. Second, an intestinal toxemia would sometimes lower the blood pressure, though this depended on the type of bacterial poison. A colon bacillus toxemia would raise the blood pressure, at least it did so in animal experimentation. Thirdly might be mentioned a constitutional habit. Many of these old people got along very comfortably.

The Relationship of Infection in the Production of So-called Pernicious Anemia and Its Significance with Respect to Treatment.—Dr. FRANK SMITHIES of Chicago read this paper. He said that before treatment of this disease could be suggested it was necessary that the nature of the affection should be understood. The treatment was then to be directed toward the restoration of normal functions. Since the first studies of the disease, in 1822, up to the present time, the nature of the affection had been found obscure and the regime had been one that was merely harmless to the patient.

The disease progressed in a more or less self-regulated fashion toward a fatal conclusion. The question to be asked first was what was pernicious anemia and what was not? Any progressive, chronic anemia should be classified as pernicious. Addison's conception of the disease should be appreciated, and it could be considered as identical with Biermer's progressive anemia. They both represented processes in the blood picture attributable to unknown causes. A secondary anemia was supposedly due to known causes, but there was no hard and fast line that could be drawn between the two. One was apt to merge into the other. An idiopathic anemia was distinct from Addison's anemia, which was essentially a hemolytic anemia, specific, chronic in course, and closely related to sepsis. It was due, doubtless, to hemolytic organisms with selective action for the lymphoid tissue. Hunter's theory was that various organisms such as *Streptococcus longus*, or *Streptococcus viridans*, might undergo changes in virulence and be responsible for the condition. The character of the disease might be chronic, or it might be acute. The chronic form, or Addison's anemia, was the most frequent. In the chronic type in the later stages there might be a gastric leucemia, spinal changes, disturbances of sensation, and psychic upsets. Pyorrhea was often an accompaniment. The acute type was characterized by delirium, a semiconscious state, extreme blood changes, the hemoglobin being sometimes as low as 18 per cent., and the coagulation time, 8 minutes. This type was infrequent. A typical case of this kind could be cited. The patient was a young woman, brought to the hospital on a stretcher in a semiconscious, delirious state. Three months before she had been in perfect health, robust, and well-nourished, and had been considered a prize country beauty. She had suffered from an attack of grip with sore throat. A swelling then appeared below the left ribs and the hemoglobin steadily diminished. In this case a hemolytic coccus was isolated from the throat and tissues of the spleen and gallbladder. In this, as in other such cases, the blood was watery and greasy, coagulation time was prolonged, there was variation of the iodine and cholesterol content, and increase in fatty acids which were highly toxic; there was considerable fatty degeneration of the nonstriated muscle. Accompanying these cases were frequently found lesions in the mouth, tonsils, nasopharynx, teeth, and alveolar processes, and an advanced glossitis with invasion of the lymph spaces of the tongue by hemolytic streptococci. Gastrointestinal lesions in this disease were of the ulcerative type. There was early hypertrophy, followed by atrophy and bacterial invasion of the muscle bundles of the walls of the intestine, resembling croupous ulceration. Rosenow's method of culturing bacteria from the tissues would often show hemolytic streptococci, colon bacilli, or *Streptococcus viridans*. In the liver would be found a great increase of blood-derived pigments. The bone marrow first showed megaloblastic hyperplasia, followed by aplasia. In Addison's anemia the spleen was enlarged and congested, and there was considerable perisplenitis. Hemolytic cocci were frequently found in the spleen tissues. In this connection it should be stated that the major function of the spleen had yet to be discovered. It had, no doubt, a protective action and prevented excessive stimulus by the bone marrow. Some workers thought that the destructive action by the spleen proceeded faster than blood construction, and that the spleen became hyperplastic in consequence. One thing could be stated, however, that removal of the spleen was not a cure for the disease. In regard to the problem of treatment there were fundamental points, namely: (1) to bring the serum to normal; (2) to stimulate antibodies, or lysins to counteract the absorption of toxins; (3) to stimulate red-cell production in the bone marrow; (4) to improve the patient's general state and prevent absorption of putrefactive products of digestion; (5) to insure protection of red blood cells by removal of hemolytic cells. In regard to the first point, sometimes saline infusion was found beneficial, as it destroyed inimical constituents in the blood stream, but the writer preferred introduction of whole blood. Requirements for the donor were a negative Wassermann; that he should not recently have had any infectious disease, including tonsillitis; that he should be in good physical

condition. A near relative was not chosen on account of the possibility of a family tendency to the disease. Successful transfusion gave the bone marrow a chance to rest, rather than stimulated its productive energies. In regard to the diet of the patient, it should be limited in respect to proteins and fats, as there was generally a pronounced achylia gastrica. Renal activity should be stimulated by water. The heart could be favorably affected by rest in bed. Fresh air and sunlight were indicated as much as possible, with proper protection from sunburn and cold, as these patients suffered sunburn easily. In conclusion the reader said that 51 exploratory laparotomies had been done in order to discover the focus of infection. In some cases this was the spleen, in some the liver, the gall-bladder, or the appendix. Hemolytic cocci were found in the tissues. The infected organ was removed. After the removal of the focus patients improved out of all proportion to the blood picture. Fifty-six per cent. of cases had been restored to normal. Active life had been resumed for periods varying from 7 to 51 months. Favorable prognosis was in inverse proportion to the amount of damage done to the system. In those cases in which spinal cord changes had already occurred, little or nothing could be done.

THE PRESIDENT said that there was a clinical symptom which these patients presented which was noted by Addison, and which had not escaped the observant eye of Dr. Smithies, namely, mental deterioration. This did not proceed *pari passu* with the blood picture. It was, however, a matter of great importance occasionally as it might occur in the course of a judicial inquiry. This was an excellent paper, and called for free discussion. There were many points in it which had not been enlarged upon owing to lack of time. One point that might be justly called "tinkering" was treatment by splenectomy, *per se*.

Dr. BARAC of Pittsburgh said he believed this was one of the first indications they had had that physicians were getting down to the underlying cause in pernicious anemia. They had been wandering in a maze without knowing where to go. Now one could see that infection was a very likely source of the trouble. It had been lately recognized that infection round the mouth was a probable source of much trouble. Efforts had been directed toward the removal of pyorrhea, which was a frequent accompaniment in these cases. The picture of the tongue in pernicious anemia was characteristic—the red, beefy, smooth, cracked tongue was a prominent symptom. Relapses were always associated with ulcerations of the tongue. He said he had touched these ulcers with nitrate of silver, not because he thought it a good thing, but because he did not know what else to do. Dr. Barker's discussion of pernicious anemia was based on general lines of hygiene, the supply of hydrochloric acid, and intestinal antiseptics. Dr. Smithies had given them something more tangible to work upon. It might be added that in certain cases treatment directed against infection seemed to have done some good. Intravenous injection of salvarsan, which perhaps acted as an antiseptic on the bacterial side, had been of use. He had seen remarkable results in some cases. There was a marked reaction and rise of temperature. He thought there must be a great deal of truth in the theory of infection. If treatment were followed along this line one would get surprising results.

Dr. FRIEDMAN of New York said he had not had experience with acute pernicious anemia. He had observed cases for from 8 to 10 years. Everyone knew that in pernicious anemia there occurred blood crises, especially in the initial stages; on one examination one would find a typical picture, and one month later the picture would be questionable; for instance, megaloblasts would not be found. Improvements in the blood picture could occur even without treatment. He did not know why the blood picture did not remain constant. It never impressed him that splenectomy could benefit the patient because the enlargement of the spleen was certainly a secondary condition in pernicious anemia. In hemolytic jaundice, due to hypersplenism, this really might be of service. He had a patient who was well for two years after splenectomy for hemolytic jaundice. The two conditions were different. In pernicious anemia enlargement of the spleen was not

so pronounced as in other conditions. Extension of the spleen below the umbilicus was rare. The primary condition was not in the spleen or in the bone marrow. As to the infectious nature of the disease he thought Dr. Smithies has produced good experimental evidence in his cases. One was accustomed lately to attribute all latent infection to the tonsils, but one should also consider gastric ulcer, duodenal ulcer, appendicitis, and poliomyelitis. The profession would soon be looking for the primary site of all these infections, which used to be considered the tonsil. If these cases of pernicious anemia could be attributed to infection the discovery would be of great importance to preventive medicine. In regard to achylia gastrica, he had never seen pernicious anemia without this symptom. If there were no achylia, diagnosis should be made with great reserve. Some years ago he had a case with typical picture of pernicious anemia—normoblasts, megaloblasts, enlarged spleen, etc. The man was seen at the Roosevelt Hospital, and they refused to make a diagnosis of pernicious anemia there because achylia gastrica was not present. It seemed then that this symptom was necessary to complete the diagnosis.

Dr. BAAR of Portland, Oregon, said that if he had had nothing else to repay his trip he would have been abundantly compensated by listening to this paper, from which he had learned very much. He had gotten the same results, but in addition he had always observed a constant indicanuria, as well as the achylia gastrica. This had always given him the clue. If he did not find that the case fell into the other category mentioned by Dr. Smithies. In one case, in a boy of 19, with enlarged spleen and liver, and tender gelatinous swellings of the glands, he had tried salvarsan injections. The hemoglobin improved from 30 to 75 per cent., and all swellings subsided except the parotid swellings. Later the patient had erysipelas, from which a streptococcus was recovered. Then he had a focus of infection in the sphenoid. He took a vaccine treatment. Then a purulent iritis broke out. He had the same coccus in the blood, the parotid, and the nasopharynx. He had a pronounced indicanuria. As this disappeared, the patient's hemoglobin percentage rose. In another case of supposed pernicious anemia in a woman, perforation of the nasal septum was found. Salvarsan cleared up the condition, which was congenital syphilis. The immense value of the "cocci" statement must be appreciated. He did not think it was a case of looking for microbes in the tonsils. They were there, undoubtedly, in many cases. Some of the anemias were undoubtedly syphilitic.

Dr. W. H. MERCUR of Pittsburgh stated that he felt interested in the statement of Dr. Smithies as to the performance of 51 laparotomies in this disease. There was a general impression that splenectomy was the cure for this condition. Splenectomy was only a cure when the spleen was the focus of infection; in other words, if the appendix or the gall-bladder was the point of bacterial infection, taking the spleen out would not cure the disease. Osler, some years ago, in a case of pernicious anemia, said "look at the mouth." The patient had decayed teeth. They learned then to look for trouble with the teeth. In regard to transfusion in these cases, one point advocated by Percy would be of value. One might take all precautions to prevent hemolysis and still it could occur and cause serious trouble. Percy would take a small quantity, 0.5 c.c. of blood, and introduce that. If it caused hemolysis the donor was unsuitable. This half cubic centimeter would cause trouble in 10 seconds, if at all; and the introduction of 300 c.c. of the same blood, if unsuitable, would cause much more trouble. Personally Dr. Mercur said he had never seen cases of pernicious anemia get well. Dr. Smithies had stated that 26 cases got well and remained so for from 6 to 51 months. The speaker saw the woman referred to as the longest case. She certainly looked robust and in perfect health. It might be that if the source of infection were removed the cure would be permanent. Dr. Barac spoke of the use of 606; arsenic would certainly be an advantage, but the anemia in those cases was probably syphilitic. Bradley of Edinburgh proved that these cases in which salvarsan was beneficial were luetic anemias. An important point was that in a high degree of anemia the Wassermann was found negative. In one case in which

the Wassermann was negative autopsy showed lues from the brain down. Much pernicious anemia is luetic in origin. In one such case where they were going to transfuse a pernicious anemia patient with blood from his brother and where the patient had a negative Wassermann, and had emphatically denied lues, the donor showed a four plus Wassermann. When he was questioned he said, "Oh, yes, I got that trouble at the same time my brother did," which showed that the Wassermann reaction might be negative in these cases.

Dr. FRIEDMAN of New York said he would like to ask why these patients had remissions in pernicious anemia. If these cases originated with infections, did they have reinfections? One point he did not think was well taken. It was stated that if the infected tonsil was removed the patient would get well. This need not necessarily follow, because the damage would have been done, but that did not prove that infection did not produce the disease.

Dr. HAYTHORN of Pittsburgh said that the question that Dr. Mercur raised about the use of salvarsan in pernicious anemia should be considered. Dr. Smithies did not need support, that was evident, but he would like to say that in the last three autopsies they had had they had recovered, either from the bone marrow, the heart's blood, or the spleen, a virulent *Streptococcus pyogenes* and an unrecognized spirillum. Salvarsan in the blood stream acted as a bactericidal agent and some workers had cleared up streptococci in the blood stream by this means. Experimental animals had been saved in this way. It was not necessary for persons to have syphilis to be benefited by salvarsan. The bone marrow must be reached by the injection. He would like to see salvarsan used experimentally in cases where there was no syphilis.

Dr. IVES of New York said that they had had an extremely interesting case at the Mercy Hospital clinic that morning—an endocarditis due to *Streptococcus viridans* in the blood. In this case the injection of salvarsan cleared the blood stream of streptococci. A second injection raised the temperature, which came down in the course of a week. The third injection cleared up the case, which ran a normal temperature two or three days later. This would seem to indicate that the temperature was caused by bacteria in the blood, which were cleared up by 606. It would seem then that salvarsan had bactericidal action.

Dr. FRANK SMITHIES of Chicago, in closing, said he wished to thank the members for their interesting discussion. In his fragmentary presentation many points necessarily were left uncovered. In this disease there were definite evidences of the infective process in the mouth, as also in pellagra, kala-azar, sprue, etc. The first treatment was by a chlorate of potash mouth wash, or ½ per cent. formalin wash, before anything else was done. Many of these cases were non-luetic by laboratory tests, and it was concluded that the action of salvarsan was bacteriolytic. He was glad to hear reports from Dr. Baar of intermittently active infections in pernicious anemia. The type was a low grade septicemia by protein end-products poisoning. Salvarsan would react upon the temperature and anemia, and one could class this disease with a low grade intermittent infection such as kala-azar. He had not employed salvarsan in every case. Two patients had had salvarsan before they came. Any chronic anemia, such as anemia in cancer, could be called pernicious. The anemia was a lytic anemia, whether it was caused by bacterial or metabolic products. From a study of an immense material, Cabot had stated that 99 per cent. of patients had died within three and one-half years. The report of blood tests showed that his own patients had had all the remissions they were going to have before they came to him. Forty per cent. were brought in on stretchers; some in extremis. We did not know about spontaneous cures, but we did know that spontaneous cures had not been hindered by anything that we had done. Recurrences were not uncommon after splenectomy. The hemolymph nodes in the spine might take on the function of destroying the red blood corpuscles. Patients might come back with recurrence where there were definite alterations in the hemolymph nodes. In these cases there was disruption of the blood cells by the lymph nodes which had taken up the functions of the spleen. Dr. Friedman spoke of focal

infection. It was not sufficient to speak simply of infection about the teeth or tonsils, but it was important to say what type of infection. There might be vigorous growth of harmless organism or very slow growth of very pathogenic organisms. These could produce serious damage. Removal of the tonsil would not cure this. There might also be mutations of organisms which were harmless into those which could produce serious lesions. Rosenow had shown this. In regard to achylia gastrica, Dr. Smithies agreed that this was a constant finding in pernicious anemia, also pancreatic achylia. This state was, however, the end result, where the damage had been done. Physicians ought now to study the living pathology instead of centering their attention on dead-house pathology. If the surgeon had done nothing else, he had contributed a certain amount of pathology while the patient was still living. Posterity would laugh at us for talking of achylia gastrica and gastric atrophy which was a symptom, not a cause. Diminished hydrochloric acid or pancreatic secretion was the end result. So also with the spleen; it had suffered from a chronic, low grade inflammatory irritation, and there was no intense reaction as in typhoid fever. In ten of these spleens one might not find any organisms; in the next ten cases there would be organisms in the tissues of every one. The bone marrow cultures would tell what organisms we were dealing with in some cases. Dr. Baar's observations about indicanuria brought out the point of the chronic intermittent type of infection in these cases. It did not matter whether it was in the gall-bladder, the alimentary tract, or the appendix; so long as it was active, it would produce indicanuria. He wished further to emphasize that all one could do in analyzing these cases was to present certain facts and let men interpret them for themselves. The prophet had never been very successful so far as history went. The point he wished to leave was this: in the treatment of pernicious anemia the disease was not treated by splenectomy, but on the basis of any clinical, pathological, or bacterial focus. That taught us to reduce any infective foci, whether external, abdominal, or elsewhere; and to counteract infection by transfusion. In addition treatment might include laparotomy in the search for focal infection, and removal of the spleen if the organ required removal.

The Communicable Diseases in Modern Warfare and Their Prevention.—Dr. WILLIAM H. PARK, Director of the Research Laboratories of the New York City Board of Health, presented this communication. The writer stated that where many men were collected together in camps outbreaks of infective disease, such as pneumonia, meningitis, diphtheria, malaria, etc., might occur. In France the soldiers were protected from typhus, but the amount of tuberculosis was large. The English soldiers had preliminary physical examination in this respect, but in France many incipient cases had been found in the trenches. Trench fever was a disease that was more interesting than important. Tetanus and gas gangrene were not communicable under ordinary conditions, and the present universal use of antitoxin had largely eliminated tetanus. Typhoid and paratyphoid had been greatly reduced by prophylaxis. Outbreaks, however, did still occur of typhoid, paratyphoid, dysentery, and cerebrospinal meningitis. The latter had been prevalent among the English and Colonial troops. The civil population was not affected. The greatest incidence was in February, March, and April. In 1915 there were 3,000 cases. The investigations by the British Medical Research Authorities corroborated the findings of Dr. Bolduan of New York City in regard to carriers in this disease. The English Medical Commission insisted upon the treatment of carriers by antiseptic sprays. As in other diseases, there were many carriers, and only a small percentage of those receiving the infecting organisms became really infected. The season of the year and the susceptibility of the population were factors of importance. It was more prevalent among black than among white troops. In parts of England the disease was endemic, but not epidemic. During the past winter the percentage of cases was higher, and the carrier rate lower. This might be explained as being due to a higher virulence in the type of meningococcus. There had been increase in pneumonia, measles, and mumps. The

cold weather naturally brought the troops together in poorly ventilated and over-crowded quarters, and more infection resulted. In England four strains of the meningococcus had been isolated and these differed in immunological characters. Most cases were caused by strains No. 1 and No. 2. Observations in this country differed from those in England. Prophylactic inoculations had been tried, notably in the Texan epidemic, by Sophian, with no bad results. Several thousand men had been inoculated in the American camps. Unfortunately different strains did not immunize against each other, and type No. 1 did not immunize even against itself. In England and France various methods for handling carriers were adopted: (a) all the men were swabbed, and positive cases were removed; (b) all the men in contact with cases were swabbed—this was the method generally adopted; (c) contacts were considered as carriers; if chronic carriers were discovered and treated in summer, in winter the epidemic would be stopped; (d) disinfection of carriers by douches, sprays, and vapors. Some men, it was found, remained infected for months. Enlarged tonsils, adenopathy, etc., favored infection. The longest duration of infection was 15 months. Antiseptics used were chloramine T, 2 per cent., or zinc sulphide, 1 per cent. This increased the flow of nasal secretion. Vaporizing with these solutions was used on the transports of Australian troops, and it was found that the incidence of measles and mumps was also lessened thereby. The French used the method of swabbing the nasopharynx with carbolyzed oil. A dried antimeningococcus serum had been tried with doubtful results. As regards treatment, the serum treatment was considered of great value if the serum were potent against the type of infection. Cultures from European cases had been brought to America so that horses could be immunized against prevalent strains. The sera now obtained covered all the strains. In regard to typhoid prophylaxis, at first several thousand men died each month, but since the use of vaccine there had been only 100 cases. This was the combined result of vaccine and sanitary improvement. There were now less than 1 per cent. of cases. Dysentery returns showed that there were both bacillary and amebic types present. Amebic types were from Turkey and North Africa. Some patients had both infections. There was no specific treatment to prevent infection. Vaccines were too highly toxic to be employed. Specific serum was still in the experimental stages. In the bacillary type a polyvalent serum had been used, and the earlier the injection, the better the result. In the amebic type emetine hydrochloride was not used, as better results had been obtained by use of emetine and bismuth iodide. Pneumonia frequently occurred as the result of exposure and often followed measles. The Singalese troops were especially susceptible; they were treated by inoculation. The strains were taken from the camp cases, but the type might vary. In regard to tetanus, the injection of 500 units of antitoxin had been made compulsory in all wounds in the British Army and now less than one in 1,000 cases developed tetanus. It was given subcutaneously for fear of anaphylaxis. Trench fever was a recurrent fever affecting the English troops in Flanders. The blood organism did not strain through the porcelain filter.

THE PRESIDENT said that it seemed strange that the Army had to deal with so many cases of measles and mumps, but the country boy did not have the chance to acquire immunity against these diseases. The city street boy, on the other hand, was immune to any and every infection. The measles problem was not difficult. Plenty of fresh air and sunlight soon stopped the epidemic. Cerebrospinal meningitis cases got on well with the use of serum. In regard to typhoid and paratyphoid they had done splendidly. Sometimes the reaction to paratyphoid inoculation was considerable. If the camp water supply were absolutely safe, there would be little typhoid. Dr. Park had presented extremely comprehensive and accurate statements in a very interesting paper.

"Les Borgnes."—According to Genet one-eyed men in France numbered 1 in 1,000 before the war (age limits 23 and 42). The present ratio must be manyfold this figure.—*Annales d'Oculistique*.

NEW YORK ACADEMY OF MEDICINE.

Annual Meeting, Held January 3, 1918.

THE PRESIDENT, DR. WALTER B. JAMES IN THE CHAIR.

THIS meeting consisted of a brief executive session at which the annual reports of officers and committees were presented.

Report of the President.—Dr. WALTER B. JAMES presented this report, in which he recalled that a year ago he had outlined the financial condition of the Academy and described the problem which the overcrowding of the Library had created. In May the Academy had voted to erect an addition on the adjoining lot, No. 15 West Forty-third Street, already in the possession of the Academy, and authorized the trustees and Council to proceed with this whenever they thought the state of the building trades made it seem wise to do so. Under present conditions the Council had confined itself to a consideration of plans and to the study of certain mechanical features of the project pending the time when it should be possible to go on with the building. Fortunately the same war conditions that prevented building had also limited the supply of new medical books and journals, thus helping to make the process of overcrowding in the Library less rapid. The opposition to the probate of the will of the late Dr. Witthaus had been withdrawn and the rights of the Academy as a present beneficiary and as residuary legatee were now established, and the Academy was receiving about \$4,000 a year from this source. This was a very fortunate circumstance, since it had been decided by the Fellows to permit the Council to remit wholly or in part, and in its judgment, the dues of those who were absent in the national service. The Academy might be proud of its service in the war, there being at present 200 Fellows in the service, and steps were being taken to display a suitable service flag. The Academy was coming each year to fill a more important place in the general community life, not only through the useful activities of the Public Health Committee, but through a number of stated meetings each year, at which topics of mutual interest to the profession and to the laity were taken up, and which had been well attended. The Academy had cooperated with the Corresponding Committee of the Merchants' Association in efforts to maintain a high standard of public health in the city. It was to be desired that these activities should be encouraged and extended, making this institution a more and more important factor in the city's life. The Academy's fortunate policy of complete abstention from all bias of political nature, either civic or medical, helped to make its service of greater value in all these directions. Every effort had been made to serve the nation to the fullest extent in the present national crisis. The Library had been thrown open at all hours to all men in uniform. For almost a year they had furnished without remuneration rooms for medical examination for the Medical Reserve Corps. Hossack Hall had been offered freely for public meetings for all purposes connected with the war. In spite of the fact that many distinguished and productive physicians had been called away on military duty, earnest efforts had been made to keep up the interest in the stated meetings. On the whole, the Academy had had an active and useful year and it began its new one in a satisfactory condition both financially and as regarded its physical condition and its Library.

Report of the Council.—Dr. FREDERICK T. VAN BEUREN, JR., presented this report, which showed that the Council had performed its routine duties during the year. It had transmitted to the Academy, with the approval of their adoption, amendments to Article III, Section 1, of the Constitution and Article X, Section 12, of the By-Laws, which were adopted by the Academy at the stated meeting, held December 6. The first of these amendments was as follows: "The number of Fellows residing in the City of New York and paying dues shall be limited to thirteen hundred, and the number not residing in the city nad paying dues to two hundred and fifty." The second: "It shall be empowered during the continuance of the war to remit, wholly or in part, or permit the postponement of the payment of the dues of any Fellow while in active service, or to transfer Fellows in such service from resident to nonresident membership." This report urged that the several annual re-

ports which had been presented to the Council and published should receive the attention of every Fellow of the Academy.

Report of Trustees.—Dr. CHARLES L. DANA, chairman, and Dr. NATHAN E. BRILL, Secretary, presented this report, which stated that the Board of Trustees of the New York Academy of Medicine had attended to duties in the matter of invested funds, the personal property, and the real estate of the Academy, and all business that had come before it. The report dealt mainly with the financial affairs of the Academy.

Report of Committee on Admission.—Dr. JOHN DOUGLAS submitted this report, which showed that the Committee had recommended sixty-two men for election to Fellowship.

Report of Committee on Library.—Dr. HAVEN EMERSON presented this report, which called the special attention of the trustees, Council, and members of the Academy to three important matters. These were as follows: (1) There had been a marked reduction in the number of readers consulting the Library during the past year. This was due to the absence of large numbers of the members upon war duty. Readers of the nonmember class having access to the Academy up to 2 o'clock daily were as numerous as before. (2) Fewer books had been acquired and circulated, due quite evidently to the diminished production of important medical works, both here and abroad, since the beginning of the war. It was, however, to be especially noted that pamphlets, reprints, and monographs had been circulated in a constantly increasing number. (3) The overcrowding of the stockroom and of all available space had reached such an extent as to cause great anxiety lest permanent disorder and disorganization of service should result. The Library Committee unanimously appealed to the Trustees to push the project of new space and facilities for the Library with all possible speed. The Library fund had received from the First District Dental Society \$100 for the purchase of books and journals on dentistry, which enabled the Library to make valuable accessions to its dental literature. The Academy had received from its Museum a number of interesting gifts, namely, from Dr. A. B. Jamison, an army medical chest found on the battlefield of Bull Run; from Dr. Joseph A. Andrews, five hollow-eye specula for irrigating the conjunctival cul de sac; from Dr. Howard Lilienthal, an antique clinical thermometer, and from Dr. Fanueil S. Weiss, a scalpel used by Dr. D. W. Bliss, Surgeon-General, in the operation upon President Garfield in 1881. The total number of books in the Library on December 12, 1917, not including duplicates, was 108,652, which was 3,136 more than on December 11, 1916. The number of readers using the reading room had increased steadily year by year. In 1908, 16,422 readers were registered, and in 1917, 24,750, including holiday and Sunday readers.

Report of Statistical Secretary.—Dr. ARTHUR M. JACOBUS submitted this report, which showed that the Academy had lost twenty-two Fellows by death during the past year.

Treasurer's Report.—Dr. REGINALD H. SAYRE presented this report, which showed that the finances of the Academy were in a very satisfactory condition.

These reports were all adopted and placed on file.

An amendment to the Constitution and By-Laws of the Academy was adopted providing that the name of the office of Statistical Secretary be changed to Historical Secretary. The duties of the office, however, remain practically the same.

Revival of the Cuirass in the Present War.—Delorme suggests that it would be well to introduce the use of a steel breast plate among the troops exposed to rifle and shell fire. The helmet has rendered good service to the cranium and a breast plate long enough to protect both chest and abdomen might be the means of saving much life from central wounds. The old fashioned buckler went into disuse with the introduction of the musket. While something might be done today with an improved shield a cuirass would answer well against shell fragments which do not possess the penetrating power of rifle bullets. Central wounds of the lung have a high death rate and some effort should be made to protect the troops.—*Le Progrès Médical*.

Therapeutic Hints.

Chlorine Water in the Treatment of Infantile Diarrhea.—S. Roseberry advocates the use of chlorine water in the following mixture:

℞ Aquæ chlori ℥ iv
Quininæ sulphatis gr. 1/8
Salol gr. iv
Mucilag. tragacanth ad 5j

M. et Sig.—3ss. to a child under six months, and proportionate doses in older children.

The above mixture is given every six hours for the first twenty-four to thirty-six hours, and then three times a day until the stools are normal. In addition, the following mixture is administered twice a day:

℞ Ol. ricini 3j
Ol. olivæ 3j
Tinct. opii ℥ ij

M. et Sig.—Ten to 20 minims, according to age, twice a day.

The opium, however small the dose, has a soothing effect upon the bowels, and helps to induce a much-needed rest, which is an important factor in treatment. Lavage of the bowel with saline solution is also beneficial.

In the very severe, collapsed cases, a mustard bath may first be given, followed immediately by injection of pituitrin 1/6 c.c., repeated two or three times at intervals of four hours. Then an inunction of warm olive oil may also be given to diminish loss of heat from the skin. Lavage of the bowel may be done two hours after the mustard bath. The diet in these cases varies according to the severity of the attack. In the milder cases albumin water and barley water are sufficient. In the more severe cases sherry whey may be given until the vomiting ceases.

The majority of cases recover in four or five days, the more severe in from ten to twelve days. In the latter it is often necessary to administer brandy in 10 to 20-minim doses every two hours, as an additional check to collapse, and in such cases Roseberry has found that thyroid, gr. 1/6 twice a day, is useful in helping to accelerate recovery and increase weight.

As the cases improve and just before discharge from hospital, they are placed on some one infantile proprietary food suitable to their digestion.—*British Medical Journal*.

Treatment of Itching with Hemorrhoids.—Hare suggests the following formula for relief of itching with the presence of hemorrhoids:

℞ Mentholis gr. xx
Hydrargyri chloridi mitis gr. xxx
Petrolati 5j (30)

M. et Sig.—Apply locally.—*Practical Therapeutics*.

Incontinence of Urine.—Where the urine is acid, concentrated, and dark in color the following formula is especially beneficial in these cases in children.

℞ Potassi citratis 5ij (8.0)
Spiritus etheris nitrosi f5ij (8.0)
Aquæ destillatæ ... q.s. ad f3iij (90.0)

M. et Sig.—Dessertspoonful (8.0) every four hours in a tablespoonful (15.0) of water.—Hare in *Practical Therapeutics*.

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THE PROBLEMS OF DRUG ADDICTION.*

By CHARLES L. DANA, M.D.,

NEW YORK.

PROFESSOR OF NERVOUS DISEASES, CORNELL UNIVERSITY MEDICAL COLLEGE.

THE opium and its alkaloids imported yearly from 1912 to 1915 amounted to about 2 billion doses, or an equivalent of 2 billion grains of opium, or $\frac{1}{2}$ billion grains of morphine. This is about 20 grains of opium per capita or 100 grains per male adult yearly.—(Bulletin U. S. Public Health Service.) It is estimated by M. I. Wilbert of the U. S. P. H. S. that there are about 175,000 addicts in the United States, or about 1 to 600, and on this basis there are 15,000 to 20,000 in New York State. The number no doubt fluctuates and has perhaps been lessened by the enactment of laws and the reduction in the amount of the drug imported, and its increased cost. In 1915 the amount of opium and its alkaloids imported was less than in 1913 by 531,-840,000 grains. Whether this is made up by illicit importations is not known.

The following table was prepared and kindly furnished to me by Dr. George R. Kirby, director of the Psychiatric Institute at the Manhattan State Hospital.

CASES OF DRUG ADDICTION IN NEW YORK CITY.

	1915.		1916.	
	Male.	Female.	Male.	Female.
<i>Belleue:</i>				
Committed.....	246	45	335	37
Prisoners.....	78	66	160	90
Voluntary.....	330	171	265	89
Total.....	654	282	760	216
<i>Workhouse, Blackwell's Island:</i>				
Committed.....	5	3	167	21
Voluntary.....	4	3	107	5
Total admitted.....	240	258	652	322
Total.....	249	261	926	348
<i>Kings County Hospital:</i>				
Committed.....	132	18	226	9
Voluntary.....	37	4	15	1
Total.....	169	22	241	10
<i>Metropolitan Hospital:</i>				
Committed.....	50	28	227	41
Voluntary.....	1045	219	520	102
Total.....	1095	247	747	143
<i>Board of Inebriety:</i>				
Committed.....	100	.....	337	.....
Voluntary.....	112	.....	16	.....
Total.....	212	.....	353	.....
Total in all institutions.....	2379	815	3027	717

*Read at a meeting of the New York Psychiatric Society, Jan. 3, 1918.

Bearing on the question of the prevalence of drug addiction, I would quote the statement of Justice Collins of the Court of Special Sessions of this city, who says that 10 per cent. of all cases coming before the Court of Special Sessions are drug addicts.

The question arises, first, whether these 15,000 addicts in New York State, for example, are enough of a menace to warrant taking severe measures to prevent the results of opium addiction. Most addicts are constitutionally unstable persons, likely to be a burden or a menace to society anyway.

Drug addiction does not lead to insanity or the serious psychoses needing custodial care. The percentage of such cases in State hospitals is very small. It is very large, however, in prisons and reformatories, and it would seem as if drug addiction had more relations to crime and social waste than to psychiatry.

The drug addict is not usually a mental defective, and a series of intelligence tests would not disclose a large percentage of morons and imbeciles, as happens in certain other anti-social groups.

But on the whole there is no doubt that drug addiction makes the normal and abnormal man more dangerous to society. It intensifies his possibilities of harm, though on the other hand it shortens his career. There is reason enough to justify serious effort to lessen the social dangers and personal misery from this source.

The problem of control and amelioration is twofold: first, the prevention of drug addiction; second, the relief and care of those affected by it.

In drug addiction there is a morbid condition of metabolism which arouses a very uncontrollable need for opium. This may be called a disease, or not, according to one's fancy in the use of words. It may be there is a functional defect or perversion of the endocrine and vegetative nervous system. Drug addiction is a vice, or moral or mental defect, in the sense that the condition is often deliberately or stupidly acquired and persisted in.

With regard to the relief and care of this condition nearly all are agreed:

1. That there is no specific cure. There is, indeed, not even any specific method of relieving the patient temporarily. This is easily and safely done by simple institutional methods. And this may be called specific, if you choose.

2. There is no method of securing permanent cure of established addiction except that, at times, by long and expensive institutional and personal treatment, including methods of physical and moral reeducation, success results.

It is not, however, economically wise at the present time for the State to undertake the cure of this

class. Assuming that we have in New York State 15,000 addicts, the expense of their care and cure for a year would be not far from \$300 to \$500 each, or a total of from \$4,000,000 to \$7,000,000 yearly. City and State efforts in this direction should be postponed until the method and means are better established. The establishment of psychopathic hospitals and wards throughout the State would help to this end.

The question is raised whether the State should not provide for the addict, since it deprives him of his drug without making any provision for his consequent suffering. To this I would say that the State ought to furnish means of removing the drug and of educational treatment at this time, and a short period of care during recuperation. This is done in the large cities, and it ought to be a function provided for in country districts.

It would be best to treat what addicts we now have symptomatically, and try to prevent the development of new cases. This is being done at present by means of legislation controlling the output and use of opium. For this we have so far, in New York State, the Federal or Harrison Law, and the Whitney or State Law.

The Harrison Law simply provides that all persons engaged in the production and manufacture of opium, coca leaves, or any compound or preparation derived from these two, shall register with the collector of internal revenue of the district their names, places of business, the amounts imported, manufactured, and sold, and pay a special tax at the rate of one dollar per annum. The Federal Government has no police power, and therefore the law is simply in the form of an excise tax law, its aim being to ascertain the amount of manufacture and sale of the drugs.

The Whitney law is more elaborate, and has received a great deal of criticism. (1) The doctors claim that it puts a great burden on them and does not do any good. (2) Under this law the addict can be prescribed for by doctors, and he thus gets his drug more cheaply and easily than if he depended on the foreign mail and on the peddlers. I do not, however, undertake to discuss the law at this time.

Finally, I have limited my discussion to the use of opium and its derivatives. There is no need of legislating about cocaine or chloral, or the sleep-producing drugs as yet. The cocaine habit alone is rarely seen, and is curable. Chloral and veronal addiction are relatively rare, and not, usually, difficult to control.

What seems most indicated is a federal law that will make the methods of control uniform throughout the country.

One simple and efficient measure would be a federal law abolishing the manufacture of heroin altogether. These are the two courses which I would recommend.

Furthermore, it is well established that addicts cannot be treated effectively except in institutions or in institutionalized homes. Possibly a law compelling the treatment of addicts only under institutional conditions and only by specially authorized physicians might well be passed. But at present the State is not equipped in rural districts to enact such measures.

The New York Psychiatric Society has already recommended that in every city of the first class, or county or congressional district, there be established a psychopathic ward or hospital. One of the functions of these places might be to take care of addicts.

Summary and Conclusions.—The following summary and conclusions represent the results in part of several discussions and of conferences with a committee of the New York Psychiatric Society and with the executive committee of the Public Health Committee of the New York Academy of Medicine.

I do not put these conclusions down as representing their views, however, but only as containing results of criticism and suggestion from these sources.

1. It is estimated that there are about 15,000 to 20,000 addicts in New York State. They present a serious social menace, contributing more to crime and dependency than to insanity.

2. The cure of established drug addiction is difficult, long, and expensive. It is doubtful if the State should undertake the task with its present equipment. Later, with the establishment of psychopathic hospitals, it may be considered.

3. It is doubtful whether it will be wise for New York City to use its farm at Warwick for this purpose. Addicts do not do as well in farm colonies as alcoholics.

4. Drug addiction is not to be regarded as a special disease, and there is no specific remedy or cure for drug habits. There is no especially effective drug measure for ridding the patient of his drug. This is done most effectively in an institutional or hospital ward, treating the patients under restraint, and using simply, or mainly, a gradual reduction, with attention to food and elimination.

5. Addicts should be treated only in institutions or under institutional conditions. Reeducational methods should be applied at this time, and the patient should be kept long enough in the ward or in a convalescent institution to become reestablished in health.

6. The present group of chronic addicts can only be treated symptomatically, given withdrawal treatments when desired or required, as indicated above in No. 4. The State owes this to the patients whom it deprives of their drug.

7. Present efforts should be especially directed (a) to abolishing the manufacture of heroin altogether, and (b) to securing the enactment of a Federal law which will control the distribution of opium and its derivatives from the factory to the patient.

8. There is no need at present of stringent laws against the distribution of cocaine or of chloral and other sleep-producing drugs.

9. The creation of an establishment for scientific research in order to find a "cure" for drug addiction is not wise until the control of opium distribution has been secured; and then it will not be necessary.

10. In the writer's opinion, the causes of drug addiction are very well known, in so far as such causes have bearing on methods of prevention and care of these cases.

INITIAL WORLD WAR MATERIAL AT THE ARMY MEDICAL MUSEUM.

BY R. W. SHUFELDT, M. D.

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MAJOR, MEDICAL CORPS, U. S. ARMY,

As the present great war drags wearily along, it seems to become more and more problematical as to when the world will see its end. It is now far into its third year, and this country has but just declared war upon Austro-Hungary—Germany's chief ally. One by one—often several months apart—the South American countries either break off relations with Germany, or else, as Brazil did, actually declare war upon her. China is not fully awake yet, and Japan is reserving her power for eventualities. The United States cannot possibly come into it with her maximum weight and strength for fully six months more or even longer; as for Russia, not a soul living has the faintest idea what may happen next, nor when it does happen what the effect will be.

Even as early in the conflict as this, some of this



FIG. 1.—Helmet of British soldier (4239, Misc. Series). Donated by Major Wm. Lyster, Med. Corps, U. S. A.

war's profound and far-reaching effects are quite patent to ordinary thinkers and observers—ere long the more subtle effects will be equally apparent. In the case of those nations under its influence, great changes are already to be noted in the mental attitudes of people; and these, in time, are certain to produce more or less permanent psychological characteristics, which will vary in accordance with racial differences and individual temperaments, as either may be affected by environment changes. So, too, as the general unrest persists, the unabated slaughter continues, and the end seems far off, the activities of man will, in turn and in due course, be powerfully affected.

Here, in the United States for example, there is not the work of a single trade or profession that will not, in one way or another, be influenced by the general reaction. Already the literature of the country, of nearly every description, is intensely impregnated with what has been popularly designated as "war flavor"; all the gentler pursuits of our people

have, to a large degree, been affected in a similar way, while in some instances they have been suspended almost entirely.

Our output of the literature of science in some departments—never very large at the best in pro-

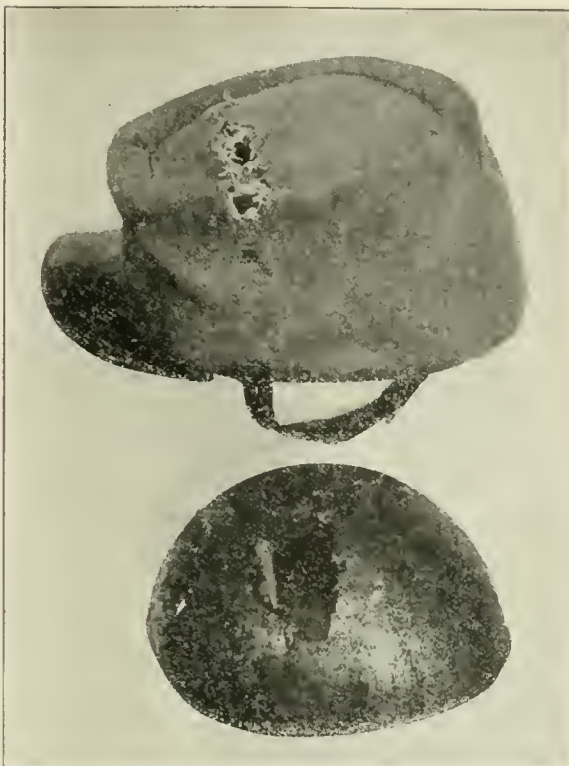


FIG. 2.—French military cap, with its metal lining (detached). Perforations from bullets and shell-fire (4542, Misc. Series). Received from Director Jacobs, Sanitary Service, Val-de-Grace.

portion to the country's wealth and population—has, within the last two years, been practically set aside; and, should the suspension be long con-



FIG. 3.—French steel helmet (Misc. Series, 4536)

tinued, its awakening in the future, when the war flame ceases to burn (not, let us hope, for the lack of material to consume), will be no easy task for science to accomplish. In fact, from the White House to the occupant of the very last cradle in

the land, the country is throwing its energy and resources into the present conflict, with the purpose to win it so set that no power known to man can now prevent it. We have every reason to be proud of this awakening and this putting-forth of our



FIG. 4.—Gas mask (German). From Director Jacobs (4516).

strength; but, with it all, there are matters of the most vital import to the country at large, which, in the turmoil of war and results of war, must not be lost sight of for a moment under any consideration. In large part, the present article will be devoted to inviting attention to one of the governmental enterprises that has received but scant aid for many years past; indeed, the assistance has been of such slender proportions financially, that it has brought the institution almost to a standstill, and practically to the very verge of impoverishment—in comparison with what should be accomplished in its legitimate sphere of usefulness. Reference is made to the Museum division of the Library and Museum of the Surgeon General's Office in Washington; and, in thus once more inviting attention to this matter, physicians and surgeons, and all specialists connected with those professions, are the ones especially invited to heed what is here set forth in the following paragraphs.

The great body of the world's physicians and surgeons to-day are the descendants of those who lived, fought, and carried on the labors of the profession during the years that the Civil War in the United States lasted and closed. It is surely unnecessary to point out to those of us who represent the present-day body of the latter the benefits that flowed from the foresight of the surgeons of the Federal Armies during that war and for many years thereafter. It filled a museum with material of every description,

exemplifying military medicine in all its branches, the utilization of which by the profession has largely contributed to the establishment of the place we now occupy in the world's estimation for efficiency in what the profession demands in practice. It is quite unnecessary to dilate upon the facts—its vast importance and far-reaching beneficial influences being now a matter of history and fully appreciated.

It has already been pointed out in the *MEDICAL RECORD* (October 20, 1917) that this museum, of the Library and Museum of the Surgeon General's Office, many years ago practically came to a standstill. It filled up; and the lack of space for specimens, coupled with the abrogation of proper Federal support in times of profound peace, in due course made a mummy out of the dead one it came in time to be. This mummy gave rise to an atmosphere of stagnation in its sarcophagus that by no means encouraged investigation. Still, through the strenuous efforts of the Museum's officers on duty there at various periods—especially those on duty there at the present time—the aims and the growth of the institution have not been entirely extinguished; it retains the essential life-spark, making revivification possible, and its usefulness once more a possibility.

The time is at hand when the material which the present armed struggle—the world-wide battle

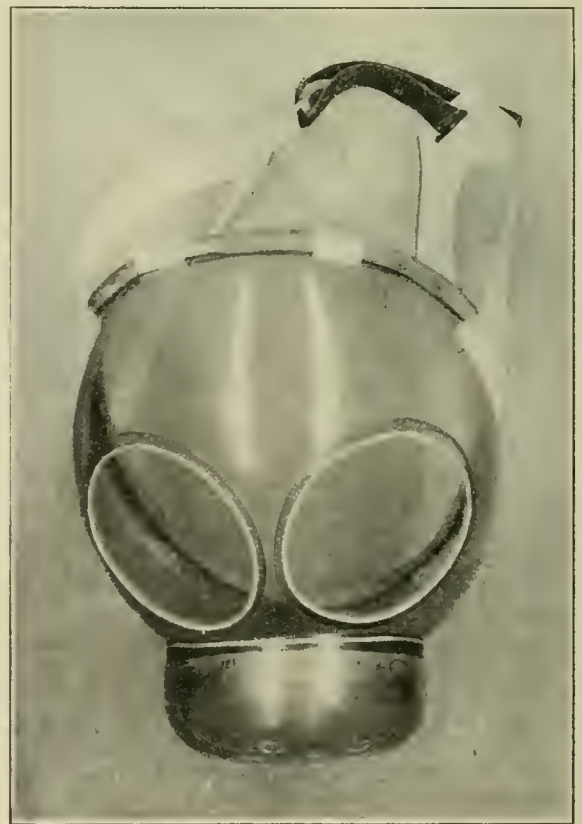


FIG. 5.—Antigas mask (Misc. Series, 44f9).

being fought to burn the yoke of military domination—will necessarily place at our disposal, must be properly conserved and made available for the use of medical men in the years to come. We, the military surgeons of the United States, will pri-

marily deserve the imprecations of all those of the profession that follow us, if we fail to induce the Government to erect the structure that has been planned to take the place of the present building, dedicated long ago to such purposes, and fail to



FIG. 6.—Bulgarian sword bayonet (4232, Misc. Series).

stock the new cases of that building with the material sent in from the several battle-fronts and elsewhere, and with every possible and desirable class of specimens illustrating military medicine and surgery in all of their departments.

Among much else, this material should present everything of value furnished through post mortems; through operations in the field and base hospitals; missiles and weapons of every possible description—the latter before use, and the former when taken from wounds or elsewhere; dressings, gas-masks; means employed for bodily protection; stretchers and other means for the transportation of the wounded; Red Cross materials; tentage for operations on the field; surgical instruments; casts of results of surgical operations—in short, anything and everything tending to illustrate fully the operations, status, material, and results obtained by mili-

tary surgeons and physicians of all nations during the present war, and as long thereafter until the exhibit and its published history is absolutely complete in every possible detail.

As pointed out, the war has now been going on for over two years, and this country entered it many months ago. It is therefore a fair question to ask: what has the United States thus far accomplished to the end that a complete exhibit and history of military medicine of the present be prepared and passed along to our successors, to be utilized by them in years to come, long after this terrible conflict has become past history?

In so far as the Army Medical Museum is concerned—very little. That is not due, however, to any lack of demonstrating the necessity for such endeavors by the Department and its officers; through such channels this has been made clear over and over again. Steps have been taken at the front to send to the Museum everything enumerated above—and more, if possible. Medical officers at the various seats of war in Europe have been instruct-

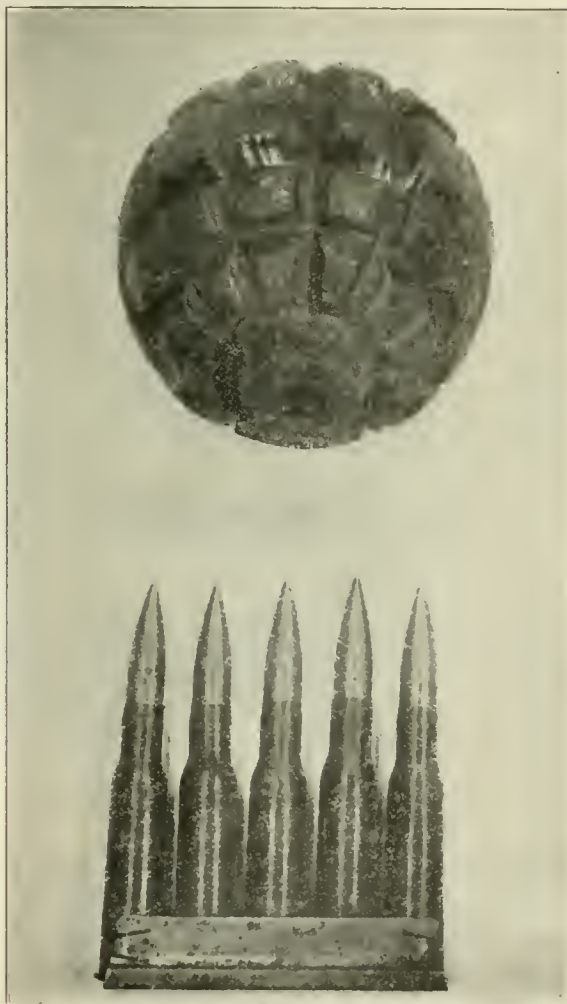


FIG. 7.—Upper figure: German hand-grenade. Director Jacobs, donor. Lower figure: Russian cartridges. Donated by Major J. H. Ford, Med. Corps, U. S. Army.

ed to attend ceaselessly to such matters. If stimulated through further orders and requests, it is very probable that, when our armies become more extensively engaged, the material described will begin to flow in, as it did during the latter years of

our Civil War. When that happens, the new Army Medical Museum should be ready to receive the contributions.

At the present writing, there is at least one case in the Army Medical Museum which has been set aside for the reception of such material as either has been or may be forwarded by army surgeons serving with our troops at the front. This case is about half filled, the specimens having all been fully and carefully labeled by their custodian, Dr. D. S. Lamb, of the Museum's staff. Doctor Lamb also has in his keeping such histories as have been sent him of these specimens; they have been card-catalogued, and these facilities have, through him, greatly assisted in the production of the present article.

by swords and bayonets. There are a couple of British helmets of the form shown in Figure 1, with a few bayonets and knives picked up on the battlefield. The collection of canteens is very interesting, some of them being very crude and unhandy, especially the Cossack type, of which there is one specimen made of wood and having the form of a little flattened barrel. The metal work on it is far inferior to that turned out by our American Indians. There is a small collection of missiles of various kinds, including scraps of shrapnel, shells, grenades, and so on.

Another small collection represents French and German first-aid equipment, and a German antitetanus serum outfit, found at the aid-station of Cav-

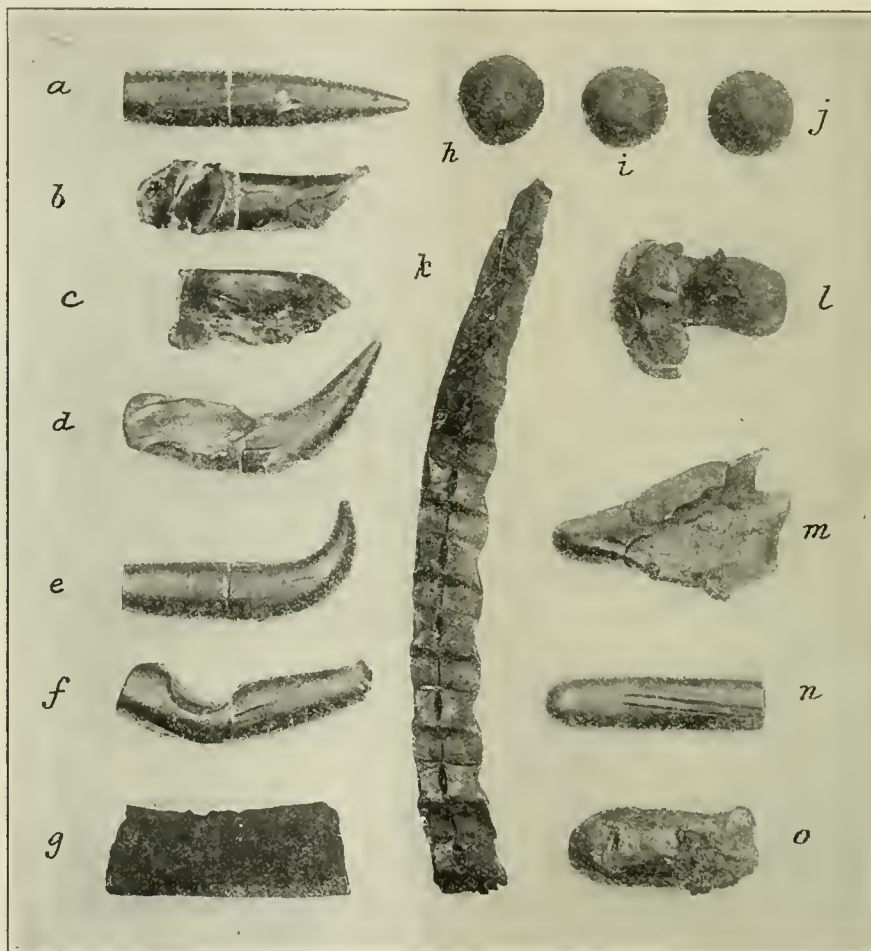


FIG. 8.—Various missiles, shrapnel balls and bullets, cut from wounded soldiers at the front. Director Jacobs, donator. Natural size.

In this collection we find a series of types of various styles of gas-masks, in use by officers and men of the armies of the different nations; also the receptacles to hold them when not in use. Old and new styles are both represented, also some elaborate apparatuses for the resuscitation of those overcome by gas. One or two foreign stretchers are in evidence; also a sling for carrying sick and wounded (No. 4,271), contributed by Mrs. Mabel Van Vechten, of New York. There are nearly a dozen helmets that belonged to French soldiers killed in battle; they are all of the type shown in Figure 3, and generally present evidence of the penetrating missile that killed the wearer; also of mutilations

erne du Dragon (July, 1917). There are other small collections of familiar material, including first-aid material. Finally, we have a series of relics of no especial importance, in so far as military medicine *per se* is concerned; they belong more properly to the National Museum. We have in this series the insignia of the British Red Cross Society; a shoe that belonged to the horse of a Russian officer; many objects taken from the pockets (and elsewhere) of the dead on the fields of battle, as pocket knives, finger rings made from pieces of shrapnel (Russian), belt buckles, crosses, etc. Objects of this class should be relegated to the exchange series, as they are not of sufficient value from the standpoint

of the surgeon to warrant the space they occupy.

There are a number of other specimens of greater or less value; but these need not be enumerated here, as they are illustrated by means of the cuts in the present article—the preparation of which would have been quite beyond the pale of possibility had it not been for the cordial assistance and co-operation of the officers and others attached to the Museum, in whose power it lay to render assistance. For this, and more, sincere thanks are extended to Col. W. O. Owen, Medical Corps, U. S. Army, in charge of the Museum, for issuing a general order to those in his command to extend to me every facility needed for the completion of the work in hand. For special suggestions with respect to the material to be selected, and for marked encouragement in the work, the writer is much indebted to Col. Champe Carter McCulloch, Jr., Medical Corps, U. S. Army, in charge of the Library of the Museum, and to Col. Louis A. La Garde, Medical Corps, U. S. Army, also connected with the Museum, and author of the standard work on "Gun-shot Injuries." Col. La Garde kindly examined the illustrations and specimens of bullets and other missiles, and gave much important information in regard to them. Mr. Cary R. Sage, of the Library, rendered most valuable assistance and encouragement in matters having to do with the photographic department, correspondence, and consultation of authorities. It affords the author especial pleasure to extend his thanks for the assistance of this most efficient member of the personnel of the Library, in which he is chief assistant.

Finally, it was most fortunate that the photography of the material reproduced as cuts to illustrate this contribution fell to Mr. Roy M. Reeve, who has charge of the photographic department of the Museum. The original negatives used are six and a half by eight and a half, made by the use of the photostat camera. The prints from them speak for themselves, as well as for the skill of the artist who made them. In regard to the photographs, it may be said that we have in Figure 1 the heavy metal helmet of a British soldier killed in battle. The exit of the ball is plainly to be seen, the missile having struck him in the face and passed directly through.

Figure 2 is a French military cap with its metal lining detached and placed below; the latter has two soft linings (not shown here). This man evidently received two fatal wounds simultaneously, both being perforating ones. A piece of shell or shrapnel hit him from below, passing through the metal lining and the cap, while a small missile entered just below it on the cap, and passed clear through. Either shot would have been fatal.

Many French soldiers wear helmets of the pattern shown in Figure 3; it is of thin metal, with a chin-strap. The one here shown was worn by a man who was shot through the head, the small bullet-hole being just to the left of the insignia in front. Before receiving this wound, he had evidently been struck on the head a glance blow with some other weapon, scarring the metal as shown.

Gas-masks are of an infinite variety of models. The one shown in Figure 4 is German, and not now used. It was found near Cielu (?) in the Somme, August, 1916. Another type is shown in Figure 5—a style made in various patterns. It is made en-

tirely of some flexible, transparent material, and is very light. There are several ways of carrying the gas-masks. Some of the earlier ones were clumsy affairs, unhandy to use.

The bayonet used by the Bulgarians is a small one and an old-fashioned model. It has a length of about 20 cm., the actual blade being but 15 cm. Doubtless it can readily inflict a fatal wound, while its small size and easy attachment to the piece render it an easy one for the soldier to carry and use; when detached, it may be used as a big dagger.

Not many models of hand-grenades have come in as yet—a deficiency that may be met later on in the war. An ingenious one, however, is here shown in the upper illustration of Figure 7. It is a German device, and is known as the "turtle type." It is a hollow iron sphere, nearly 8 cm. in diameter. It is grooved and weakened as shown, and doubtless, when it explodes, the various pieces are thrown violently about, doing as much damage as the balls from a shrapnel. The form of the handle, and the manner of igniting the explosive, were apparently not sent by the contributor.

Below this hand-grenade there is a Russian cartridge carrier, containing five cupro-nickel, steel-jacketed bullets in fixed ammunition shells of brass. This is a most effective ball, possessing marked power of penetration and high velocity.

There are some interesting missiles presented in Figure 8, selected from a large number of others; the ones here shown were extracted from wounds by operating surgeons. Most of them are deformed through having hit some other object, either metal or otherwise, before striking the officer or man. Those marked *a*, *e*, *g*, *h*, *i*, *j* and *n* may be exceptions.

a—*f* are French bullets ("slug of bronze"), model D, deformed by use. From the Champagne front, 1915-16, *g* is a piece of shrapnel-casing from elbow-joint, and *k* is the brass from around the casing; it was removed from the same wound (Austrian, 1915). In *h*—*j* we have three shrapnel balls of cast iron; they are of the type used by the Austrians.

l, *m* and *o* are deformed Austrian bullets, *l* having mushroomed before hitting the man; *m* is a jacketed bullet, which also struck some hard object before ricochetting and killing or wounding a soldier. *o* is a ball like *l*, and probably penetrated a man without having hit anything first. *n* is a Mauser bullet from the same collection, with no special history. In the first series, *e* looks very much like a ball that had been distorted through having come in contact with some of the denser structures of the body, not having struck anything previous to penetrating a man. Firm muscular tissue or a dense tendon will deform a ball of this kind when shot into it at a medium velocity.

3356 EIGHTEENTH STREET.

Psychic Factor in Postchloroform Vomiting and in Vomiting After Gastroenterostomy.—The association of psychic and somatic factors in the genesis of obstinate vomiting is well known, and the late Dr. Mathieu, prominent as a gastroenterologist, was able to isolate a psychic component, even in the vomiting which follows chloroform anesthesia (the subject seems obsessed with the notion that the chloroform must be gotten rid of). A similar motivation is seen after gastroenterostomy.—*Soc. Méd. des Hôpitaux.*

VENEREAL DISEASES; THEIR RELATIONS TO INSANITY AND NERVOUS DISEASES.*

By JOHN JOSEPH KINDRED, M.D.,

RIVER CREST, ASTORIA, L. I., N. Y.

CONSULTING PHYSICIAN, RIVER CREST SANITARIUM AND THE BELLE MEAD FARM COLONY SANATORIUM.

THE occasion of this paper is emphasized by the fact that the present annual meeting of the society, at the request of the Federal health authorities of the U. S. Army and Navy, is to discuss as the chief topic the general subject of the control and effects of the sources of infections as they are related to the newly drafted army.

The relations of the two chief classifications of venereal diseases, namely, syphilis and gonorrhea, to insanity and nervous diseases, are important and are here considered from their etiological, sociological, and economic viewpoints. Syphilis is the chief causative factor in that dreaded form of insanity known as paresis, a fatal disease divided, in typical cases, into three stages, characterized by classical symptoms and extending over an average duration period in all cases of about five years. Most authorities hold that syphilis is such a constant etiological factor in this disease that even without the presence of a Wassermann reaction every case of paresis is considered by them as having had syphilis prior to the development of paresis. All authorities regard a combination of sexual and alcoholic excesses and worry as the causes of paresis and even if, in a given case of this disease, we can get no positive history of syphilis, we know that it could be assumed to exist in paretics, who present the usual history as to etiology. Hospital and private practice brings the alienist in contact with a large number of syphilitic and parasyphilitic mental diseases, characterized by syphilitic brain and cord changes, and also meningo-encephalic cases, many of which resemble paresis. Syphilis also plays a part, as a complication, in the causation of some of the other psychoses, like manic-depressive insanities, and mental conditions of stupor and loss of memory as well as some of the mental states marked by moral lapses, loss of self-control, etc.

The syphilitic origin and gummatous nature of many cases of brain tumor, with and without mental symptoms, amounting to insanity or feeble-mindedness, is pointed out by the Wassermann reaction tests. Other cases of syphilitic origin develop more or less rapidly or slowly, often in the form of apoplexies, aphasias, anesthetics, hyperesthesias, paresthesias, hemiplegias, monoplegias, and irregular paralyses, in many cases the cord lesions ascending and finally involving the brain. In some of these conditions there are accompanying disturbances of the reflexes, loss of sexual power, paralysis of the bladder and bowels, tabes, neuritis, and trophic disturbances. Some of these present as their chief clinical mental symptoms mild egotism with a paranoid trend. These cases may have a duration of several years. Many epilepsies (not typical grand mal) and epileptoid

conditions, with or without mental impairment, are of syphilitic origin.

The serious effects of syphilis on the brain and cord and the consequent impairment of the mind and normal functioning of the nervous system, occur in the tertiary stage of syphilis, with the possible exception of a few rare forms of primary syphilitic disease of the nerves.

Syphilis was the cause of 18 per cent. of all the insanity in men and about 13 per cent. in women, in 5700 first admissions, the total number of admissions of insane cases to the New York State hospitals for the insane within a recent year. In other words, of 5700 insane men and women admitted during the year, 18 per cent. were men suffering with paresis caused by or associated with syphilis and about 13 per cent. were women paretics or parasyphilitics, whose condition was due to or closely associated with syphilis.

Notwithstanding this significant showing as to syphilis in its etiological relations to insanity, only about 5 per cent. of all syphilitics develop outright insanity. This would seem to prove that the cerebrospinal system in this 5 per cent. is peculiarly susceptible to the syphilitic poison, particularly in those who have not been given to alcoholic and sexual excesses and undue mental worry and anxiety. In most cases of paresis, however, we have both susceptibility and a history of excesses. The fact that such a small percentage of syphilitics develop insanity, when we consider the mischievous effect of syphilis on so many of the bodily organs and tissues, leads us to the conclusion that syphilis after all, in many cases, may be considered to this extent a somewhat benign disease, especially if thoroughly and systematically treated from its incipency by modern methods. While some of the roseate hopes for uniformly successful results of the salvarsan and neosalvarsan methods and other modern methods of treatment of tertiary syphilis, unfortunately, have been shattered, yet it can be conservatively claimed and proven that the modern treatment of tertiary, brain, and spinal syphilis has in many cases been positively brilliant.

In connection with non-susceptibility, it is an interesting fact that the full-blooded members of the yellow, brown, and black races are relatively immune to syphilis of the nervous system. They escape in much larger proportion than the white race despite their utter neglect of treatment and hygiene.

The effect of syphilis in causing and complicating nervous diseases, as distinguished from the psychoses, is so far reaching that it may be truly said that in every one who has had syphilis this disease has to be considered as possibly being, directly or indirectly, associated with all nervous diseases, and indeed many other diseases that may be developed by these persons. This, of course, suggests that frequent Wassermann and other tests should be made in these cases and that antisymphilitic treatment should be administered accordingly.

Syphilis also plays an important part in the causation of the large class of so-called neurasthenics, who are usually classified as nervous rather than as mental cases. I here classify neurasthenia as a nervous disease because it does

*Presidential Address, read at the annual meeting of the Queens-Nassau County Medical Society, November 27, 1917.

not belong in its ordinary manifestations to any of the classifications of the pure psychoses. It is really in most of its forms a neurosis (associated by some authors with "anxiety neurosis") or a psychoneurosis, with visceral symptoms and hypochondria.

Of 2500 cases of syphilitics collected in the practice of one of the leading American syphilographers, 504 (25 per cent.) were afflicted with syphilis of the nervous system; of all of his patients noted showing tertiary and parasyphilitic lesions 42 per cent. showed disorder of the nervous system, including the common ocular and aural complications; among this number 113 had more or less serious tabes; of the remaining number about one-fifth were permanently and gravely disabled by nervous disease. It is admitted beyond question that locomotor ataxia is a parasyphilitic disease. It has already been pointed out that many of the syphilitic lesions of the cord ascend more or less rapidly to the brain, causing paresis and parasyphilitic insanities. Syphilis of the nerves and nervous system, as has already been stated, is not primary but depends upon the involvement of the syphilitic disease of the cells or tissues of the brain, cord, and meninges or of the surrounding bony or soft tissues.

Gonorrhea plays an important rôle in the causation of many diseases in both sexes. Severe and stubborn infections, like certain forms of rheumatism, etc., often follow gonorrhea. These infections and direct complications of gonorrhea have important bearings. The old current statement perhaps not much modified at the present day, that some 60 to 80 per cent. of young unmarried men and a certain percentage of married men suffer at one time or another from gonorrhea, is significant etiologically, sociologically, and economically. This significance is emphasized by the fact that gynecologists agree that from 60 to 80 per cent. of pelvic suppurations in women requiring hysterectomy or oophorectomy, are due to gonorrheal infections.

The direct effect on society of gonorrhea is obvious, both as a predisposing cause of mental and nervous diseases as well as a sociologic and economic factor. Not only are many married women of a high normal, mentally and morally, prevented through this infection, through no fault of their own, from bearing fine children, but because of illness their industrial producing capacity is either entirely or partially destroyed.

Office records, extending over half a century, quoted by a leading American authority, indicate that the proportion of syphilitics to gonorrheics in New York City, among the upper and middle classes, is from 1 to 8 to 1 to 15.

Some idea of the loss of efficiency in the United States Army and relatively also in the civilian population of this country, can be gained by reading the report of the surgeon general of the army for the year 1904. This report reads in part:

"By far the most important diseases affecting the efficiency of the army during the year have been the venereal . . . causing 16 per cent. of all hospital admissions, 28 per cent. of all non-effectiveness, and 18 per cent. of all discharges for diseases." A distinguished specialist analyzing

the surgeon general's report, truly says that the figures and facts stated therein mark syphilis as one of the great scourges of the human race, and observes that more soldiers are rendered permanently unfit to follow their profession by syphilis than by any other disease.

No class is spared by syphilis or gonorrhea. While syphilis may not strike those of wealth and social position as hard as it does the poor and lowly, it is no respecter of persons or classes in its startling prevalence and terrible effects.

AUTOINTOXICATION — AN ETIOLOGICAL FACTOR OF NEUROSES OF CHILDREN.*

BY WILLIAM R. WOODBURY, M.D.

ROCHESTER, NEW YORK.

METCHNIKOFF's theory has done two things: It has given a means of combating autointoxication; and it has revealed the far-reaching and remote effects due to this condition. Nutrition is constructive. Malnutrition is destructive. The three factors in nutrition are the mouth, stomach, and intestines. These three factors working orderly maintain nutrition; working disorderly they do not maintain nutrition. With malnutrition disease is always within striking distance. These are fundamental facts upon which hang the whole movement of growth and development of children. They are facts of first importance, and are responsible for far-reaching results.

Malnutrition is the first cause of every form of sickness. A stealthy and subtle foe, always alertly ready immediately the chance comes to take full advantage, malnutrition strikes its blow, and grips its victim. Once it gets a hold it is a giant task to defeat it. Like a strong, rank weed, it pushes its far-flung roots throughout the entire body, sapping life and spreading disease. Malnutrition retards growth; it causes all the physical defects of childhood; it opens a way—and keeps it open—for all the infectious diseases; it lays the foundation for general body diseases; and it is the first step toward a weakening of the nervous system, a weakening which gives foothold to the conditions which develop into disturbances of nerve balance, and nerve disorders and diseases. The nerve disorders which are known as functional have their source in malnutrition.

There are certain important facts about childhood which often are not learned until it is too late. The mother is not told them. Physicians generally pass them over as being of no practical importance. In the interest of the child there is urgent need that mothers should know all about the teeth, and what a clean, whole mouth means. She should know when to look for the coming of every tooth; how to take painstaking care of these necessary organs of nutrition; and, particularly, how to prevent decay so that not a single tooth shall be lost before its full work is done. The importance of this, the first cause of malnutrition, and the big fact that it continues to work as an increasing damage as more and more the teeth begin to rot, and become worse than useless—these facts need to be strongly em-

*Read at the Tenth Congress of the American School Hygiene Association, at Albany, N. Y., June 7, 1917.

phasized. Close knowledge of how the teeth—the child's chewing tools—develop is needed. Their importance as organs of digestion and nutrition is told by the fact that at the time of birth the child has all its milk teeth and some of its permanent teeth compactly stowed away in its little jaws awaiting the time of their need. There is never a time in the life of a human being when his teeth, and all of them, are not needed. In childhood their need is paramount.

Among the first voluntary muscular actions of the child after birth is that of the muscles of mastication. Long before the baby can hold up its head, or has gained control of its hands, the chewing muscles are well developed and vigorously used. In the act of nursing the work of these muscles is vigorous enough to call upon the heart for increased action to provide needful blood supply. Later, with the advent of the teeth, the muscles of mastication are given greater leverage, and their action becomes correspondingly more powerful. The force exerted by them on the skull, and the increased flow of blood to the head, with their added muscular activity, are influencing factors in the development of the bones and the shape of the face and head. The fulcrum of this group of muscles is the teeth. Only when the teeth are brought forcibly together, or come in contact with food in chewing, is the powerful strength of the chewing muscles brought out. The generous blood supply which these muscles demand flows freely not only to the muscles, but the brain, too, receives its share. Experimental research with animals has demonstrated that, by interfering with the functions of the teeth, the shape of the skull and face can be modified, and the strength of its sides made to vary. An added fact which shows the damage done by neglect to attend to the temporary teeth works harm at the highly important developmental period of childhood. Between the sixth and twelfth years the mouth needs particular attention. In these years tooth-decay proceeds rapidly if the mouth is neglected. Nutrition is interfered with; and tooth-rot from diseased teeth and foul discharges from inflamed gums and roots lower the child's vitality.

Thorough mastication prevents overeating; it assists in regulating the quantity of food needed to maintain normal metabolism. The stomach is not overtaxed; and no part of the nutritive value of food is lost. Nor are the physiological processes of digestion and assimilation hindered by the formation of undesirable chemical products. The soft and delicate lining of the stomach is not suited to do the work of the mouth; nor is it intended that it should. The effect of chewing upon the teeth themselves is that decay is retarded in the mouths of those who chew food with proper deliberation; and strong teeth are developed by the exercise of chewing. The teeth and the jaws need to be used; and they need good blood to feed them, for their perfect development, just as much as the arms and legs need exercise. Mastication restrains the craving for unsuitable food; and it divides food into small particles so that it can be swallowed easily, and handled promptly by the digestive juices. Chewing of food sets into activity the flow of saliva, and, in turn, the action of the saliva establishes an agreeable taste. An agreeable taste of food in the

mouth starts the secretion by the stomach of its digestive juices, and the stomach is made ready to begin and carry through its part of the process of digestion. If well chewed, starchy food continues to be digested in the stomach. If not thoroughly mixed with the saliva, only partially chewed, these foods undergo fermentation, and disorder begins at the very beginning of the sustaining process of digestion. Children must be taught the habit to eat slowly, and to chew food until it is soft and moist and can be swallowed easily. Once thoroughly taught it becomes a life habit.

Hunger and appetite are intimately interrelated. Hunger is a dull ache or gnawing sensation referred to the region of the stomach. The body's first strong demand for nutriment, if unsatisfied, is likely to grow into a highly uncomfortable pang, less definitely localized as it becomes more intense. Besides the dull ache, lassitude and drowsiness may develop, or faintness, headache, irritability and restlessness, and to such extent that continued effort in ordinary pursuits becomes increasingly difficult. Appetite is related to previous sensation of taste and smell of food. Taste is made unreliable by a diseased mouth and decaying teeth. Appetite may exist separate from hunger, when delectable dainties are eaten merely to tickle the palate. Sensory associations, delightful or painful, determine the appetite for any food, and memory can arouse desire or dislike for certain foods. Underlying the idea that hunger arises from a general condition of the body is the fact that, as time passes, nourishment disappears from the blood, and, consequently, the nerve cells demanding food give rise to the hunger sensation.

Hunger is not always referred to the stomach. It is not due to emptiness of the stomach; it is not due to the digestive juices secreted by the empty stomach; it is not due to swelling of the glands of the stomach which make these juices. Hunger is the result of contractions of the stomach and other parts of the digestive canal. Contractions of the stomach precede sensations of hunger—they are the real source of the hunger pang. When the empty, healthy stomach is manifesting periodic contractions the intestines, too, are active. All parts of the digestive canal composed of smooth muscle share in these movements. The lower esophagus is provided with smooth muscle, and the periodic activity of these two regions—stomach and esophagus—is simultaneous. Otherwise the stomach would force its gaseous contents up into the mouth. What causes the stomach to contract is not definitely known, but though the contractions do not seem to be directly related to bodily needs, habit, no doubt, is an important factor. This might explain the presence of hunger at meal times, which is natural. The regularity of normal defecation indicates that the alimentary canal has habits. In dogs that were fatigued the rhythmic contractions of the nutritive canal failed to appear. Which gives a rational explanation of being "too tired to eat." Recent significant observations have shown that the stomach discharges its contents more rapidly if food is eaten in hunger than if not so eaten. In other words, hunger is normally the signal that the stomach is contracted for action; the unpleasantness of hunger leads to eating. Eating starts the

secretion of the stomach juices, distends the contracted organ, initiates the movement of digestion in the stomach and abolishes the sensation of hunger. Meanwhile, the digestive juices in the intestines are preparing to receive the oncoming nourishment. The periodic activity of the digestive canal in fasting is, therefore, not solely the source of hunger pang, but at the same time it is a signal in the digestive organs of readiness for prompt attack on the food swallowed by the hungry person.

The intestines—the third factor in nutrition—bring one more illustration of the paradox that the world knows little of the greatest contributor to health. The regularity of defecation is natural; the lower part of the digestive canal—the bowel—has its habits. Constipation is a bad habit—a habit which, too often, the child is permitted to acquire. Constipation is not inherited. The first and best aid to health is a regular daily movement of the bowels. They should be moved, and properly relieved and emptied at a stated time. In the morning, immediately before or after breakfast, is the time to relieve them. Health is defined as a harmonious adjustment of all the organs. When the bowels are neglected there cannot be harmonious adjustment. Too great emphasis cannot be given to the importance of forming and maintaining the bowel habit; nor can it be emphasized too often. Without it no child can be well.

An illustration will point this fact, and it will show the courage it sometimes demands to carry home this truth. Seldom can be found a more striking instance in which a situation has to be handled with more strength and decisiveness to overcome traditional indifference:

A little girl five years old—an only child—for a year or more had convulsions frequently. Naturally her mother was most anxious, and she had sought advice from doctors as to what could be done to relieve the distress of both the child and the parents. Aside from an assurance that her child would outgrow the attacks, the mother could find no help. The child was irritable, peevish, and nervous to the extremest limits; it was impossible to manage her. She had never attended school; she was not thought well enough to go to school. So quarrelsome and disagreeable was she that her playmates and the neighbors were unable to tolerate her, even with all the patience and pity granted to a sick child. She was well developed, and looked to be fairly well nourished. Physically the child was sound and normal; she had no physical defects. Closer investigation revealed that physiologically the child was not normal. Obstinate constipation was present; she had always been constipated—so much so that the fullest adult doses of the most active laxatives were required to effect a movement of the bowels. Naturally, these heroic drugs were not resorted to until utmost necessity demanded. The child refused to take any medicine that did not "taste good."

Her sleep was uneasy, restless, and broken by night terrors; and at frequent and uncertain intervals violent convulsive seizures came. These seizures alarmed the mother. The child had a dry mouth. Chewing paraffin (an inert gum without chemical action) produced no secretion of saliva, not even enough to be obtained by a dropper inserted in the mouth after vigorous and continued chewing. Her mother stated that the child always had difficulty in swallowing. Consequently this small girl had acquired the habit of washing her food down with milk and later with weak tea. She had a brave appetite, and ate greedily all kinds of food and all the sweets and candy she could get. At night, when her father came home to his hearty dinner of rich food, the child took her place at the table and ate her fullest share of the meal.

So completely had the mother failed to teach the child

the bowel habit that heroic measures had to be taken. The mother's protest against a bowel medicine which had an undeniably bad taste was answered by telling her that it was to be taken because it did taste badly; and by that very token her child would begin to make more of an effort to try to help her bowels move naturally. A nurse, who was tactful, patiently forceful, and ingenious in resources, was installed in the home for the definite period of two weeks. She was to initiate a new habit with the child—to establish the bowel habit; and to organize the undertaking for the mother to adopt and maintain. In ten days my plan had succeeded. Definite, practical instructions were given the mother as to the right food, in kind and quantity, for her child, and stated times at which it should be taken. The child's mouth needed attention; the toothache of which she complained not infrequently was eliminated by prompt attention to the decaying teeth.

Within the following month the report was that the child's bowels were continuing to act naturally—without a laxative; that there had been no convulsions; that she slept soundly, naturally, and completely relaxed—as every normal child sleeps; that she was less peevish and irritable; and she was unbelievably more easy to manage. To the mother's immense wonder, the child was really "drooling"; all difficulty in swallowing dry food had disappeared. A chemical examination of the saliva revealed a normal salivary secretion in constituents and quantity. Another examination of the urine showed greatly improved metabolism. The child's disposition had undergone an unbelievable change for the better; her behavior was greatly improved. She grew to a normal weight which was maintained steadily. Immediately the child was sent to school, and double promotion came at the end of the first year. Again, two years later, came double promotion without any particular effort to secure it. Six years have passed and during that time only five convulsive seizures have come, each seizure following immediately upon a debauch of sweets (intestinal auto-intoxication) and excessive excitement. The last attack was in June, 1915, and was only a light one.

It is a difficult undertaking to hold a pampered child always to no candy, no pie, no tea, and not too much excitement, and particularly when the undertaking is started against a five years' handicap. This child has a sheet-anchor out in a good bowel-habit securely fixed.

The three factors in nutrition, the condition and work of the buccal-gastrointestinal tract, must be investigated searchingly if the source of disease is to be discovered—if the fundamental cause or causes are to be sought out and dealt with, and if metabolic disorder is to be completely, or, more or less permanently, corrected. A failure of the mouth or stomach to do its full mechanical and physiological part in the process of digestion puts a burden on the intestines which does not belong to them, and which they cannot carry. Harmonious physiologic adjustment in the nutritive process fails, and auto-intoxication is the result. Auto-intoxication from long-continued digestive disturbances does not loose its grip unless team-work of the entire alimentary tract is reestablished. Particularly is this true with the neuroses. Using the broadest possible working knowledge of general medicine, and with patient and painstaking search to discover all the facts, the neurologist studies the child and its habits and environments. He seeks to know the whole story. Each child is an individual problem, to be studied and treated as such.

Neuroses of children fall under three types: The Nervous Child; Chorea; and Epilepsy. Not infrequently nerve disorders begin early in the child's life. Over 40 per cent. of more than 7,000 pupils referred to the Department of Child Study in Chi-

cago were found to be nervously depleted, malnourished, uneducated in the fundamental bodily activities, lacking in bodily control, dull at voluntary initiative, and with a weakened power of resistance. Even among school children who are mentally normal there is much nervous instability. Fully 50 per cent. of the medical problems in child life exist when the child is first registered for school.

The nervous child is not physically fit. Nervousness is a condition which can be taken too lightly; if it is not checked in season more or less serious consequences may follow. It is so common a condition that it seems needless to have the doctor see the child—all he will say is, "the child will outgrow it." Instead of being an unalloyed joy to the home the nervous small boy or girl becomes more and more a tax upon the patience of every member of the household, and an anxiety and much more of a burden upon the mother than a child need be. When such a child is sent to school a generous part of the increasing burden is shifted to the teacher, a young woman with small first-hand knowledge of children, and without the authority, time or experience to correct the physical shortcomings of even one of the two or three or more score of children whom she is employed to teach. The school is expected to do what the home has failed in doing.

The conservation of the nervous system cannot be begun too early in the child's life. To make certain a sound nutrition is the first duty to the child. Once established, the boy or girl begins life right. This demands a constructive program that involves work, the expenditure of effort, if anything of value is to be accomplished. Without intelligent and persistent effort the obstacles which are obstructing the pathway of the child are not cleared away; the child cannot go forward as it should. Just as close attention needs to be given to the nutrition of the growing child after infancy—between the second and eighteenth years—as during babyhood. Yes, closer attention, because from two years on the nervous system is developing; its functions are establishing themselves and the emotions are coming forth and being shaped for use and control. Any neglect of nutrition makes poor bodies. Poor bodies make slow minds.

Children with chorea or St. Vitus' dance put upon the doctor a problem which is difficult to work out. The difficulties are increased because, generally, malnutrition has a long lead. Bad habits, faulty and damaging feeding, and mismanagement and a more or less complete failure of discipline have obtained over a considerable length of time. These conditions, all of which must be corrected, too often have become so well established, they sit so tight that to unseat them demands a severe tax upon the patience, time, resources, tact, and courage of the doctor and the impatient mother and child. The mother unconsciously grows impatient because the girl or boy has drifted beyond her control. Not infrequently St. Vitus' dance develops at or near the adolescent period of childhood. Puberty is a turning point in the child's development—a vital, crucial period of life. Any disturbance of the nervous balance at this particular time augments the difficulty in correcting it. Harder is it to escape a permanent damage which must needs be carried throughout life. Records of 65 children

with St. Vitus' dance show that 45 of them were girls, and 20 of them boys; and of the girls 37 were between 6 and 14 years of age. Of the boys 19 were between the same ages.

With St. Vitus' dance one of the difficulties is to reveal each to the other—the mother and the child—as they really are; to clear away misunderstandings. These misunderstandings sensibly affect progress in curing this disease; they work for retarding it. When a mother brings her child for treatment for this nervous disturbance she is quite sure to say to her unruly child, "Now *you* listen to what the doctor says." Children do not listen to what the doctor says when they are taken to see him. Either they are too much afraid of him to listen, or they are quite as busy in measuring up him as he is in studying them. They must learn to like him and trust him before they begin to listen to what he says. It is the mother who must be talked to. She must be told clearly and definitely what she is to do toward getting the child well. Even though she protests, she is the one person who is really to do the hard work; and she must do it. She must be the responsible agent whose duty it is to carry out definite instructions, simply and clearly stated, as to the child's food and living habits. A survey of 90,000 pupils in the Boston Public Schools discovered that 5.5 per cent. had St. Vitus' dance, and 90 per cent. of these children came from "good" homes.

The conditions which make for St. Vitus' dance have not been discovered. The causes have not been determined. There are those who prefer to accept the theory that this nervous disturbance is due to infection; but as yet no specific infective agent has been found and isolated to strengthen that theory. In intensive study of certain facts in chorea there appears to be a relation of cause and effect. Malnutrition is always present. A diseased mouth, a disordered stomach, or inactive bowels, and often all three of these central factors in malnutrition are present and active. Granting the theory of infection as the cause of St. Vitus' dance, a diseased mouth with actively discharging abscesses is, undeniably, a source of infection. And the ages at which children have this disease are when tooth-decay is most common, and the mouth very generally carries abscesses. Infection which poisons the entire body is accompanied by a total cessation of all movement of the digestive canal.

There is no need to sketch in even roughly the picture of epilepsy. Everybody knows the distressful features of the "falling sickness." Epileptics are shunned and avoided; they are outcasts. Only pity is given them, and that at long range. They are denied school opportunities; they are refused honest employment and work. To the seemingly hopeless task of helping them carry their burdensome infliction no one wants to set his hand. Which ever way they turn they find nothing to help them keep the faculty of effort alive; there is never any encouragement to make it live. Life is being continually whittled down into despair. An epileptic said recently: "The poor devil who has fits has no friends." There is no sickness the treatment of which is more widely known than that of epilepsy. It is the bromides, of course; tradition has established that. The doctor tries his hand, and gives

one form of the drug, or it may be another form; it is always the same drug. Finally the last hope is the three bromides; what one of them fails to do the three combined will certainly do—or fail. And they do fail. Nothing more can be done. The doctor gives it up. With a drug habit added this misfortune becomes a curse.

This academic attack upon epilepsy is from the wrong quarter. It deals only with the end results; it stupefies. It does not strike at the cause or causes. In epilepsy, as in all nerve diseases, the three central factors of nutrition must be considered—the mouth, the stomach, the bowels. Not a single one of them should be overlooked. Malnutrition with its certain damages is the responsible causative factor in this disease. Call it autointoxication or infection, as you will, malnutrition is the cause to deal with. Immediate attention given to secure physiological intestinal activity, establishing regularly-timed, normal, daily emptying from the intestines of the products which cause autointoxication is the first step in the treatment of epilepsy. Persistent and patient effort, along with the right kinds of food and exercise, achieves and maintains a natural bowel-habit—one which is released from dependence upon drugs. If the mouth and stomach need attention, they should be put into good condition straightway. Every physiological and physical defect should be searched out, and so far as possible they are to be corrected. Careful laboratory analyses (quantitative, qualitative, and microscopic) of the twenty-four hour amount of urine and saliva, made from time to time, determine the metabolic activity of the alimentary tract. Analyses of the secretions aid substantially in determining and directing progress. An equally important factor, and one which cannot be omitted, is an intimate study of the individual, his living habits and environment.

The responsible cause or causes of this disease are dealt with. In the disheartened victim faculty of effort begins to stir; it is alive. It has not been drugged. He is being helped to help himself. Pressing the attack upon the disease, on the basis of nutrition, and against the end at which stands the cause, the seizures come less often, and with diminished severity and less exhaustion. Which would seem to point to a way leading to more or less permanent relief from a burdensome malady. One fact is determined—a possible means of prevention and protection.

Now and then a tragedy falls heavily upon a community—a tragedy which shocks us. Recently a young man, who to every appearance was physically sound, took his own life under hard stress of new and exacting work and discipline. Three times in the week preceding he reported at the hospital and declared he could not stand the work. A thorough medical examination showed nothing the matter except that he was "highly nervous." Thus he was pronounced, and the incident was disposed of as closed. The personal equation was ignored. Such tragedies are preventable. Nervousness is a term which is used loosely, and which is freely spoken. There is a vagueness concerning it, partly because we have not learned fully what the normal expression of the nervous system in our bodies is. In further search and progress our

attention needs to be turned to the prevention of nervousness and the neuroses. The surest way, certainly the shortest way to meet these problems, is to help the child in every way to begin life with a nervous balance and control which cannot be unseated—to help the child escape nervous disaster; to attack the problem in the very beginning. Comfortable, controllable nerves can be enjoyed at any age, and in any state of health. They have medicating virtues of their own; they provide a vigor of body and mind which give the strength and endurance demanded to put us equal to our tasks.

The old family physician knew human nature; he knew *his* people. He had the time to talk with and instruct the young, inexperienced mother about *her* baby and the children. He has passed on. But his work, his peculiar office, remains; and his work has grown. It has been amplified until now, in these days of specialized service, his work falls to the prenatal nurse, the school doctor, the school dentist, the school nurse, and the specialist. To medical school inspection—the school doctor, the school nurse—is given the responsibility of being the binding links which make the closer bond between the home and the school, the parents and the teacher. Through closer sympathies and understandings, and human cooperation, a large field in preventive medicine stands forth. In this field belongs, along with the other health conservation activities, in its place, the work for the prevention of nerve disease.

32 NORTH GOODMAN STREET.

THE SANITARY CONDITION OF MIKVEHS AND TURKISH BATHS.*

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SECRETARY, AMERICAN ASSOCIATION FOR PROMOTING HYGIENE AND PUBLIC BATHS.

(From the Research Laboratory, Department of Health, New York City.)

MIKVEHS, strictly defined, are Jewish ritual baths. The term "mikveh," however, as commonly used by the Jewish people includes baths of similar type, though not always of a purely ritual nature. Accordingly, mikvehs can best be classified as (1) sanctioned mikvehs (true mikvehs, sanctioned by the Rabbis) or Jewish ritual baths for women and (2) unsanctioned mikvehs divisible into (a) common mikvehs or plunge baths operated at elevated temperatures and used as cleansing baths and (b) cold plunges operated in conjunction with Turkish sweat rooms.

The first study of the sanitary conditions of mikvehs was that of Mr. H. F. J. Porter,† who reported, in 1912, on their polluted condition. Mr. Porter urged the writer to investigate these baths more thoroughly and as a result, preliminary studies were published‡ in 1914 and 1915. In 1914 the New York City Department of Health invited the Jewish Community (Kehillah) to cooperate in the formulation of plans to effect the sanitation of the mikvehs,

*The details of the inspections were carried out by Mr. David Lehman and Mrs. Theresa Ybanez, both of the Research Laboratory.

†*The Survey*, July 27, 1912.

‡*The Survey*, April 18, 1914, and Aug. 28, 1915; *Journ. Inf. Dis.*, Vol. 15, No. 1, p. 159.

the writer being asked to act as consultant. Plans were drawn up which met with the approval of both the Department of Health and the Board of Authoritative Rabbis of the Jewish Community. In order to carry out the details of the plans, the Jewish Community formed an organization of the mikveh owners, and the dues from the members of this association were used to pay an inspector whose duty it was to enforce the sanitary and religious regulations.

The members of the "Mikveh Owners' Association," as it was called, were put to considerable expense and trouble in carrying out the sanitary regulations, but it was felt that the publicity which would be forthcoming through the auspices of the Jewish Community would so arouse public sentiment in favor of the clean mikvehs, that both the expense and trouble would be justified. Furthermore, the Department of Health contemplated a thorough inspection of mikvehs, from which inspections immunity would be enjoyed by the members of the Mikveh Owners' Association. The publicity, however, was of a meager nature and the inspections of the Department of Health were interrupted through unavoidable causes. The mikveh owners who were members of the Association obtained scant, if any benefits from their membership and accordingly ceased to pay the quarterly dues. The inspector had to be discharged and in due course the society disbanded.

I. *The Sanctioned Mikveh.*—The Sanctioned Mikveh, as already stated, is the only true mikveh, its use being a necessary part of the Jewish ritual. Stringent Talmudic laws govern the use of the ritual plunge, which if carried out in letter and spirit would make sanitary inspection and control of these baths entirely unnecessary. The ritual dip is required of women at all periods within seven days after menstruation, prior to certain holidays, before marriage, etc. Men are not required by religious law to take the ritual dip, although certain sects of Jewish people have acquired the custom of using the mikveh as a semi-religious practice.

Inspections and Bacteriological Analyses.—There is in each establishment usually one plunge of about 200 cubic feet capacity, containing water maintained at somewhat higher than body temperature. The daily attendance is small, rarely exceeding 30 and usually about 15. The cost of baths in these mikvehs varies between fifteen and fifty cents, the majority being low priced. While the baths are usually reserved for the exclusive use of women, some permit the use of them by men at certain times in the day. The women following, therefore, bathe in the same water previously used by the men.

A mikveh to be sanctioned must be under the supervision of a Rabbi, and the bath taken in it must be taken with due regard to the numerous religious tenets governing the ritual dip. Most important among the religious requirements are those which demand scrupulous cleanliness of the body before ablution in the mikveh is permitted.

On the whole the premises of this type of bath are in fairly good sanitary condition. The bacterial data collected from analyses of the water, however, indicate quite clearly that more frequent renewal and periodical disinfection are necessary.

BACTERIAL DATA FROM MIKVEH CLASS I.
BACTERIA IN 1 C.C.

	Agar 37° C.	Gelatin 20° C.	Coli in Bile	Temp of Water ° C.	Approximate attendance
1	79000	190000	100	36	10
2	1900	8500	1	35	5
3	200	12700	0	42	10
4	2100	6000	0	33	15
5	101600	110000	1	38	16
6	241000	31800	100	30	35
7	60000	3700	10	37	15
8	320	650	1	35	1
9	2700	1400	100	32	..
10	30240	16000	10	35	25
11	945	21200	10	34	5
12	260	300	0	34	5
13	1400	4700	1	35	8
14	158	1800	10	38	8

Accordingly all the baths were treated with various concentrations of calcium hypochlorite for the purpose of ascertaining the most efficient quantity of chemical to use. One ounce per 900 gallons proved to be satisfactory under the conditions of application which obtained. As a routine the sanctioned baths (those that were members of the "Mikveh Owners Association") were periodically disinfected and daily renewed with clean water.

Conclusion.—Concerning the sanitation of the sanctioned mikveh, a careful regard for the management of the water, including its daily renewal (or more frequent renewal if used by more than 20 persons daily) and its periodical disinfection,* together with the providing of clean towels, liquid soap, individual drinking cups, sanitary control of premises, etc., should prove adequate to effect suitable sanitary conditions.

II. *Common Mikvehs.*—The common mikveh consists of a plunge bath, the water of which is maintained at an elevated temperature. This type of bath is frequented for the same reasons as Turkish baths, the mikveh plunge being used as a common cleansing bath by a large number of people.

Inspections and Bacteriological Data.—These mikvehs are located, usually, in tenement houses, where they occupy the ground floors and cellars. Some, however, are located in loft buildings, in yards of tenement buildings, and a few in stables. A separate coal furnace for hot water is invariably on the premises to supply hot water for the mikvehs, tub baths, and shower baths, if present. Coal, wood, straw, litter, and debris of all kinds have been observed about the furnaces, which constitute a grave fire hazard, especially when it is recalled that most of these mikvehs are in tenement houses, accommodating, at times, as many as twenty large families. Concerning the fire hazard for those using the mikveh, conditions are very bad. The approach to the mikveh is frequently by means of a narrow wooden staircase leading down to the cellar, where the bath is located. Destruction of the stairs would cut off the only means of egress for the bathers. Occasionally the public press has reported fires in these establishments which have fortunately terminated, up to now, without fatality. Nevertheless, the fire hazard in these baths, as well as in those described in Section III, is of grave character and worthy of drastic control.

*The disinfection of the water of these baths by the use of an ozone-generating machine is contemplated and the details of the experiment will soon be arranged.

Reliable data on the number of individuals who use the baths cannot readily be obtained; observation, however, showed that large numbers frequent them. Indeed, as many as 300 people have been observed to bathe in a plunge containing a like number of cubic feet of water! The presence in the immediate vicinity of free municipal baths has operated, through salutary competition, to reduce the profits derived from mikvehs, and some of the mikvehs have suspended operation entirely. Since the majority of these baths are not of a purely ritual nature, such competition should be encouraged and the free bathing facilities for the people in those communities greatly expanded.

BACTERIAL DATA FROM MIKVEHS CLASS II.
BATHS FOR MALES.

No.	Count at 37° C. per c.c.	Count at 20° C. per c.c.	Coli per c.c.	Temp. of water ° C.	Attendance at time of inspection.
15	1300	1250	1	50	12
16	10000	13000	1	45	12
17	80000	4700	10	50	20
18	112000	11000	50	40	15
19	3750	8000	50	30	1
20	42000	66000	50	55	150
21	2800	3200	50	35	80
22	3537	2000	50	50	80
23	144000	27000	50	50	60
24	4320000	...	50	50	60
25	37500	11800	50	23	0
26	20000	19000	50	40	2
27	200000	3800	50	45	7

BATHS FOR FEMALES.

No.	Count at 37° C. per c.c.	Count at 20° C. per c.c.	Coli per c.c.	Temp. of water ° C.	Attendance at time of inspection.
28	1800	3200	100	30	10
29	33000	1900	1	35	0
30	27000	11500	1	35	1
31	2000	1500	1	...	...
32	26000	2300	1	40	12
33	11000	9500	1	55	1
34	11300	9500	1	23	0
35	11500	800	1	45	0
36	3600	2600	1	43	1
37	60000	60000	50	35	1
38	6000	77	1	45	0
39	135000	220000	50	33	0
40	31500	43000	50	25	3
41	23000	1000	1	35	4
42	1600	5400	0	40	0
43	1600	800	10	30	10
44	320	250	50	28	5

In most instances the pools consist of tile-lined tanks sunk in the ground and are about 5 feet deep by 6 feet square. Few mikvehs contain over 300 cubic feet of water, the majority containing approximately 175 cubic feet. Most of the establishments have more than one of these plunges, which they operate at different temperatures, the bathers first immersing themselves in the water of that containing the lowest temperature and finally going to the one having the highest. The temperature of the water varies considerably. The highest temperature observed was 55° C.* Most, however, are operated at between 40° C. and 45° C., although numerous instances of water at 50° C. were observed. The water is changed at the end of a day's use, if its appearance absolutely demands it, but is never changed during the day in spite of its being

*The hot water for these baths is frequently added by a pipe emptying onto the surface of the water. This accounts for the high temperatures obtained. A few temperatures at the bottom were taken and they registered from 5° to 10° C. less.

used for common bathing by a large number of people. It was not possible to collect samples of water always at the time of maximum pollution, but the table indicates sufficiently polluted water.

Common combs and hair brushes, cake soap, and common bathtub brushes are usually supplied. Dressing room compartments are of wood and not vermin-proof. In some of the establishments rows of couches are supplied, as in the mikvehs of Class III (see Section III). In most of these places only bathtubs are supplied for those who desire to take a preliminary cleansing bath, but these tubs are not much used because of an extra charge of 5 cents. Showers are rare and when present have been observed in several instances to empty into the plunges. Bathtubs when used are not carefully cleaned for the next patron and are frequently left to stand for considerable lengths of time full of filthy water, until the attendant has time to empty them. The chains on the stoppers are frequently broken and for this reason the attendant must thrust his arm into the filthy water and remove the stopper. A superficial cleaning of the tub ensues to put it in readiness for the next patron. Poorly laundered towels are frequently supplied, and at times roller-towels for common use provided.

From the hygienic standpoint these very hot baths are just as devitalizing as the Turkish baths (see Section IV) and are not recommended by leading hydrotherapists. Taking into consideration the filthy condition of the water, the insanitary conditions of the premises, the fire hazard, and the devitalizing influences of the baths, I feel justified in concluding:

1. That the shower baths, as far as possible, replace the common bathtub, which, if continued to be used, however, must be cleaned adequately after each bath.

2. That increased bathing facilities be provided in the vicinities where these mikvehs exist. That shower bath facilities be provided in the basements of settlement houses, public schools, and other public buildings.

3. That these mikvehs, if allowed to continue business, be carefully supervised as to their sanitary condition.

4. That this type of plunge bath be abolished through the passing of a law preventing the taking of a cleansing bath in a plunge used by more than one person.

III. *Mikvehs with Turkish Sweat Rooms.*—These are border-line mikvehs, partaking of the character of both mikvehs and Turkish baths. They are primarily poor grade Turkish baths provided with a cold mikveh plunge, and without the services of masseurs. In the common mikveh (Class II) sweating results from immersion in the hot water of the plunge, whereas in these establishments "sweat-rooms" are provided, which are heated with steam and hot air.

Inspections and Bacteriological Data.—The individuals who use these baths disrobe in a large room and place their clothing either on benches or in small wooden lockers. These lockers are not ventilated and are not vermin-proof. The bathers then proceed to the sweat-room, where they remain, seated on long wooden benches until they have sweated to their satisfaction, after which they take

a brief dip in the cold water of the plunges. Some elect to omit the dip in the mikveh, taking a cleansing bath instead.

The plunges in these establishments are not used extensively and do not represent so grave a sanitary menace as those described in Class II. In regard to the sanitary condition of the premises, however, these baths present an even poorer picture than those already described.

In particular the sleeping accommodations supplied to patrons deserve mention. The couches are placed close together, usually in poorly ventilated rooms* and in large numbers. Sheets, pillowcases, blankets, and quilts are laundered infrequently and provided for common use. Bed linen in positively filthy condition was observed on the couches.

The bacterial data (see table) from the water of these baths show no striking contrast with those obtained from the previous group of mikvehs. The length of time the water is permitted to remain in the pool probably explains the rather high counts. The water, however, from general appearance seems to be in much better condition, especially since it does not contain the detritus from the body which literally covers the surface of the water in the common mikveh (Class II).

MIKVEHS WITH TURKISH SWEAT ROOMS III.

MALE.

No.	37° C.	20° C.	Coli in Bile.	Temp. of water*	Approximate attendance.†
45	160000	360000	50	cold	30
46	7200	22000	50	cold	30
47	2000	1500	1	cold	50
48	27000	14000	50	cold	50
49	40000	180000	100	cold	100
50	3100	17500	100	cold	100
51	2300	2000	100	cold	30
52	6000	1300	10	cold	10
53	54000	50000	1000	cold	0
54	1000	4400	1	cold	0
55	1000	1200	10	cold	12

*Where the water was unheated, i.e., cold, the temperature was not taken.

†The men attending the bath do not always use the pool.

FEMALE.

No.	37° C.	20° C.	Coli in Bile.	Temp. of water ° C.	Approximate attendance.*
56	48000	21000	1	30	0
57	30000	8000	50	34	8
58	76000	170000	1	30	0
59	80000	510	1	40	6
60	3000	7000	1	25	10
61	240	340	30	30	2
62	88000	11000	1	30	12

*The women attending the baths, always use the pool.

In one particular only, namely, the appearance of the water of the plunges, do these baths surpass those of Class II; in all other details of sanitary condition they are on a par with them.

Conclusions.—1. The plunges in mikvehs with Turkish sweat-rooms should be operated in pre-

*As instances of poor ventilation we cite two clippings from a New York newspaper.

"Six men were overcome by coal gas in a Turkish bath establishment. The coal gas was generated by a furnace used for supplying steam for the sweat room."—*The Sun*, Jan. 2, 1917.

"One young man was killed and five overcome by coal gas from the furnace in a Turkish bath."—*The Sun*, Jan. 3, 1917.

cisely the same way as swimming pools. The water in them should conform with the bacterial standard for swimming pool water and should receive periodical disinfection in a manner similar to that recommended for sanctioned mikvehs (Section I). Preliminary inspection of bathers and a preliminary cleansing bath should be required.

2. Adequate supervision of the premises should be maintained. Proper ventilation should be secured. Individual bed linen, towels, brushes, combs, etc., should be provided.

3. Elimination of fire hazard for both the bathers and the dwellers in the tenement should be secured.

Turkish Baths.—Turkish bath establishments present a far better appearance than do the mikvehs with Turkish baths, although the ones inspected ranged from rather poor class places to those having the finest appurtenances and up-to-date conveniences. Concerning their hygienic features leading balneologists condemn them.

From the sanitary standpoint, fortunately, their condition is fairly good, only certain elements of their procedure requiring correction.

Inspections and Bacteriological Data.—The swimming pools operated in conjunction with the Turkish baths were examined in the winter and were at that time in fairly good condition (see table). In the summer, however, they are used more extensively, and the conditions would probably not be so good.

SWIMMING POOLS IN TURKISH BATHS.

No.	37° C.	20° C.	Coli. in Bile.	Temp. of water.	Approximate attendance.*
63	600	2200	1	cold	90
64	210	700	0	cold	30
65	2400	3500	1	cold	75
66	21000	130000	0	cold	70
67	4000	3800	0	cold	10
68	850	1100	0	cold	80
69	7600	12000	1	cold	125
70	102	10000	1	cold	65
71	380	4000	1	cold	75
72	5	18	0	cold	50
73	104	750	0	cold	35

*Attendance here refers to the number of people using the Turkish Bath. There was no way of telling how many used the plunge.

Concerning the sanitary condition of the premises and bathrooms, our reports were generally favorable, clean bedding, bed linen, and properly laundered towels were supplied. Only in a few particulars could objections be raised, as, for example, use of common drinking cups for supplying ice water to the patrons in the sweat-rooms, the use by the masseurs of common brushes for washing the patrons, the ungloved and possibly contaminated hand of the masseurs, and the poorly cleaned marble slabs upon which the patron lies while being washed. In addition to these details it should be pointed out that the baths are used during the day by women and during the night by men, and the sleeping quarters get such continuous use as to preclude proper airing of the bedding.

Conclusions.—1. The common drinking cup provided in the sweat-rooms should be abolished and replaced by sanitary drinking cups.

2. The common scrub brushes used by the masseurs should be replaced by individual brushes or hempen wads that can be sterilized after each separate use.

3. Marble slabs should be thoroughly cleaned and hosed off before use by a second patron.

4. The masseur should be required to wear gloves for his own as well as the patron's protection and these gloves should be sterilized after individual use.

5. Turkish baths are harmful from the hygienic standpoint, and their use should be discouraged.

2350 DAVIDSON AVENUE.

OBSERVATIONS ON COMPLEMENT FIXATION IN TUBERCULOSIS.

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THE diagnosis of incipient tuberculosis is a difficult problem. The problem is still harder when it comes to the diagnosis of active incipient tuberculosis, *i.e.*, to tuberculosis that requires treatment, eliminating quiescent or healed lesions. This difficulty has, in conjunction with the x-ray and other means, been almost overcome by the complement fixation. The multiform clinical manifestations of tuberculosis and the extreme variations in its course in different individuals affected, are the obstacles in the way of an early diagnosis. The variability of the disease may be sought for in the susceptibility or individual resistance, showing numberless temporary fluctuations. Wherever a definite diagnosis cannot be made, it is a good axiom, at least to suspect tuberculosis. Tuberculin does not tell us whether a given case may or may not require special attention; it only tells us: Here is tuberculosis—whether quiescent, healed, or active.

The complement fixation has this, however, in common with the tuberculin test: The majority of lethal and late third-stage cases give negative results, probably due to the same underlying principle of which we shall speak later. There was, on the other hand, one great difficulty to overcome in the successful employment of the complement fixation test, namely the lack of proper antigens.

Besredka and Manouhling finally succeeded in cultivating tubercle bacilli on a different medium than that used formerly. On this nutrient the organisms manifested properties hitherto not observed. This fact led Besredka to try the antigenic properties of these cultures for the deviation test. He then found that in from 90 to 95 per cent. of clinical cases of tuberculosis the result was positive.

Besredka's medium, used for this purpose, is prepared in the following manner: Dilute the white and the yolk of an egg, each separately, with 10 volumes of water, then filter. The yolk solution must be clarified by slowly adding sodium hydroxide. Autoclave both solutions and keep them separate. Before using them, mix 10 volumes of sterile alkaline veal in fusion (prepared without peptone, salt, or glycerin) with 2 volumes of the sterile white of egg solution and one volume of the sterile, clarified yolk solution. Put this mixture into sterile test-tubes ready for use. Most strains grow with ease in the course of a few days on this medium, but it is essential, although requiring some labor, to make it fresh shortly before inoculation.

Certain fluctuations, for instance in the chemical composition of the egg, may alter in consequence thereof the chemical composition of the antigen. Hence it becomes necessary to increase or decrease the amount of alkali or the amount of tuberculin used for the test in each batch of antigen. It is well to keep in mind the strain specificity in tuberculosis, when making these tests.

Dr. Miller suggested and worked out an easier method which has the advantage over the other antigens that it saves labor and keeps better.

Dr. J. Bronfenbrenner and others found the test position in 84 per cent. in first-stage cases of tuberculosis, in 94 per cent. in second stage, and in only 15.3 per cent in third-stage cases. This low percentage in third-stage cases is probably due to the fact that there is no new antibody formation, due to the exhaustion of resistance in the patient, and that the circulating antibody is taken up as formed by the combination which may and does greatly increase during the last stage of the disease.

To make the test it is necessary to have fresh serum, which is titrated for the amount of complement present. This titration is performed with erythrocytes washed and previously sensitized with one unit of amboceptor. To overcome the presence of antish sheep amboceptor, naturally present, the antihuman hemolytic system must be used.

Now titrate guinea-pig serum for its complement content, using human red cells sensitized as before. Add enough guinea-pig serum to bring up the amount of complement already present in the human serum to 2 units. Now add the antigen and incubate. After the incubation is terminated, red cells sensitized with one unit of amboceptor are added and again incubated, when the hemolysis becomes evident.

The proper amount of amboceptor for this test is determined as follows: Take 6 to 8 graduated test tubes, pour into them amboceptor solutions up to 0.1 for No. I test tube; 0.15 for No. II, etc., then add physiological salt solution to each test tube up to 0.8 c.c., now add 0.2 c.c. of the 50 per cent. suspension of washed human erythrocytes. Incubate for 30 minutes on a water bath at 37° C., shaking the tubes at short intervals. This will result in 1.0 c.c. of a 10 per cent. suspension of red cells sensitized with varying amounts of amboceptor. After $\frac{1}{2}$ hour distribute 0.025 c.c. of fresh human serum (human complement) into as many test tubes as there are dilutions of amboceptor and bring up the volume in each of these tubes to 0.9 c.c. Each of these tubes should now receive red cells sensitized with gradually increasing amounts of amboceptor, *i.e.*, transfer to each of them 0.1 c.c. from the various tubes above given. Now we have a number of tubes, each holding 1 c.c. of 1 per cent. suspension of blood cells, sensitized in the presence of varying amounts of amboceptor, and 0.025 c.c. of human serum. Incubate $\frac{1}{2}$ hour at 37° C. and read the amount of hemolysis in the different tubes.

The smallest amount of amboceptor which has sensitized 0.1 c.c. of 10 per cent. red cells so that they are completely hemolyzed by 0.025 c.c. of fresh human serum, constitutes one unit of amboceptor.

This test, as stated above, indicates active tuberculosis and more so when repeated at intervals of one month for 2 or 3 times. There are cases that are

negative now and positive one month hence and again negative the third month. These are borderline cases and need close watching. Arrested and cured cases show a negative reaction, so do most late third-stage cases.

TABLE I.
220 tests, showing the following results:

	Human.	Bovine.	Wassermann.
Class I. 56 cases	4 +	(18) 2 + (9) + (7) ±	(2) ±
Class II. 42 cases	3 +	(5) + (2) ±	(3) ++
Class III. 28 cases	2 +	(1) ±	0
Class IV. 40 cases	+	(9) 2 + (2) + (3) ±	(4) ±
Class V. 11 cases	±	0	(1) + (5) +++
Class VI. 53 cases	0	0	(2) ++ (2) ±

Note: Numbers in brackets indicate number of cases; sign ± means doubtful.

I formed a table reviewing the blood tests of 220 cases, some repeated 2 or 3 times, covering a period of 7 months or more. A large number of these tests were made by the New York Board of Health, Division of Diagnosis. This table also shows the Wassermann reaction wherever present, also the stage of pulmonary cases and cases under suspicion.

TABLE II.
Showing parts affected and stage:

	Glands.	Lungs.	Bones.	Skin.	Eyes.
Class I. 56 cases	27	15 1st stage, 13 2d stage, 2	9	3	2
Class II. 42 cases	11	23 1st stage, 15 2d stage, 4 3d stage, 4	5	2	1
Class III. 28 cases	3	25 1st stage	0	0	0
Class IV. 40 cases	2	38 1st stage, 22 2d stage, 14 3d stage, 2	0	0	0
Class V. 11 cases	5	5 1st stage	1	0	0
Class VI. 53 cases	0	18 late 3d stage, 15 early 3d stage, 3	....	....	....

8 first stage gave —.
5 second stage gave —.
9 showed Wassermann —.
26 showed no disease whatever.

Conclusions.—Cases with tuberculous glands or bones showed a higher percentage in 4+ human type than pulmonary cases; this holds good also in bovine type, namely 2+ or simply 1+.

The third-stage cases (pulmonary type) that showed + were all early third-stage cases, all late third-stage cases were negative.

Some cases were + one month and negative the next month or vice versa, these cases were all anæmic, had lost weight and complained of fatigue, but showed no signs of disease by x-ray or other diagnostic methods.

The luetic condition nowhere interfered with the tuberculosis deviation test, since those that reacted

to both tests showed unmistakable signs of active tuberculosis.

The biologically treated cases became negative in 82 per cent., a case showing 4+ human and 2+ bovine having been treated with a mixture of human and bovine tuberculin for 3 or 4 months, for instance, would under a new test show human + and bovine ± and be negative a few months later.

Out of 89 pulmonary cases, 5 increased the + by 1 or 2 and the bovine, originally —, became + in one case after 3 months' treatment, but became — again under continued treatment, all other cases showed a continuous decrease in the + reaction.

436 CLINTON AVENUE.

Medicolegal Notes.

Mental Capacity of Epileptic Employee.—In an action for injuries sustained by a railway porter when he was seized with epileptic convulsions and fell from the train, the pleadings and the evidence raised questions as to his mentality; whether he had mental capacity to appreciate the dangers of the service; whether the defendant employed him with knowledge of his affliction, or should be charged with notice thereof; whether by reason of his affliction he was incapable of performing his duties; whether he was assigned to duties beyond his mental capacity and comprehension that were dangerous to him by reason of his want of mental capacity and his affliction of progressive epilepsy; and whether he had knowledge that he was incapable of performing his duties when he applied for employment. It was held that the trial court properly refused to direct a verdict and submitted the case to the jury.—*Young v. Southern R. Co.*, South Carolina Supreme Court, 94 S. E. 302.

Supervening Negligence of Patient.—In an action for malpractice the Wisconsin Supreme Court holds that where the defendants were negligent in the treatment of the plaintiff before she left the hospital in which she had been treated, and damages resulted therefrom, the fact that the plaintiff aggravated the result by conduct after leaving the hospital prematurely would not bar recovery, but would go in mitigation of damages. The plaintiff's negligence was rather subsequent or supervening negligence than contributory negligence.—*Schultz v. Tasche* (Wis.) 165 N. W. 292.

Homicide Provoked by Assault.—Under a policy insuring against death sustained through external, violent, and accidental means, without any specific or definite exception covering the matter, the intentional killing of the assured by a third person does not of itself withdraw the claim from the protection of the policy. The test of liability is whether the assured, being in the wrong, was the aggressor under circumstances rendering a homicide likely as the result of his own misconduct. An assured wrongfully assaulted another person with a pole three or four feet long, and pursued the fight with a pistol, which he first fired, and was then himself shot and killed. It was held that the homicide was not accidental within a policy insuring against death by external, violent or accidental means.—*Clay v. State Ins. Co.* (N. Car.) 94 S. E. 289.

Public Health Regulations—Infantile Paralysis.—The federal district court for Vermont holds that a regulation promulgated by a state board of health prohibiting fairs, Chautauquas, street carnivals or circuses until further notice, when based upon the professional opinion of the members of the board, physicians from different parts of the State, that such gatherings are likely to cause the spread of infantile paralysis, is a reasonable regulation within the police powers of the State, and not invalid as in violation of the constitutional provision against impairment of the obligation of contracts, although its effect may be to prevent the performance of contracts.—*Community Chautauquas v. Caverly*, 244 Fed. 893.

License to Practice Osteopathy—Scope.—That a license to practice osteopathy does not confer the right to remove tonsils and give medicine in connection with the operation is held in *State v. Bonham*, L. R. A. 1917D, 996.

Military Medicine.

ASTHENIC STATES AT THE FRONT.

CHEYRON states that the scientific curiosity of the medical man at the extreme front cannot well be satisfied. Not only are the actual demands upon his time extremely insistent, but the observation material is eminently fugacious. The men in the trenches have their especial maladies for which they may have to be evacuated. With epidemic maladies stamped out by hygiene, the troubles encountered are chiefly respiratory or gastroenteric, and in a lesser degree comprise skin diseases, nephritis, trench diseases proper, and pathological fatigue.

The last-named condition is made the subject of the author's study. Among its manifestations, lumbago is the most frequent, and this incidence bears some relation to the use of excavating implements. In addition to mere pain, the subject is unable to flex his trunk, and a rest, recumbent, for at least 24 hours is necessary for his recuperation. A higher degree of backache follows either a prolonged or strenuous sojourn in the trenches. Fever up to 104° is present, and characteristic, in that it fluctuates irregularly without any typical curve. The general stiffness and soreness of the muscles and the extreme weariness, form, with this fever, a triad of symptoms. The term "fatigue fever" is a useful one, the play of temperature between 101.5° and 104° being due essentially to fatigue. Naturally, the tongue is foul, and anorexia and constipation coexist with occasional nausea and vomiting. The pulse is accelerated, and there are headache and severe pain referred to the rear of the eyeballs. Herpes febrilis and nosebleed are encountered at times. The syndrome is decidedly professional in type, and while it may usher in infectious diseases is none the less a separate entity. As a result of this deep fatigue the digestive apparatus may become disorganized, with a local reaction or autointoxication. The initial constipation is succeeded by violent diarrhea or attacks of colic. In addition to poison from this source the blood must be loaded with fatigue toxins. As a result, the action of the kidneys is compromised, albuminuria appears, and the severe pains in the back may be in part due, in a given case, to actual nephritis. There are marked hypotension and much irregular functional behavior of the heart, to which is sometimes added actual heart failure (syncope, cyanosis) as a result of total exhaustion. The patient, after syncopal sensations, falls flat and has to be revived with analeptic drugs and procedures.

Fatigue is doubtless due in part to adrenal exhaustion, and in a certain percentage of cases definite evidences of the latter are present. However, the cerebrum seems to be the essential seat of the fatigue, and while the entire body is involved the author appears to believe that the fibers in the white matter suffer most, comparing them to battery wires which become unequal to the transmission of potential beyond a certain degree. The psyche may react with states of fear and psychasthenia in general, neurasthenia, extreme depression, hypochondria, hallucinatory states of peculiar type (seen especially in sentinels), sleep disorders, etc. In battle, men often think themselves badly wounded while still intact. Convulsions are sometimes seen.

Commotional and confusional symptoms occur, and it is essential to discriminate between psychasthenia and psychoses. The former term must refer to an acquired state which occurs on a normal substratum, but which presents phobias, obsessions, impulsive acts, aboulia, etc., similar to those seen in psychopathic individuals. As results of war fatigue these manifestations are new, at least to the modern generation, and due, in all likelihood, to the peculiar character of the present mode of warfare with drum fire, gas attacks, etc. It will be no easy matter to decide between the psychasthenic and psychotic manifestations which occur side by side in the greatest profusion.

War Malaria.—There appears in *Le Progrès Médical* for December 8 a sort of impromptu symposium on this subject with five leading articles. Bernard regards malaria as second in importance to none of the war plagues. Not only was it of the highest significance in the warfare at the Dardanelles, Salonica, and Macedonia, but from these foci it has been transplanted throughout the whole of France. This author gives a complete general review of the subject which does not lend itself to a brief epitomization. An extensive bibliography is appended. Certain paragraphs are of special interest. Quinine has been used heroically and cinchonism has occurred in an unprecedented degree, but the general symptoms pale into insignificance in comparison with the local accidents which follow intramuscular injections of the drug into the buttocks. Large and deep abscesses and extensive sloughing are accidents often recorded and illustrated. The distinction between primary and secondary malaria is carefully maintained throughout. Owing to the fact that quinine tends in time to lose its efficacy we are confronted by a special type of quinine-fosi or quinine-resistant paludics to whom large doses and intensive treatment may be necessary when relapses occur; for in these subjects the drug will no longer prevent relapses.

Leenhardt and Tixier write on the treatment of malaria in a special center. They make use of the intramuscular treatment with which one of the authors has become thoroughly familiar in Morocco. The results are remarkable, for not only is an access at once arrested but old cachectic subjects show a remarkable general change for the better in a few days. Moreover, these injections cause a quinine retention and those physicians who have tried the oral exhibition with its manifold prejudices to the gastroenteric tract of the anemic subject—who needs the full use of his digestive apparatus—must prefer the newer method even although this too has its drawback. Most striking is the fact that patients as a rule choose the intramuscular route. The authors in over 5,000 injections did not see a single abscess. There was one case only of hematoma with secondary sloughing. Of immediate, as distinguished from remote, accidents syncope is occasionally seen, but has no specific character, since it may follow any puncture. Blood examinations may furnish indications. Thus in a severe infection with the blood swarming with hematozoon 0.80 gm. of quinine hydrochloride is thrown into the buttock

daily for eight days. Although a systematic plan of treatment will cleanse a patient thoroughly he is not necessarily sterilized and prognosis is the worst part of the management—one is never certain that the disease will not reappear after a severe infection.

Leger and Mouriquand write briefly on the hibernation of the anopheles in the Dauphiné as studied during the past winter, which was very rigorous. The larvæ of the anopheles were seen at intervals throughout the entire cold season. In the hibernating state they resisted with ease water temperatures of 13° C. and underwent the usual change to nymphæ. Nymphæ taken from the water developed in the laboratory into active adult individuals in two days. This was in April.

Garin and Pasquier conclude from a study of hospitalization that hospitals for malarial subjects should have an altitude of 1,000 meters in order to protect the civilian population. Bernard contributes a second paper on two cases of autochthonous malaria by which term he refers to cases in natives presumably infected from returning troops. The term has also been used to indicate a recrudescence of old native malaria in the war zone. With the idea that these subjects might be promptly sterilized he treated them with neosalvarsan injections in increasing doses. The immediate results were all that could be desired.

Women's Hospitals in France, Serbia, and Salonica.—Dr. A. Louise McIlroy writes in the *Glasgow Medical Journal* for November, 1917, concerning the work of a unit of the Scottish Women's Hospitals in France, Serbia, and Salonica. She says that various methods of treatment for dysentery were tried in Salonica. As it was of the bacillary form emetine was useless. Enemata of tannic acid, or Condy's fluid were given, also saline transfusions, but it was finally decided that the administration of drachm doses of sulphate of magnesia hourly until all trace of blood or mucus had left the stools was the most successful. Barley water was given by the mouth, with occasional administration of meat juice later. No milk in any form was given until convalescence was reached. If the stools were frequent and exhausting, the sulphate of magnesia was suspended for a few hours, and a small dose of morphine was given to insure sleep. This treatment was found to be the most efficacious of all employed. Cases of paratyphoid, typhoid, epidemic jaundice, and other diseases with gastrointestinal localization were also treated in the hospital. During the whole summer attacks of diarrhea were prevalent among the armies and also among the hospital staffs, and it was with great difficulty that the work of the various units could be maintained. No published conclusions have been arrived at as to the origin of this diarrhea. The water supply of the armies was boiled or chemically sterilized. That it was an air-borne disease may justify consideration, as new arrivals sometimes became infected when kept in the harbor in ships for several days before landing. The extreme heat and the prevalence of flies bore a considerable part in its maintenance as it disappeared with the onset of the colder weather.

During the late summer the climatic conditions

were more favorable and the health of the armies became excellent. Sand fly fever was almost the only disease experienced, but the attacks were of short duration. The symptoms resembled those of influenza, with headache, rise of temperature, aching joints, and a peculiar pain across the diaphragm. Treatment by sodium sulphate and aspirin was very successful in its cure.

In the autumn of 1916 an advance of troops took place in all the fighting front, and wounded began to pour into the hospital. During the whole winter and spring the hospital was full of surgical cases of very great interest. Much time was spent over accurate localization of projectiles in the tissues, and in this way much saving of tissue was obtained at operations, as division of muscles was rendered unnecessary when foreign bodies were accurately located. The cases were received from the firing line about twenty-four or forty-eight hours after injury. In some of these sepsis had already commenced, more especially those of the knee or elbow joints. The limb with its shattered tissue was cleaned up by immersion in saline baths before operation. Immediate operations on admission were not found advisable, unless in special urgent conditions. In this way the patient got over the shock and fatigue of the journey, and the after-results of the operation were more favorable. On arrival the bed-ridden cases were undressed and bathed in the wards on a bed protected with blankets and waterproof sheeting. Their clothes were immediately placed in a labeled sack and carried to the vestiaire to be disinfected, washed, and mended, and were only given back to the patient on his evacuation. Wounds were dressed immediately and the patient was permitted to sleep after being fed. Patients requiring urgent operations should be attended to in the clearing hospitals and should not be sent down to the base in a condition requiring immediate operation on arrival. The journey to Salonica through Macedonia from the front is difficult and arduous and the wounded arrive in a state of fatigue. After rest the patient is taken to the x-ray department, where the diagnosis and localization of projectiles and fractures are made. Operations are arranged for according to the urgencies and necessities of the condition.

Military Medical Research in France.—The American Red Cross has issued a statement concerning the appropriation of \$100,000 for medical research in France in which it quotes from the report of the commission in Europe and from a cablegram signed by forty-one army medical officers showing the propriety and need for the expenditure. The report of the commission states that "an extraordinary opportunity presents itself in France for medical research work. To carry on the work special laboratory equipment, suitable buildings, and animals for experimental purposes are needed, which at present cannot be obtained through ordinary Government sources without delay, which makes that source of supply quite impracticable. This recommendation, like all others, was submitted to an advisory medical board in France, composed of American doctors working with their own forces. They approved it.

The question has been raised as to whether the appropriation for medical research was not outside the scope of Red Cross activities." To this the Red Cross replies that the supreme aim of the Red Cross is to relieve human suffering growing out of war. There are many unsolved medical questions of great importance in this war. Numerous problems relating to the treatment of wounds, the eradication of lice, fleas, and scabies, the treatment of trench nephritis, trench heart, war neurasthenia, exhaustion, lethal gases, shell concussion, wound infection, compound fracture, and a great variety of other diseases and injuries are still to be worked out. The solution of such problems will contribute not only toward the relief of suffering, but toward more effective prosecution of the war. Scientific experience is conclusive that the most rapid possible approach to such solution is through medical research.

Antivivisectionists Oppose Inoculation of Soldiers.—The National Antivivisection Federation has sent a telegram to Representative Warren Gard, at Washington, protesting against the injection of typhoid, smallpox, and other serums, for the purpose of immunizing the men in the army camps. The telegram alleges that the inefficiency of the Army Medical Corps is the cause of the many deaths in the camps and charges Surgeon General Gorgas with "neglect in maintaining the practice of inoculation that is fraught with these grievous consequences."

Hospital Trains for American Soldiers in France and England.—Surgeon General Bradley announces the completion of plans for the care of American wounded in France. Fifteen complete hospital trains have been ordered in England and two in France, and more will be ordered later. The plans provide ample hospital service for every wounded American soldier.

Health in Training Camps.—For the week ended January 18, the sick rate in the National Army and the National Guard camps shows a slight increase. Deaths in the National Army numbered 149 as against 147 for the preceding week, and in the National Guard 66 as against 88. Of the deaths, 100 in the National Army and 46 in the National Guard were due to pneumonia.

Maternity Hospital Supplies for France.—Dr. Eliza Taylor Ransom of Boston has completed plans and is about ready to sail for France with maternity hospital supplies sufficient to maintain a maternity hospital for one year. The outfit will include 5,000 layettes for poor French women, of which Dr. Ransom will take 1,000 with her. Dr. Ransom is going under the direction of representatives of the French Government.

Scope of Medical Training Extended.—Extensions are being made to the scope of medical training at Fort Oglethorpe, Ga., and Fort Riley, Kan. In addition to courses in general military surgery, genitourinary surgery, and surgery of the brain, head, and face ten courses either have been or are being established for the following: (1) x-ray specialists; (2) orthopedic surgeons; (3) psychologists; (4) special examining surgeons; (5) sanitary engineers; (6) veterinarians; (7) sanitarians; (8) hospital administration; (9) laboratory specialists; (10) dental surgeons. There

are at present 5,400 officers and men at Fort Oglethorpe and 3,800 at Fort Riley. The ultimate needs of the Medical Department of the Army look to training camps with a capacity of 35,000 to 40,000 officers and men. There have been graduated from the training camps since June 1, or are now under instruction, 9,000 officers and about 20,000 enlisted men.

Cape May Hotel for War Hospital.—The Cape May Hotel, which cost its builders \$1,350,000 in 1909, has been leased by the War Department for hospital purposes at an annual rental of \$99,000. The hotel has 600 rooms.

Mental Tests for All Soldiers.—Surgeon General Gorgas has announced the decision of the War Department to extend the psychological examinations to all the enlisted men and to all newly appointed officers of the army. Special buildings and equipment will be established in each army cantonment, and a school of military psychology will be established at the medical officers' training camp at Fort Oglethorpe, Georgia, where fifty military psychologists will be entered monthly for a course of training. The purpose of the tests is to aid in segregating and eliminating the mentally incompetent, to classifying men according to their mental capacity, and to assist in selecting competent men for responsible positions. The work will require four commissioned officers and twenty enlisted men per division in order to examine four hundred men a day. The total estimated personnel required for conducting the examination in thirty-one divisional camps and for a special staff in the Surgeon General's Office is 27 majors, 51 captains, and 54 first lieutenants of the sanitary corps of the national army and 62 sergeants, 62 corporals, and 620 enlisted men.

War Ration in Capsule Form.—Food experts have worked out a war ration containing 2,400 calories, which is compressed to about the size of a dog biscuit, sealed and waterproofed, so that it can be carried in the soldier's pocket ready for emergency. This ration contains wheat flour, meat, and dried milk. With the ration goes a paraffined package of peanut butter. The weight of the ration is four ounces. It will be made a part of each man's equipment.

Medical Units Ready to Serve.—The statement said to have come from the Surgeon General's office that there is a shortage of at least 20,000 men in the enlisted personnel of the Medical Corps has caused some expression of astonishment on the part of members of medical units that are prepared and anxiously awaiting the opportunity to serve. Attention is called to the fact that fully equipped units are ready for service at Rochester, Syracuse, Albany, and elsewhere in New York and also in other States. There are a number of units splendidly equipped in New York; in Brooklyn, for example, there is a unit that it is said has for many months been anxiously awaiting a call. Not very long ago it was announced that no more commissions would be given in the Medical Reserve Corps until further notice, and subsequently it was stated that a number of medical officers had been discharged. This is puzzling.

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REPORT OF THE SURGEON-GENERAL OF THE ARMY.

THE annual report of Surgeon-General Gorgas for the fiscal year 1917 has just been issued. Attention is drawn to the fact that the geographical range and the variety of the activities of the medical officers of the army have increased greatly during the past ten years, and especially since the entrance of this country into the World War. As evidence of the unprecedented expansion of the activities of the medical department of the army it may be stated that at the time the report was presented there were more than 13,900 officers engaged in the work of the department, including officers of the regular Medical Corps and the four officers' reserve corps—Medical, Dental, Veterinary, and Sanitary—under the direction of the Surgeon-General.

The general health conditions of the army for the calendar year 1916 were satisfactory. The mean strength of the entire army, American and native troops, including the National Guard, was 176,803 for the year 1916. Its non-effective rate from all causes in the year was 24.26 per 1,000, and for disease alone 20.55, both of which ratios were slightly lower than for the previous year. The admission rate was 858.87, as compared with 726.22 for the previous year; the discharge rate was 15.22, as compared with 14.06 for the previous year; and the death rate was 4.39, as against 4.45.

With regard to typhoid fever in the army, it may be stated that the efficacy of antityphoid inoculation has been conclusively demonstrated. Since vaccination has been in vogue typhoid fever has appeared only sporadically in the army, usually less than a dozen or so cases a year. Antityphoid inoculation and properly enforced sanitary and hygienic measures have controlled effectually the spread of the disease. Vaccination has been as effective also against paratyphoid as against typhoid fever.

Malarial fevers show a non-effective rate of 0.62 for 1916, as compared with 0.54 for 1915, the lowest non-effective rate in the history of the army. The result proves the efficacy of the antimalarial measures instituted by the sanitary officers of the army some ten years ago. In 1906 the non-effective rate for malarial fever alone was 2.55 per 1,000.

Measles occurred among the troops in 1916 with considerable frequency, and in the report an earnest warning is uttered against the overcrowding of troops, particularly of recruits and fresh levies in their tents, camps, barracks, and cantonments. A warning, we may remark, which was not heeded, with the results which are now well known to the country. Some one is responsible for these needless deaths, and whoever he is he should be exposed, and not allowed to "pass the buck."

Tuberculosis still holds a foremost position among the causes for disability discharge from the army, and stress is laid in the report upon the desirability of early recognition of the disease, especially at recruit stations and depots for applicants for enlistment.

Venereal diseases continue to cause a great deal of disability. However, particular emphasis is laid on the falsity of the assumption that illicit intercourse and venereal diseases are more common in the military forces of the United States than in civil life. The admission rate for alcoholism in the army stationed in the United States for the year 1916 was 12.33 per 1,000, which is lower than for the preceding year, when it was 13.07.

It is believed that at least 24,000 medical men will be included in the personnel of the medical department of the army when full strength is attained. The work thrown on the department will be immense, but judging from the manner in which matters have proceeded up to the present time there is reason to hope that our fighting men will be cared for as probably no army has ever before been cared for, provided always that authority be given to the medical officers to enforce their regulations. In this respect a very bad beginning has been made. We may be 3,000 miles away from the war, as has been said, but the cantonments and camps are here, and the death rate among the troops crowded in them is already disgracefully high, for the sole reason that the recommendations of General Gorgas have been ignored.

THE PROBABLE CAUSE OF FATALITIES IN TONSIL-ADENOID OPERATIONS.

DEATHS during or immediately following operations for the removal of tonsils and adenoids are fortunately rare; but an occasional case is reported and there are doubtless far more that are never reported than that are. In an article in the *Practitioner* for November, 1917, Mortimer takes up this subject and considers that the immediate fatalities are due mainly to: (1) faulty administration of the anesthetic; (2) respiratory obstruction; (3) shock, and (4) hemorrhage.

Before discussing these various factors Mortimer calls attention to one error whose magnitude is sometimes realized only when it is too late, namely, lack of proper preparation. In this connection he feels that while the operation is generally undertaken to remedy conditions of ill health which will cease only after the operation in ques-

tion has been done, there are many cases in which the patient should be put in better condition before operation. As he says, "Anemia, rickets, and, in adults, excessive smoking, alcoholism, and so forth, can at least be amended to some extent, not to mention other innumerable disorders." Fright, exposure to cold, fatigue, and injudicious feeding are other unfavorable and easily remediable factors.

In discussing faulty administration of the anesthetic, Mortimer considers the chief errors to be: (1) Failure to select the appropriate anesthetic; (2) want of knowledge, so that a deep anesthesia is taken for a light one; (3) failure to maintain a free airway and attend to the respiration and the circulation; (4) failure to regulate or change the anesthetic when circumstances alter, and (5) overdosing, absolutely or relatively. He says that shortcomings on the part of the anesthetist are more likely to have serious results when this operation is being done than during many others of greater surgical importance because the breathing is often impeded and irregular, anesthesia must be arranged to allow the surgeon access, sometimes a deep degree is required, and the anesthetist must act to some extent as the surgeon's assistant by steadying the head and the gag and must know his methods. The anesthetist's attention is therefore somewhat distracted, and yet he should watch narrowly the respiration, color, pulse, and pupils, especially since the anesthesia sometimes deepens after the operation has been started because of interference with elimination on account of respiratory obstruction.

Under the heading "Respiratory Obstruction," he calls attention to the fact that the patient starts with a handicap, since the tonsils and adenoids encroach upon the breathing space; hence care must be taken to keep the throat clear of blood, clots, and fragments of tissue, otherwise a heart already fatigued may be overstrained or blood may be sucked into the air passages. Shock, by which he means "a condition clinically serious, brought about by abnormal peripheral stimulations," is uncommon when the tonsils are enucleated quickly, but when they are dissected out shock "is more likely to come on gradually and to be combined with the effects of previous hemorrhage and of respiratory obstruction and perhaps of overdose of the anesthetic." Hemorrhage receives but brief mention, the reader being referred to an article by McKenzie (*Practitioner*, August, 1917) for a full discussion of this phase. However, he calls attention to the fact that fatality from concealed hemorrhage may take place through faulty position of the patient after operation. This, which may easily be avoided by keeping the patient in the prone or semiprone position until he recovers from the effects of the anesthetic, is a particularly lamentable cause of fatalities. Regarding status lymphaticus as a cause of death, Mortimer says that he

regards it with the same suspicion as "idiosyncrasy," for he has observed that in many reported cases the disasters might have been otherwise explained. Late fatalities, such as those due to the pneumonias, are not discussed.

In most of the cases of immediate fatalities from tonsil-adenoid operations, Mortimer believes that one has to deal with a combination of causes and conditions; but, as he says, "at the same time it is of first importance, with a view to resuscitation, to estimate the proportions of the various factors and to distinguish, for example, a case of pure shock from one of blood in the larynx—in short, to make a diagnosis—and to do this when possible as soon as danger threatens, not to wait until it arrives."

As we said in the beginning, deaths during or immediately after these operations are rare, but they are far from being so rare as the comparatively small number of reported cases would seem to indicate. "For this very reason," Mortimer says, "and because an unexpected death in the young is so distressing, public attention and alarm are aroused to an exaggerated extent when one does occur." We also agree with Mortimer in the statement that the operation and the giving of the anesthetic are too often undertaken by those who have no special skill or experience to justify them; and though death may not ensue, the operation is bungled and life unnecessarily risked.

THE USES AND CAUSES OF PIGMENTATION.

THE function of cutaneous pigment is to protect the skin from chemical and photochemical noxæ. The greater the amount of pigment in the skin the less the power of the actinic rays to injure it. But it also appears to have a certain protective action against mechanical insults, for we find that the repeated application of flaxseed poultices brings about a defensive pigmentation and the pad of a truss causes the same reaction. Melanine, the pigment of the skin, is found in the nucleated cells of the rete in a varying degree. In the negro individual granules of melanine cannot be made out, the entire cell being uniformly tinged as if the melanine had gone into solution. When melanine is isolated it is found to be of various hues—reddish brown, black, deep purple; nevertheless, it always has the same chemical composition and is one and the same substance in all races. The granules of melanine are formed within the nuclei of the cells, from which they migrate.

It is universally admitted that in the fair races pigmentation depends on several factors—the general state and resistance, nutritive and functional activity. One whose skin pigments quickly is in good state, reacts quickly in defense of the organism. Jeanneret and Messerli (*Revue médicale de la Suisse romande*, November, 1917) in an elaborate study of the relations between heliotherapy and pigmentation are not in agreement with the physiologists as to the active function of pigment. The saturation with pigment of the skin of the African

at most protects him, they hold, from overheating, from insolation. He derives no benefit from heliotherapy in any diseased state. We know that light is absorbed by the lipochromes and red blood cells and that this mechanism is involved in heliotherapy. The authors have treated deeply pigmented Brazilian aborigines without benefit. They do not refer to the theory which has been advanced that not the presence of pigment, but the superior activity of the negro skin protects the subject from overheating.

On the subject of the lessened resistance of blond races to certain diseases, especially tuberculosis, the authors add that heliotherapy by reason of their feeble pigment reserves is less efficacious in blonds than in those of medium and dark complexions. They can predict by the color of the hair the probable pigment reserve and response to treatment. But this is not the sole factor. The red blood corpuscles or, in other words, the hemoglobin index, play a rôle in resistance to disease and response to solar therapy. With hemoglobin normal the outlook is much more favorable for resisting disease, and light treatment should also bring up the hemoglobin index. Heliotherapy increases the pigment in the skin and while rapid response shows good resistance, the converse is not true, for some who pigment very slowly secure ultimately the desired results. In such cases the hemoglobin index is high and there is absence of any factor which tends to produce anemia. Despite the apparent independence of hemoglobin and melanine in the body the authors feel certain that the latter is derived ultimately from the former.

RETENTION OF URINE FROM A BULLET IN THE URETHRA.

MANY bullet and shell wounds of important structures, in which the foreign body has been accorded an astonishing degree of tolerance by the tissues, have been reported during the present war. For example, in approximately a score of reported cases the heart itself has tolerated for weeks or months shell fragments or bullets in its walls or, rarely, even in its cavities. But one of the most remarkable cases, reported by A. Robin (*The Practitioner*, September, 1917), is one in which a bullet became lodged in the urethra without either the patient or the surgeons being aware of its presence in that situation until it caused retention of urine.

Robin saw this patient about the middle of March, 1917, after he had been transferred to the Sidmouth V. A. Hospital under the diagnosis of "nephritis." There was a small amount of albumin in the urine and he came with a number of other men in the same convoy who had well marked symptoms of nephritis, the urine containing blood and numerous casts. On the night of his arrival his temperature rose to 104° and he had retention of urine. When preparing to pass the catheter the surgeon found a metallic substance presenting at the orifice of the urethra, acting as a ball valve. The follow-

ing day the man was anesthetized and the foreign body was removed with a bullet forceps, no incision of the meatus being necessary. The foreign body was found to be a complete German bullet with the point presenting.

A short summary of the previous history makes the case seem all the more remarkable. Upon his arrival at the Sidmouth Hospital neither the patient nor his papers had given any indication of his having been wounded; but upon questioning him later it was found that he had been wounded in the left hip about six months previously. He had been taken to the hospital at Etaples, where he had remained three weeks. There was but one wound, but the patient stated that no x-ray plates had been taken. Six or seven weeks after he left the hospital he began to have abdominal pain, which later extended to the genitalia. There was at that time no difficulty with the bowels or bladder. Later, he reported sick several times and received treatment. About January 1, 1917, he began to have frequency and difficulty in micturition; yet there was apparently but little pain and instruments passed on two occasions met no obstruction. He was suspected of malingering and a court martial was mentioned. About the middle of February, when reporting sick again, he was labeled "nephritis" and sent to the base hospital at Sidmouth, where he was seen by Robin. After learning this history, a further examination was made and a small, circular scar was found in the region of the left anterior superior spine of the ilium, evidently the point of entrance of the bullet.

EVOLUTION OF THE ANTIMONY TREATMENT OF INTERNAL LEISHMANIASIS.

THE first use of antimony for parasitic infections goes back to 1906-7, when its resemblance to arsenic led to its try out in trypanosomiasis. Soon brilliant cures of human trypanosome disease by intravenous injection of solution of tartar emetic began to be reported, and now a considerable literature of the subject has accumulated. The use of the remedy in espundia and Oriental boil goes back only to 1913, when it was at once extended to granuloma venereum. In 1915 the injections were first given in infantile leishmaniasis interna and kala-azar, and over a score of papers have been written on this subject alone. Claims of priority having arisen, Jemima shows in *Il Policlinico* for December 9 that Caronia and Di Cristina are entitled to full credit over Castellani and others for the demonstration of specificity of antimony in kala-azar and internal leishmaniasis in general.

THE PROBLEM OF BILHARZIOSIS IN VENEZUELA.

BILHARZIOSIS is a serious menace in Venezuela, and it is important to obtain a survey of the incidence before any concerted attempts can be made to minimize it. Dr. Rísquez of Caracas, in an article abstracted in the *Revista de Medicina y Cirugía de la Habana* for November 25, gives an account of his efforts in this direction. He has collected a small bibliography, which comprises published articles and official documents. The literature does not go back

of 1906, in which year Soto reported 3 cases. Apparently, 173 cases have been recorded during the entire period, not a large number, at first sight, but nearly all of the material has seen the light in 1915-16 (1917 is not included). The author, as pathologist in the Medical School of Caracas, recorded 44 autopsy cases during 1915-16 which should represent a large number of infections. The material in the capital city comprised native citizens and not immigrants from the rural districts, while certain parishes showed much more infection than others. A comparison between Venezuela and neighboring countries plainly shows that the former is the only one in which the disease seems endemic. In the Ancon Hospital, Panama, only 38 cases were treated during 1905-1913 inclusive. There are but few cases in the whole of Colombia, and none in Cuba. No explanation is hazarded of the prevalence of bilharziosis in Venezuela.

News of the Week.

Physicians Requested to Report Occupational Diseases.—A recent *Bulletin* of the New York City Department of Health states that in its work for the reduction and control of so-called occupational diseases it makes extensive use of the information gathered as a result of medical and sanitary surveys in particular industries and of the medical examination of the workers at the occupational clinics. While this has produced excellent results, it would be of much greater service if physicians would report, as they are required to do, instances of occupational diseases coming under their observation. This information is desired not only for the correction of unhygienic and unsanitary conditions in some particular shop or factory, but to gain a complete knowledge of the hazards to which industrial workers are exposed in this city. All information thus obtained is strictly conditional. During the past year a total of only 130 cases of occupational disease have been reported to the Department of Health by hospitals and private physicians. It seems improbable that this represents all the instances of occupational disease in a population of 5,000,000. It is requested that not only such diseases as anthrax, caisson disease, lead poisoning, etc., be reported, but that other conditions, such as tuberculosis, pneumonia, asthma, bronchitis, circulatory diseases, nephritis, diseases of the skin, nervous diseases, and orthopedic defects, be reported when occupations seem to be a factor in causing them. It is especially important to report all cases of poisoning by lead, arsenic, mercury, phosphorus, bronze, wood alcohol, aniline, brass, acids, gases, bisulphide of carbon, and wood naphtha.

Lay Clerks for Clinics.—At the annual meeting of the Association of the Out-Patient Clinics of New York, held on January 25, Dr. Charles Hendee Smith read a paper recommending the employment of volunteer clerks in the clinics in order to save the time of the doctors and offset the loss of doctors who have left for war service. The Bellevue Hospital Out-Patient Department now employs about twenty volunteer clerks. It was

pointed out that the public is more than ready to respond to an appeal to help institutions that promote public health and welfare.

Child Welfare Associations Meet.—Representatives of the American and British Associations for the Study and Prevention of Infant Mortality met at the Ritz Carleton Hotel, in New York City, on January 25, under the presidency of Mrs. William Lowell Putnam, president of the American Association. Among the speakers were Miss Julia Lathrop of the Children's Bureau at Washington, Dr. Edward Clark, and Dr. S. Josephine Baker of the Bureau of Child Hygiene of the New York Department of Health, Dr. Morris Slemmons of Yale, and the Countess of Aberdeen, who outlined the child welfare work being done in the British Isles.

Appropriations from Rockefeller Fund.—The first budget of the \$10,000,000 fund to be spent by the Rockefeller Foundation has been announced. The largest appropriation is \$150,000 to be used in welfare work in the military camps under the supervision of the Commission on Training Camp Activities. The National Committee for Mental Hygiene receives an appropriation of \$37,000 for "surveys of public care of mental diseases and studies in the psychopathology of crime." The State Charities' Aid Association of New York receives \$6,500 for public clinics in New York State for the after-care of infantile paralysis. The China Medical Board receives \$11,430 to be used within five years for the maintenance of the two hospitals on the Island of Kulangsu. Provision is also made for bringing additional Chinese students to the United States for medical instruction. Provision has been made for the perfection of the program of the commission cooperating with the Red Cross and the French Government for the prevention of tuberculosis in France, the establishment of an additional unit for the relief and control of hookworm disease in Rio Janeiro, and the continuance of the investigation of malaria control in Mississippi.

Poison in Cosmetics.—The Bureau of Standards at Washington has issued a warning to the public to be careful in the use of hair dyes, rouges, hair removers, and similar cosmetics, because many of them contain poisonous ingredients. Hair removers are in general quite corrosive in character, and sometimes poisonous. Dyes used in blackening gray hair generally contain one or more of the salts of silver, lead, copper, iron, or bismuth and can cause serious poisoning when taken internally.

Milk for Babies and Invalids First.—The Ministry of Food of Great Britain has directed the local food committees to adopt a scheme for giving priority to the needs of infants and invalids and others for whom an adequate supply of milk is a necessity. The scheme went into force on January 21, and provides that milk shall be supplied only in priority to holders of priority tickets. Such tickets are issued only to the following classes of consumers: (a) Children up to 5 years of age. (b) Any person holding a qualified medical practitioner's certificate to the effect that such person is entitled for reasons of health to a certain specified quantity of milk per diem. (c) Any class of person medically recommended. The

quantities to be supplied for children are 1½ pints daily, if under 18 months of age, and one pint if between 18 months and 5 years. For other persons according to the medical certificate.

Pneumonia Deaths Decrease.—According to the records of the New York Department of Health there were for the week ended at noon on January 26, 342 deaths from pneumonia in a total of 1,732 deaths, as against 365 in a total of 1,812 for the previous week.

Veterinary Surgeons Recommend Horse Meat.—The veterinary surgeons of New York, Connecticut, New Jersey, and Massachusetts, at a conference in the New York Veterinary College, on January 26, adopted a resolution calling upon Congress to appropriate immediately \$100,000 to establish the inspection of horse meat. They point out that if this is done great numbers of horses and ponies on the Western ranges will be made available for food.

Doctors Raise Fees.—It is reported that the physicians of Elmhurst, in the Borough of Queens, have banded together and beginning February 1 will raise their fees. The schedule adopted makes day visits from two to three dollars and night visits from three to four dollars.

Boys on Extra Lunches Gain Weight.—The twenty-five boys from Public School No. 40, New York City, who are the subject of the experiment being conducted at the Post-Graduate Hospital to determine the value of school lunches, at the end of nine lunches have been weighed and 21 show gains. The greatest gain was two pounds and the smallest one ounce. The average gain was three-quarters of a pound each.

Dr. Edward L. Kellogg of Gouverneur Hospital, New York City, who was sued for \$50,000 damages, in 1910, by William Perlman, who claimed that he lost two toes because of the way in which an operation was conducted, has been acquitted and vindicated by the Supreme Court.

Charitable Bequests.—Under the will of Emil Wolff of New York about one-half a million dollars was left to charity in the form of shares in the Einstein-Wolff Company, each share being valued at \$100. The following institutions are participants in the bequest: Mount Sinai Hospital, 1000 shares; Montefiore Home and the Hebrew Charities, each 250; the Polyclinic, German, Lebanon, Beth Israel, Sydenham, National Jewish, Denver, Skin and Cancer, and St. Luke's hospitals, each 100 shares; the Hebrew Infant Asylum and Home for Aged and Infirm Hebrews, each 100 shares; the New York Eye and Ear Infirmary, 100; the New York Hospital for Bone and Joint Diseases, 50 shares.

Under the will of the late Charles Huber, the Twin City Hospital of Asbury Park and Dr. W. W. Beveridge each receive bequests of \$10,000.

Among the beneficiaries of the will of the late Joseph H. Choate are the State Charities' Aid Association, the New York Association for the Blind, and the Women's Prison Association, each of which receives \$10,000.

The Burlington County Hospital, New Jersey, is the recipient of a bequest of \$5,000, in trust, by the will of the late Richard L. Ashurst.

The first panel of the Sheriff's Jury of New York

City at its recent dinner at Delmonico's gave \$5,000 to the various hospitals of the city, instead of spending the money on souvenirs as has been its custom.

The Hahnemann Hospital, Philadelphia, has received a bequest of \$5,000 for the endowment of a free bed in memory of the testator's parents, under the will of the late Isabella Semple of Philadelphia.

The Hospital of the University of Pennsylvania has received a bequest of \$10,000 for the endowment of a perpetual free bed, under the will of J. Austin MacDowell of Philadelphia.

Prevention of Venereal Diseases in New York State.—A plan for the control of venereal diseases is being developed by the New York State Department of Health somewhat similar to that of the Social Hygiene Society of Oregon. A committee has been placed in charge of this work, composed of four members of the departmental staff and the secretaries of the American Social Hygiene Society and the New York Social Hygiene Society. The plans include an educational campaign directed to the lay public and also education of the practising physicians of the State and the medical staff of various institutions. If sufficient appropriations are available it is purposed to place treatment within the reach of all. An endeavor is being made to secure the cooperation of all private and semi-private institutions as well as that of public institutions. In the larger cities it is hoped that the local boards will establish venereal clinics; where this is not feasible the work will be done by health officers. The equipment for venereal clinics will be standardized and as far as possible all clinics will be brought up to these standards. At convenient points throughout the State means will be established for examination by dark field illumination and other laboratory facilities. It is hoped that means will be found of furnishing salvarsan substitutes to those who cannot pay for that drug.

Massage Operators Must Be Licensed.—The Health Department of New York City calls attention to the fact that few physicians know that there is a city ordinance which requires every person giving massage treatment, either manual or mechanical, with the exception of physicians, osteopaths, and registered nurses, to be licensed by the Department of Licenses. Applicants for a license have to prove certain qualifications and have a certificate from the Department of Health showing that the applicant is free from communicable disease. Both the license and the Health Department certificate must be shown to anyone on demand. This ordinance also requires that a massage operator, before giving treatment to a patient of the opposite sex in his or her office, must receive a written order from the physician, specifying the number of treatments to be given, not to exceed ten treatments to any one order. Physicians are requested to see that this ordinance is obeyed.

Advise Abandonment of Mohansic Site.—The joint legislative committee, which has been investigating sewerage conditions of the present site of the Mohansic State Hospital for the Insane and the New York State Training School for Boys at Yorktown suspected of being a menace to New York City's water supply, has decided to recommend the abandonment of the present site of the

Mohansic State Hospital and the retention of the Training School. The report to be presented will recommend that the erection of hospitals or institutions for the care of the insane on the watershed from which cities obtain their drinking water be forbidden. The opinion is expressed that there is no reason why certain other institutions should be forbidden the use of such sites.

Paris Notes Increase in Rabies.—The Health Board of Paris has notified the Prefect of Police that the frequent report of cases of rabies makes it desirable that measures be taken to check the spread of the disease. The Pasteur Institute reports that since the beginning of the war the number of persons bitten by dogs has increased, and that the institute is treating five or six times as many cases of rabies as before the war. The main cause for this increase is ascribed to the large number of vagrant dogs now in Paris as the result of the high cost of living, the raising of the dog tax, and the mobilization of many of the veterinary surgeons, which makes it impossible to inspect dogs as thoroughly as before the war.

Lawsuit against Vermont State Board.—Action has been brought against the Vermont State Board of Medical Registration by Dr. Anna G. Mack L'Homme of Boston to compel the board to accept her application to take the examination and to receive a license in case she passes the examination. Dr. L'Homme is already licensed to practise medicine in Maine. It is said that the suit is being brought to compel the State Board to recognize the College of Physicians and Surgeons of Boston, of which Dr. L'Homme is a graduate. The Board of Medical Registration is commanded to appear before the Supreme Court at the general term in Montpelier next May.

Dr. Charles Norris, chief of the laboratories at Bellevue Hospital, has been appointed medical examiner for New York City. Mayor Hylan was very persistent in his effort to perpetuate the old system by appointing temporarily one of the former coroners to the new position, despite the fact that the said coroner was unable to pass the civil service examination. In the meantime the Mayor tried through the municipal civil service commission to declare the three successful candidates at the examination ineligible to hold the office. But the civil service commission was too slow and before it had accomplished its object the period during which the office could be filled by the temporary appointment of an unqualified man had expired and the mayor was forced to obey the law. Dr. Norris was second on the list of successful candidates.

California's Medical Practice Act Upheld.—In a case appealed to the Supreme Court by two members of a religious sect claiming that the law was discriminatory against those who practised by prayer, the Court has handed down a decision that the State Medical Practice Act providing for licensing and regulating the practice of those engaged in healing the sick is constitutional.

Obituary Notes.—Dr. ALBERT KOHN died at his home in New York City on January 21, aged 48 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1891, a member of the New York Academy of Medicine, the Pathological Society, and many other medical organiza-

tions. He was attending physician to Mount Sinai Hospital, and formerly adjunct professor of internal medicine at the New York Polyclinic Hospital.

Dr. RICHARD GILES, a graduate of the College of Physicians and Surgeons, New York, 1882, died at his home at Cold-Spring-on-Hudson, on January 19, aged 57 years.

Dr. WILLIAM ELLERY JENNINGS, of Brooklyn, N. Y., died of pneumonia, on January 17, aged 43 years. He was a graduate of the New York College of Pharmacy and of Bellevue Hospital Medical College, in 1895. Dr. Jennings was for many years connected with the New York City Department of Health.

Dr. ABRAHAM STOUT died at his home in Bethlehem, Pa., on January 9, at the age of 87 years. He was a graduate of the Medical Department of the University of Pennsylvania, in 1855, and Surgeon to the 153rd Pennsylvania Regiment during the Civil War.

Dr. ARCHIBALD ALEXANDER HOWELL died at his home in Philadelphia, Pa., on January 11, aged 37 years. He was graduated from the Medical Department of the University of Pennsylvania, in 1908. He was instructor in medicine in the University of Pennsylvania and physician to the Presbyterian Hospital.

Dr. MORRIS HUGHES, of Kennett Square, Pa., a graduate of Hahnemann Medical College and Hospital of Pennsylvania, in 1884, and one of the organizers of the Homeopathic Hospital of Chester County, died on January 2, aged 64 years.

Dr. DANIEL P. MADOUX, of Chester, Pa., died of pneumonia, on January 3, aged 56 years. He was graduated from Hahnemann Medical College and Hospital of Pennsylvania, in 1883, and served as United States Pension Examiner.

Dr. ISRAEL H. BETTS, a graduate of Jefferson Medical College, in 1868, died of nephritis at his home in York, Pa., on January 6, at the age of 76 years.

Dr. JOHN S. PEARSON died at his home in Philadelphia, on January 5, aged 63 years. He was graduated from the Medical Department of the University of Pennsylvania, in 1876.

Dr. HENRY BIDLACK REED died at his home in Milford, Pa., on January 1, aged 67 years. He was a graduate of the Medical Department of the University of Pennsylvania and Assistant Surgeon of the 20th Regiment National Guard of Pennsylvania, during the riots of 1877, and of the Washington Grays Artillery Corps.

Dr. ROBERT LOVE MOORE, of Columbia, S. C., a well-known nose and throat specialist, died in the Columbia Hospital, on January 6, aged 46 years. He was a graduate of the University of Maryland, in 1896, and an ex-president of the Columbia Medical Society.

Dr. FLAVEL B. TIFFANY died in St. Luke's Hospital, Kansas City, on January 4, aged 72 years. He was a graduate of the University of Michigan, in 1874, and later studied in Europe. Dr. Tiffany was one of the founders of the University Medical College of Kansas City and occupied the chair of Ophthalmology and Otology in that institution for many years. He was also the author of several books, among them "Sojourn Among the Oculists of Europe," and affiliated with many medical societies.

Correspondence.

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

RED CROSS RELIEF WORK—DIFFERENCES BETWEEN FRENCH AND AMERICAN METHODS—CONSTRUCTION AND RECONSTRUCTION WORK.

PARIS, Dec. 24, 1917.

THE work of the Red Cross in France and Europe has greatly extended and expanded, and at the exposition being held at 136, Avenue des Champs Elysées there were daily addresses given by the heads of the departments, and special experts to acquaint the large audiences that gather with the scope and extent of the plans in view, which cannot but dissipate misunderstanding, and make for greater efficiency and success.

Mr. Homer Folks, director of the department of Civil Affairs, made an able exposition of the "Relief Work." As the basis of his speech, Mr. Folks made it clear that in trying to prevent the spread of tuberculosis and in the care for the children of France the chief aim of the American Red Cross was to save and strengthen the future of France instead of giving merely temporary relief to the sufferers, donations to the poor, or of preventing distress for the moment.

"Poverty, like tuberculosis, is preventable and curable," said Mr. Folks. "It can and must be prevented and cured. This is the spirit or the basis of the Red Cross work in America and we must bear in mind that our work is not so much for the individual as it is for the various groups that make up the whole. The American Red Cross comes late in the field where the seed has already been sown and the harvest is ready to reap, so we can do but little as compared to what has already been done but our one aim is to encourage and help with the work that has already been set on foot."

In dealing with the American organizations for war relief work, which had been in the field since 1914, Mr. Folks went on to say that it was the desire of the Red Cross to strengthen and not to alter them. He spoke of the works organized by Mrs. Wharton, Mrs. Shurtleff, the work for the war orphans, and various other organizations which had not only assisted the Red Cross by cooperation with it, but by being strengthened by the fact that the Red Cross had said to them "Go on with your good work, and let us know what your needs are and what your deficits may be, and we will supply the balance." He then drew attention to the differences in the French and American methods of organization, saying that he had observed that the French had multitudinous organizations to represent all the different kinds of war relief work, while it was the American idea to centralize all work to gain the sum total; but, whatever the differences might be, he had discovered after four months in a strange land that the result was the same and all were working for one end.

Mr. Folks then spoke of the magnitude of the refugee problem, saying that the Red Cross was most interested in the refugee families which had been found living in one small room. He mentioned one family of a husband and wife and six children living in one room and said that it was such cases that the Red Cross was most anxious to reach and

supply their needs under proper conditions, and in that way they would be fighting tuberculosis and caring for the children. The speaker dealt with other social questions and mentioned particularly the problem of relief in the devastated districts as being of great interest to the Red Cross.

Mr. W. Emerson gave a lecture upon construction and reconstruction, in which he said that the construction bureau had a wide range of duties, as it was called upon to do anything, from mending window-panes to constructing hospitals, and though it was the foundation on which many departments of the Red Cross were built, it had not the personal interest attached to it that the relief departments had. He spoke particularly of the building of huts for both civilian and military hospitals, and remarked that the hut is one of the few architectural novelties which the war has produced, and is being used for so many different purposes that in the main it has become the feature with which the construction department is most occupied. The difficulties in procuring labor have made hut building a problem which is not easy to solve. "One has no idea what the labor difficulties are now. We have had to depend almost entirely upon inexperienced civilian labor, necessarily of an inferior grade, and with trying to build in a country where we are absolutely unfamiliar with the regulations in every particular. We often find ourselves in the position of having an automobile beautifully built without being able to get the gasoline to run it. However, each difficulty overcome makes the bond stronger between us and makes us realize that we are all working for one cause."

In speaking of the labor question he went on to tell of putting up huts at an aviation camp, where the only labor to be had was that of German prisoners and pacifists; but the extraordinary combination proved a good one as the huts were put up in record time. He also spoke of the work of the "Société des Amis" and said that the Quakers are cooperating with the Red Cross. They have, so far, helped 34,000 people with their reconstruction work in the devastated districts and have built several thousand houses. Both the English and the American Quakers have combined their strength to work with the Red Cross and they are doing most splendid work.

Mr. Emerson said that the construction work of the Red Cross can be classed under ten heads: (1) The housing of the different branches of the Red Cross; (2) the building of military, civilian and children's hospitals; (3) the buildings for the housing of refugees; (4) the buildings for the canteens, which are now being coupled with (5) the rest stations that are being built in sixteen different localities; (6) the buildings for warehouses in Paris; (7) the garage buildings; (8) the recreation huts; (9) the buildings for the tuberculosis hospitals, and (10) the buildings required at Neufchâteau, which is the center for the work of the army doctors.

In the reconstruction work in the devastated districts Mr. Emerson said that the Red Cross was cooperating with the French organizations and was doing little in that line independently. In concluding his remarks he said that France had been the greatest inspiration to every country that loved Liberty.

Progress of Medical Science.

Boston Medical Journal.

January 17, 1918.

1. The X-Rays in Phthisis. George W. Holmes.
2. Obstetrics. Robert L. DeNormandie.
3. Focal Infection and Rheumatism. William E. Preble.
4. Causes and Treatment of Chronic Hyperacidity, Heartburn and Sour Regurgitation. Louis Fischbein.
5. Artificial Pneumothorax. Herbert F. Gammons.
6. Lipoids in 131 Diabetic Bloods. Horace Gray.

1. The X-Rays in Phthisis.—George W. Holmes considers that while the roentgen examination of the lungs should be used perhaps much more frequently than is at present being done as a supplement to the physical examination of the chest, it should never be used as the sole means of diagnosis. An opinion based upon roentgen evidence alone is of about the same value as an opinion based upon physical findings alone. Without a careful history, both lose much of their worth; combined with other evidence, it may be of great value, as without doubt it is capable of revealing changes in the lungs which cannot be demonstrated by any other method. The lung, as seen on the roentgen plate or fluoroscopic screen, presents the following shadows: The hilus and peribronchial shadow, the linear markings, and the dark background of the alveolar structure. The hilus shadow is composed of the larger bronchi, the great vessels, lymphatic and fibrous tissue, and the peribronchial glands. The tracheal glands lie behind the shadow of the great vessels and are not visible except when they are much enlarged and calcified. They may be seen in the lateral views. The glandular shadows are distributed along the course of the bronchi, and may vary from rather fuzzy, indistinct shadows to the dense white patches of calcification. The linear markings are composed of the arteries, the bronchi, with their surrounding connective tissue, and the lymphatics and lymphoid tissue of the lungs. Changes in the linear markings are due either to changes in the tissue around the bronchi, or, as is more often the case, to changes in the lymphoid tissue. The arteries of the lungs are not subject to change. The veins are situated midway between the branches of the bronchi, and are not included in the linear shadow. A pathological process in the lung structure tends to produce changes in the lymphatics draining the infected area. Therefore, we should expect to find a shadow in the lung substance representing the site of the pathological process, and a fan-shaped area of thickened linear markings representing the course of the lymph channels draining this area. The peribronchial glands in the infected area may also show changes. All the lymph vessels of the lung tend to converge toward the hilus, excepting a small group near the periphery which drains into the pleura. Roentgen findings which are of value in making a diagnosis of tuberculosis may be divided into three distinct types—miliary, peribronchial, and parenchymal. The third is the most common type, and is seen as an insulated group of small white areas, usually near the periphery of the lung, from which spreads a fan-shaped area of thickened linear markings which extend toward the hilus. Thickened and mottled markings in the region of the bronchi may be seen; also large dense and, possibly, calcified peribronchial glands. As the process increases and these areas become larger the shadows overlap and the typical fan shape is lost. In miliary tuberculosis fine, discrete, dense spots are seen scattered evenly over the greater part of the lung field. There may also be evidences of a chronic lesion in one of both apices. These cases may show very little evidence on the physical examination, especially in children. The peribronchial type is very difficult to diagnose as far as the x-ray is concerned. Holmes in discussing the methods of examination states that the examination of the chest divides itself directly into two principal methods—fluoroscopy and radiography. The study of the chest with the fluoroscope has the advantage of being cheaper, both as to individual cost and as to equipment. It is also more easily and quickly done. The image seen upon the screen is that of the living, moving organs, and it gives data which could not be obtained from the photographic plate, such as the movements of the diaphragm, lighting up of the lung fields during respiration, the

pulsation of the different changes of the heart and possible changes in the shape of dull areas in the lungs during change of position of the patient. Its disadvantages are the inability to study carefully the detailed structure of the lungs, and the fact that it does not give us a permanent record, that is, those interested in the case must rely on the personal judgment of the radiologist, whereas, with the plate, a joint study is possible. The radiographic method has the advantage of giving an accurate, permanent record of the condition within the chest, and should show any variation from the normal which gives rise to change in density, either diminished or increased. Sufficient data may be obtained from a single plate, or it may be necessary to take plates from the front and back, upright or prone, and in a considerable percentage of cases stereoscopic plates should be taken. The number and position of the plates to be taken can usually be decided upon at the fluoroscopic observation. Without the fluoroscopic observation it is necessary to take at least three plates, two of which should be a stereoscopic pair. The ideal procedure should be a fluoroscopic observation, at which time definite records are made as to the excursion of the diaphragm, changes in shape of any abnormal shadow in reference to respiration and position, also to the illumination of the lung fields during respiration and coughing. If, at the end of this examination, the diagnosis is in doubt or it appears to be negative, stereoscopic plates with the patient in the sitting position and the tube behind, should be taken. Should the fluoroscopic findings be fairly definite, a single plate taken in the position which best shows the pathological process will be sufficient.

New York Medical Journal.

January 19, 1918.

1. Ductless Glands and Dermatology. William P. Cunningham.
2. Some Features of Cerebrospinal Meningitis in Children. A. Graeme Mitchell and W. W. Falkner.
3. Treatment of Eclampsia. James Robert McCord.
4. Instruction and Supervision of Expectant Mothers in New York City. (Concluded.) Jacob Sobel.
5. Myalgia of an Isolated Portion of a Muscle. Alfred Gordon.
6. Colitis. Albert C. Geyser.
7. Gaucher's Disease. Mark S. Reuben.
8. Myoma of Intestines. Frederick Christopher.
9. A Note on Amaurotic Family Idiocy. Julian W. Brandeis.

4. Instruction and Supervision of Expectant Mothers in New York City.—Jacob Sobel in this paper concludes the review of his work in this direction by presenting the needs of the system of instruction and supervision of expectant mothers in New York in part as follows: (1) Zoning or districting the city along lines of the baby health station service, for instruction or follow up by nurses or social workers, in the home, of mothers during the period of pregnancy, and for as long a period thereafter as necessary or possible, preferably one year. (2) Assignment by maternity institutions, whether with an in or out service, of nurses or social workers, within prescribed districts, for the instruction and supervision of expectant mothers. In the absence of such appointment, these institutions should register with the Department of Health all prospective mothers enrolled, so that the nurses of the department may give the necessary advice and instruction, in cooperation with said institutions. (3) Referring all mothers and babies discharged from maternity institutions to the baby health stations nearest their home addresses, following this with notification to the Department of Health of all babies so discharged. (4) Co-operation of all private physicians in availing themselves of the services of the nurses of the baby health stations, so that mothers under their supervision may be instructed in the hygiene of pregnancy and referred to them in the event of untoward signs and symptoms. Settlements, neighborhood guilds, churches, and day nurseries, should refer to the baby health stations all expectant mothers coming to their notice. (5) An educational campaign of instruction for expectant fathers in order to arouse them to their duty and responsibility toward the mother and the future offspring. (6) Increased interest and cooperation of philanthropic organizations and individuals in the establishment of a

prenatal service within prescribed districts and in furnishing to worthy mothers necessary material aid in the form of food, clothing, aftercare, baby outfits, and obstetrical outfits, this to supplement a large amount of such aid and relief at present afforded by the united relief agencies and charity organizations of a public and private nature. (7) A municipal or philanthropic employment organization for securing work for unemployed expectant fathers so as to reduce to the lowest possible minimum the gainful occupation of the mother before or shortly after delivery, this to act as a substitute until the possible passage of a health insurance bill, which includes maternity insurance. (8) Enactment of legislation prohibiting the employment of pregnant women in factories or manufacturing or mercantile establishments, for a period of two weeks prior to, and at least four weeks after, delivery, with provision for weekly stipends and care during this period, or, as a possible substitute, the establishment of day nurseries in or adjacent to factories, in charge of trained nurses, where mothers may nurse their babies, or where properly regulated artificial feeding can be maintained. This has been done in France, Russia and Italy; why not here? This will increase maternal nursing, decrease deaths during the first month of life, and do away, to a great extent, with the prevalent custom of leaving these infants in charge of old "mammies" and irresponsible neighbors. (9) Increased appropriation by city authorities for the appointment of an augmented corps of nurses for instruction and supervision of expectant mothers, not so much with a view to reaching all the prospective mothers—for that is well-nigh impossible—but to act as a wedge, by educational propaganda, into the inertia which now exists as to the urgency and importance of this problem. (10) Intensive studies as to the causes of still and premature births by careful analysis of the histories, examinations of the mothers, and autopsy findings on infants. (11) Provision for improved and increased obstetrical care in homes and institutions for those able to pay only a moderate fee or unable to pay at all. This presupposes greater and better outdoor maternity service, and a larger number of properly equipped maternity institutions throughout the city. If the public could be taught that such service might be obtained the midwife problem and the meddlesome accoucheur would adjust themselves, and hospitalization for delivery would become popular. (12) The application of an excessive supply of breast milk in mothers for the use of premature and delicate infants within the maternity institutions, or in the neighborhood, rather than the sale of the same for babies of the better classes, who can have other advantages, such as wet nurses, trained nurses, good surroundings, personal attention, proper clothing, etc., that money can buy, and who can better be tided over a dangerous period than those of the poor. (13) Provision for an increased number of temporary shelters, where mothers about to be delivered in institutions may place their infants and children during the period of confinement, and thus secure that peace of mind and contentment which is essential for the prospective mother. (14) The establishment at various centers throughout the city—the Department of Health, settlements, hospitals, museums, etc.—of permanent exhibits showing the various phases of prenatal and infant care. This should consist of photographs, charts, convincing statistics and literature. Periodical lectures, lantern slides, and moving pictures could be added, as indicated. In other words, prenatal care should be popularized.

Journal of the American Medical Association.

January 19, 1918.

1. Bence-Jones Proteinuria: Some Observations of Its Occurrence, with Particular Reference to Nephritis and Hypertension. Sydney R. Miller and Walter A. Baetjer.
2. The Muscular Strength of College Women, with Some Consideration of Its Distribution: Preliminary Paper. Clelia Duell Mosher and Ernest Gale Martin.
3. Experimental Studies of the Mode of Absorption of Mercury when Applied by Inunction. Jay Frank Schamberg, John A. Kolner, George W. Raiziss, and Joseph L. Clavron.
4. Wood Alcohol Poisoning. A. O. Gettler and A. V. St. George.

5. Permeability of the Meninges to Arsenic in Paresis and Tabes: Supplementary Report. J. Henry Barbat.
6. Blindness from Industrial Use of a 4 Per Cent. Admixture of Wood Alcohol. John M. Robinson.
7. The Venereal Disease Problem in California. H. G. Irvine.
8. Rapid Method for Identification and Isolation of Meningococci from the Nasopharynx. Peter K. Olitsky.

7. The Venereal Disease Problem in California.—H. G. Irvine, director of the Bureau of Venereal Diseases, California State Board of Health, tells of the efforts being made in California to handle this difficult question. California was one of the first States to make an organized effort to put into effect the program proposed by the War Department and Surgeon General's Office to combat venereal diseases. It was initiated by the organization of a bureau of venereal diseases under the State Board of Health. As it is believed that the program adopted for carrying on the work is one of the most rational proposed by any State up to the present, it seems desirable at this time to publish some of the details of the work that those interested in other States may benefit. The bureau as organized has a director, two sanitarians, and a social service director. The director and sanitarians are physicians. Immediately after the organization of the bureau, the state board of health passed a regulation making all local and county health officers inspectors under the State board. This gave a very efficient state-wide organization, which at once became available to promote the work of the bureau in all communities. Copies of the program, rules and regulations will be furnished by the Bureau of Venereal Diseases, 512 Underwood Building, San Francisco. With reference to the question of prostitution Dr. Irvine says that the plan proposed by Mr. French and himself, and already in effect in San Francisco, Los Angeles, San Diego and a few smaller communities throughout the State, is as follows: All women arrested as prostitutes or vagrants are given jail sentences of from 30 to 180 days if found guilty. Before sentence is imposed, a very careful examination is made by a well trained gynecologist to see if there is clinical or microscopic evidence of gonorrhea, and a Wassermann test is made in every case. If disease is found the case is continued and the patient sent to the hospital for treatment. If no evidence of disease is found, sentence is imposed unless the woman probation officer, who has meanwhile investigated the case, recommends the woman be placed in her charge to be given work, housed, or returned to her home. In the case of women going to the hospital, they are returned to the court at once after their treatment and handled just as those not diseased, except that arrangements are made to continue their treatment as ambulatory cases when necessary. Any woman placed on probation and caught violating any rules laid down for her is summarily given a six months' jail sentence. Arrangements are also made to have mental tests given in order that proper institutional care may be recommended when necessary. Men exploiters are to be handled the same as the women. It will readily be seen that this is in no sense a plan to make prostitution safe, but rather a rational plan to withdraw permanently every prostitute possible from the market; the medical treatment is but the first step in rehabilitation. The social service work in connection with this plan is directed and coordinated by the bureau through its social service department. The medical examinations and treatment are under the local board of health. To show how this works out, Irvine quotes from a report of Judge Oppenheim, who had charge of the Women's Court in San Francisco for the month of November. Out of 156 women brought before the court, 50 have been placed on probation and are at work under the supervision of the probation officer. Thirty have returned to husbands or relatives; these also are on probation. Twenty have been returned to relatives outside the city. The other 56 are in jail or the hospital with their cases not finally disposed of. Dr. Irvine in conclusion brings out the following points: Such a bureau is perhaps the most logical organization to carry on this work. Its director should be a man specially trained in venereal disease work, he should have enthusiasm for public health work, and he should have some knowledge of administration. A social service department is an exceedingly important part of the organization. The

work should be done under the State board of health in order that it may have the authority and organization of this board at its command.

In connection with the war work it is highly important that this bureau and the work of the Fosdick commission be in closest cooperation.

The Lancet.

January 5, 1918.

1. An Estimate of the Antiscorbutic Value of Milk in Infant Feeding. Harriette Chick, E. Margaret Hume, and Ruth F. Skelton. (From the Lister Institute of Preventive Medicine.)
2. X-Ray Localisation. Edward W. H. Shenton.
3. The Treatment of Fractures in Warfare. W. Arbuthnot Lane.
4. The Value of Skiagraphy in the Surgery of Facial Injuries. Henry M. Johnston.
5. Treatment of Wounds Involving the Mucous Membrane of the Mouth and Nose. Percival P. Cole.
6. *Entamoeba Histolytica* Infections; Their Prevalence among British Troops in India and Mesopotamia, with Special Reference to the Question of "Clearing." William MacAdam.
7. The Wassermann Reaction: A Rapid Method of Performing it with Small Quantities of Serum. Frank E. Taylor.

1. An Estimate of the Antiscorbutic Value of Milk in Infant Feeding.—Harriette Chick, E. Margaret Hume, and Ruth F. Skelton give the results of their experiments carried out at the Lister Institute of Preventive Medicine on this work. They say that scurvy, adult, or infantile, may now be classed definitely with beriberi among the so-called deficiency diseases. Both general experience with human beings and modern experimental work upon animals have shown that these maladies arise as the result of a long period, usually several months, of imperfect nutrition. The imperfection is referred to absence or deficiency in the diet of certain unknown substances whose presence is essential for satisfactory nutrition. The anti-scurvy factor is found to be present in living, actively metabolizing tissues of plants and (to a less degree) of animals, whereas the chief sources of the anti-beriberi factor are the seeds of plants and the eggs of animals. The most valuable antiscorbutic materials we possess are green leaves (such as cabbages and salads) and fresh fruit juices; onions and the root vegetables, potatoes, carrots, swedes, etc., come next in importance; lastly, there are fresh meat and milk. The anti-scurvy vitamin suffers a spontaneous decomposition when the substances containing it are preserved by drying or any other means. This destruction takes place slowly at ordinary or low temperatures, but occurs much more rapidly at high temperatures, the rate depending on the actual temperature employed. Some loss is therefore to be expected in cooked vegetables, fruit, or milk, depending on the temperature and time of cooking. Results of their present investigation show that as regards the possession of anti-scurvy properties, milk must be classed among the less valuable materials. If reliance is to be placed upon its presence in a diet as the only means of preventing scurvy, the amounts consumed must be large, and any methods of preparation, such as heating or drying, which involve diminution of the small amount of antiscorbutic substance originally contained, must be regarded with suspicion. Their experiments also prove that fruit juices are decidedly more advantageous in overcoming scorbutic tendencies than is meat juice, and they found that the freshly expressed juices of oranges and grapes are a necessary adjunct to the diet of infants artificially fed. They further state that milk is intended for consumption in the raw condition, and seeing that cow's milk at least is endowed with no great excess of anti-scurvy vitamin, it is necessary to beware of introducing in its preparation any methods which might lead to a diminution in this valuable constituent. Such processes include the heating (pasteurization or boiling) of milk, adopted of necessity to afford protection from milk-borne disease, and the drying of milk which, in addition, has the great virtue of economy. Experiments on guinea pigs show an almost complete loss of antiscorbutic properties to have taken place in both dried and strongly heated (120 deg. C. for one hour) milk. In practice, where milk is heated to a less degree—e.g. "pasteurized" or boiled—loss in its vitamin value is also to be apprehended. When any of these methods

are employed in preparing cow's milk for infants it is therefore necessary that the diet should be reinforced with an extra supply of antiscorbutic material from outside. At the present time the regular use of fresh orange juice or fresh grape juice in the infants' dietary may present some difficulty owing to the restrictions placed upon the importation of fresh fruit by war conditions. These fruits are likely to be scarce during the coming winter, and out of the reach of poor households. These investigators are, therefore, at present engaged in determining the antiscorbutic value of raw juices expressed from various root vegetables which are home grown and plentiful, in the hope of discovering a satisfactory and cheap substitute for these fruits. Some encouragement for this line of research already exists in the clinical data available as to the distinct value of potatoes, even when cooked, for the cure of infantile scurvy. The writers summarize their findings as follows: (1) Raw cow's milk contains the accessory food factor (vitamin) which protects from scurvy, but this is present in small amounts and is further diminished by heating or drying. (2) Infants fed on heated or dried milk, or on any milk substitute, should receive also some antiscorbutic ration, such as fresh fruit juice or potato. It is probable that the raw juices of turnips and swedes can also be employed.

British Medical Journal.

December 29, 1918.

1. A Study of Fifty Cases Treated by Flavine. E. F. Bashford, J. N. J. Hartley, and John T. Morrison.
 2. The Treatment of Paraplegia from Gunshot or other Injuries of the Spinal Cord. A. W. Mayo-Robson.
 3. An Address on the Necessity for Education in Radiology and Electro-therapeutics. G. Harrison Orton.
 4. The Mycological Detection and Determination of Certain Carbohydrates and other Carbon Compounds in Pathological Work. Aldo Castellani and Frank E. Taylor.
 5. A Method of Skin Grafting under Septic Conditions. Paul Bousfield.
 6. A Note on Skin Grafting. Norman H. Joy.
 7. Lectures on the Anatomical and Physiological Principles Underlying the Treatment of Injuries to Muscles, Bones, and Joints. Arthur Keith. IV. The Introduction of Tenotomy.
5. A Method of Skin Grafting Under Septic Conditions.—Paul Bousfield, resident surgeon, American Women's Hospital for Officers, London, offers a method by which he has been able to obtain successful grafts upon areas which, though "clean" to the naked eye, were still actually suppurating, dressings which had been left on for twenty-four hours showing a certain amount of pus, and even possessing an offensive odor. The following case illustrates the method in question: The patient had been wounded in the arm, the head, the back, and the left thigh. The wound in the arm had necessitated a guillotine amputation in France, which had remained septic; the wound in the thigh had been excised in France, and when he received the patient in England it consisted of an area on the posterior surface extending from 2 inches above the knee to the natal fold. The outer border reached to about 1½ inches in front of the great trochanter, and the inner border to within about 1¼ inches of the rectum—an area of approximately 72 square inches, in which all the skin, superficial fascia, and fat had been removed and had left the hamstring muscles exposed and still in a septic condition in very nearly their whole length. On first viewing this leg it seemed doubtful whether it could be saved, especially as the wound was of such an irregular shape that a plastic operation by means of which parallel strips of skin might be brought over portions of the exposed surface was not possible. For ten days the wound was dressed on every third day with pure sterilized liquid paraffin containing 1 drachm of ordinary bipp to the ounce. At the end of this period the wound was quite clean at the edges and had granulated well over the muscles; a skin graft under the following conditions was decided upon in spite of the fact that the dressings were still somewhat offensive. The edges of the wound and the skin of the buttocks, whence the graft was to be taken, were sterilized with iodine; the surface of the wound itself was sprayed with zoel, which the manufacturers made by mixing 1 pound of 78 per cent. electrolytic caustic soda ground to pass through a sieve with ten holes to the linear inch, with 1½ pounds of No. 20 pure salt; to this is added 5¼ pounds of granu-

lated borax and the whole well shaken together. Combination of the caustic soda with the borax takes place rapidly, resulting in a mixture (zoel) containing 19½ per cent. sodium chloride, 3 to 4 per cent. of sodium diborate, and 76½ to 77½ per cent. of sodium monoborate. He then raised small portions of the skin of the buttocks with forceps and dissected off portions about a quarter of an inch in diameter and one-sixteenth of an inch thick in the center. He passed a single stitch through each graft and through the granulation tissue, suturing each graft in careful apposition; in all he planted about thirty-five grafts in this way. Again he sprayed with an atomizer a solution of zoel upon the grafted wound, and then dressed the whole with gauze soaked in sterilized paraffin, so that the dressing should not dry and tear off the grafts or cause bleeding when it was changed. The paraffin dressing was left on for forty-eight hours without removal, but was moistened from time to time with fresh paraffin in order to prevent it from sticking. At this period the dressing had begun to smell, and the edges of the dressing had become green. He therefore redressed the wound, and sprayed it again with a 2 per cent. solution of zoel, afterwards again placing over the surface gauze soaked in paraffin. This procedure he repeated from time to time on the average every twenty-four hours, and at the end of twelve days every graft had not only taken but had spread to more than twice its original area. Bousfield states that he has used this method on other cases, and the success of the technique he ascribes to three outstanding conditions: (1) The fixing by means of sutures of the grafts, so that, although in an awkward position, they cannot be removed when the wound is dressed. (2) The use of liquid paraffin as a medium for the dressing, which prevents any adhesion, and hence movement of the grafts. (3) The use of an antiseptic spray which is efficient in its germicidal powers, and yet non-irritant and non-poisonous to such delicate tissues as skin grafts; this last is, without doubt, the most important of the three.

6. A Note on Skin Grafting.—Norman H. Joy offers the following points to be attended to in skin grafting: (1) The raw surface must be in a good condition for skin grafting—that is, it must be covered with healthy granulations and as free as possible from discharge. If there is much discharge many pieces of grafted skin are raised and so fail to “take.” To prevent this the wound should be dressed with 1 in 1,000 flavine for four to seven days before operation. In the cases he has treated by this method there has been no discharge between the grafts, although he regarded them as very unsuitable cases before the application of flavine. (2) The grafts should not be covered with any dressing, and should be properly protected. At the suggestion of another surgeon, Joy has used inverted boxes of various sizes and shapes, cut to fit the contour of a limb, if necessary. The edges of the box should be slightly padded, and the box should be amply large, so that there is no risk of the padding touching the wound. (3) The technique used is as follows: The surface from which the skin is to be taken is prepared in the usual way. The wound is covered with a simple gauze dressing, and when this is removed care is taken to disturb the surface as little as possible. Two razors are employed, so that one can be dipped into boiling water, while the other is being used; thus the freshly cut surface heals without any suppuration. The grafts are cut about the size of a postage stamp, and with practice can be cut to almost any shape. The skin and razor are kept thoroughly wet with normal saline, so that the grafts can be more easily cut and removed from the razor. The grafts are generally placed about ¼ inch apart, but can be placed closer in a very clean wound. The box, sterilized, is adjusted and fastened down by long strips of rubber plaster; the ends of these are thoroughly bandaged, the bandage being brought up to the box as close as possible on all sides, but not over it, and it is always used in the form of a spica whenever possible. It is then pinned to the box with a liberal supply of safety pins. The box remains in position for several days, when it can be removed. The grafts are then found to be firmly fixed, and any dressing, such as fomentations or red lotion, can be applied.

Berliner klinische Wochenschrift.

November 5, 1917.

The Relations Between the Endocrine System and the Constitution.—C. Hart confines his remarks to theoretical considerations of the influence of the glands of internal secretion on the formation of somatic characters. He points out the great complexity of changes arising in these systems which react upon each other. The writer prefers the theory of adaptation of the organism to a new condition of circumstances, rather than that of antagonism and compensation. What is just now most wanting in science is the knowledge of primary, fundamental part played by each endocrine gland in particular. But this research is rendered difficult on account of the correlation of the physiological actions, perhaps also from the plurality of the functions of the organs studied (suprarenals, hypophysis, for example). In this same order of ideas the writer does throw some light and precision on the question. Thus the thymus is essentially an organ of the bodily development and growth, as has been demonstrated by experiments carried out on tadpoles by the administration of thymus tissue. In the evolution of the thymus the reproductive functions take precedence over that of growth, and here again the dependence of the endocrine system is evident. Hart fed tadpoles with thyroid gland; their growth was inhibited and their metamorphosis accelerated. The same was found for regeneration; the thyroid feeding caused it to be very rapid, but insufficient, while thymus feeding caused it to become exuberant. The thyroid should therefore be considered as an organ of differentiation, and Hart has succeeded in transforming an axolote into an animal very closely resembling the salamander by exclusive thyroid feeding. Now it was already known that the axolote is a larval form of the latter family. Hart looks upon this “neotenia” (persistence of the juvenile state) as quite similar to infantilism in man. Finally, the writer asks the question regarding the influence on these processes of development from exogenous factors, such as climate, intoxications, etc.

Intravenous Injections of Iodine in Syphilis and the Relationship of Iodine to the Blood Formula and Pressure.—Engwer concludes as follows: No specific change is noted, either from the viewpoint of the blood formula or pressure. Pregnancy is a contraindication to intravenous exhibition of iodine.

Münchener medizinische Wochenschrift.

November 6, 1917.

The Transplantation of Tissues from the Monkey and the Ultimate Results.—H. Küttner reports some cases of bone transplantation from monkey to man. As might be supposed from the humoral relationship which has been established by Uhlenhuth, Wassermann, and others, this procedure resorted to by Küttner may result in permanent success, and he has resorted to it for four to five years. The advantage of the method resides in the fact that one can thus utilize fresh bone tissue, it being removed from the animal at the time of the operation. An autopsy of the monkey done at the same time will reveal any morbid process which might contraindicate the use of the bone in the human subject. Küttner expects to obtain great results from vascular and tendon transplantation from the monkey but he is more skeptical regarding the utilization of nervous tissue.

Menstrual Epistaxis and Organotherapy.—H. Bab, in his first paper, in the first place recalls the facts already established by recent researches on the question of ovulation (eighteenth day), and the inhibitory action exercised by the corpus luteum on menstruation. Bab next shows the barrier set up against the normal menstrual flow by a hyperplastic or otherwise pathological uterus. In these circumstances menstrual epistaxis assumes a compensative rôle. The localization of the deviation in the nasal mucosa is explained by the physiogenetic and functional relations which unite olfaction with the genital sphere. The writer develops his reasoning by resorting to numerous physiological and clinical arguments which are too long to cite, but mention may be made of the fact reported by Fliess, namely, that dysmenorrhea can be relieved by the application of a solution of cocaine to the nasal mucosa.

Deutsche medizinische Wochenschrift.

November 8, 1917.

The Relationship Between Recurrent Fever and "Five Day" or Volhynia Fever.—J. Koch desires to include in a single clinical picture recurrent fever, Volhynia fever, and the bilious typhoid fever of Griesinger. All three morbid processes, he says, are caused by Obermeier's spirillum, and although this fact has not been recognized sooner in the case of Volhynia fever, in spite of the great analogy in the clinical phenomena, this is simply due to the fact that the organism is in very small number. Volhynia fever is caused by a spirillum which is an involution form of the recurrent fever organism. Koch, in order to give ground to this opinion, produces microphotographs and offers the following arguments: (1) This organism is found in recurrent fever as well as Obermeier's organism, in the phase of the process when the serum has reacted against the infection, and also even after treatment with salvarsan. (2) Every degree in the evolution from one organism to the other can be followed. (3) The spirilla undergoing regressive changes that have been found by Koch in Volhynia fever are motile when examined in the hanging drop. The identity of the two morbid processes is still further demonstrated by the simultaneousness of their apparition in epidemics at the Oriental front. As to Griesinger's bilious typhoid, it is merely a septic form of recurrent fever, characterized by the icterus gravis which accompanies it. Here again the spirillum of Obermeier may be present in considerable masses in the blood, as is shown by the microphotographs taken by Koch.

The Development of Variolic Epitheliosis on the Vaccinated Cornea of Rabbits.—According to G. Paul, corneal vaccination produces first a proliferation and then a degeneration of the infected epithelial cells. These phenomena offer very distinctly the characters of a defensive reaction. After the results of a histological study of these changes Paul comes to the conclusion that the causal agent of variola is a parasite which becomes exclusively localized in the epithelium and that no histological changes take place in the connective tissue.

Wiener medizinische Wochenschrift.

November 10, 1917.

Ammon's Horn and Epilepsy.—L. Efinger proposes to explain the very frequent existence of epilepsy, in which there is sclerosis of Ammon's horn, as follows: During labor laceration of the tentorium of the brain occurs, and if the child survives a sclerous process takes place in the region of Ammon's horn. This cicatricial predisposes the subject to the development of epilepsy.

Clinical Researches on the Phenomena of Spasmodicity.—S. Eben believes that spastic reflexes are governed by the sudden elongation of a muscle beyond its normal length. This rule admits of no exception, excepting in the case of the extensors of the forearm and leg; this is because flexion causes the muscles to become closely applied to the articular pivot, a fact which prevents the transmission of the shock to the entire muscle. Besides this, the suppression of the contractures by Esmarch's bandage acts in quite the same way, by compressing the muscle and preventing it from being subjected to the shock. The contractured muscles which are not compressed by the elastic band do not undergo any variation in the degree of their contracture. The anemia resulting from the application of the elastic band plays no part in the process.

Medullary Commotion.—J. Bauer insists on the difficulty of separating the disturbances due to anatomical lesions from those resulting from pathological lesions which offer no structural change. It is quite impossible to affirm that such or such a case is purely the result of shock. Bauer reports several different cases, and discusses the organic or the functional nature of the lesions presented by each patient.

Annales de Gynécologie et d'Obstétrique.

September—October, 1917.

Cerebral Metastases from a Primary Melanosarcoma of a Labium Majus.—Kotzareff reports a case of this

rare sequence in which metastases occurred by both the blood and lymph routes and intracranial metastases were present. In the lymphatics the infection traveled from the vulva to the groins along the homolateral (left) side and extended along the vertebral column until it reached the left hemisphere. Locally the growth involved much of the external genitals. In general these growths originate either from a pigmental nevus or in the sound skin and are invariably single at the outset and are highly malignant, not only in rapid spread but in invariably recurring after removal. The malignancy appears most strikingly, however, in early, generalized metastases. The latter not only invade the lymphnodes, group by group, so that, as in the author's case they can reach the most distant localities, but also through the bloodvessels attack the viscera and skin. In detail the author's case was as follows: The woman was 56 years old (menopause at 49). Her sexual life had been normal (two living healthy children and a single miscarriage). Six months before she had noticed the small nodule in the left labium majus. The neoplasm continued to grow and became pedunculated, also bleeding easily. An inguinal metastases the size of a hen's egg soon followed and its growth was painful. The patient was much more anxious about the secondary than the primary growth and sought treatment for it. Upon examination she was seen to have a number of nevi, including several on the vulva. A number of biopsies placed beyond doubt the diagnosis of melanosarcoma. Just as it was decided to operate a bone metastasis was discovered at the height of the first dorsal vertebra. This growth, in fact, was readily palpable from without, while at the same time able to cause some pressure paralysis. Another metastasis, higher up, caused pressure upon the radicles of the brachial plexus. The local growth on the vulva by its hemorrhagic character caused notable anemia and was ligated off. Radium for the inguinal mass was refused. Later there was intracranial mischief—the Wernicki type of aphasia with slight hemiplegia, word blindness and word deafness suggesting metastases in certain nerve centers. Patient died in coma from the intracranial disturbances. Autopsy revealed extensive metastases. Small growths were present in the left pleura. A focus of softening lay athwart the left fissure of Sylvius, compressing Broca's speech center, while a second was present in the left occipital lobe. The chief metastases would therefore be classed as pulmonary, vertebral, and intracranial. There was absence of uniformity as to coloration, some being black, others white, others, again, mixed. The metastases all occurred on the left side of the body, which fact is explained by the author by lymphatic propagation. He states, however, that blood metastases were also present, and appears to infer that the intracranial foci were of this origin. This point is left undecided. The pleural metastases seem to have been referred to lymphatic infection, although this is also a moot question.

The Reaction of the Local Tubercle.—Stating in the September number of the *American Review of Tuberculosis* that therapeutic agents for tuberculosis should be considered from two points of view: (1) as direct therapeutic agents or those that directly influence the bacilli themselves, and, (2) as indirect therapeutic agents or those that influence the host and thus indirectly act upon the bacilli, Corper of Chicago reports the study of the effect that various bacterial and chemical substances may have on the ability of the tissues to react with specific and nonspecific tubercle. Guinea-pigs that have received a preliminary subcutaneous injection of dead or living tubercle bacilli react more vigorously to a subsequent intracutaneous injection of dead tubercle bacilli than do normal animals. They do not undergo such change in reaction to kaolin or calcium carbonate, given intracutaneously, nor to splenic tissue, aleuronat or edestin. Guinea-pigs, previously injected with typhoid and pseudodiphtheria bacilli reveal slight, if any difference in reaction to the intracutaneous injection of tubercle bacilli from that seen in normal animals. Starvation of guinea-pigs that have had previous injections of dead tubercle bacilli tends to lower their reacting power to subsequent intracutaneous injections of the same.

Book Reviews.

THE BATTLE WITH TUBERCULOSIS AND HOW TO WIN IT;
A Book for the Patient and His Friends. By D.
MACDOUGALL KING, M.B. Price, \$1.50. Philadelphia:
J. B. Lippincott Company, 1917.

THE author of this volume has sojourned for nearly four years in America, of which he spent a year and a half in sanatoria in Canada and the United States and the rest in health resorts. The book he has written is the result of his personal experience with the disease with which he has been himself afflicted. All the chapters have decidedly timely headings. In Part I the titles of the fourteen chapters are the following: The Enemy; The Defence Forces; The Skirmish at the Outposts; The Promise of Victory; Reverses; Days of Peace; Strengthening the Home Forces; War Clouds; The Intelligence Department; The Chief Medical Officer; Choosing the Battle Ground; Campaigning; The Orders of the Day. The second portion has equally martial names for the chapters, such as "Commandeering the Home," "Tactics of the Enemy," "The End of the Battle," "The Spoils of War," etc.

Although the author has made an attempt to bring his medical phraseology down to the understanding of the common people, he has not always succeeded in this. Thus, for example, there are two illustrations copied from Crile's "A Mechanistic View of War and Peace" and intended to show the effect of extreme emotion, which have for legend the words "A section of a normal cerebellum," and "Section of cerebellum showing effect of extreme emotion (fright)." If the book is intended only for the well-educated consumptive this is all very well; otherwise we question the wisdom of using such illustrations or such words as "normal cerebellum," "mechanistic view," etc.

Some of the advice the author gives is unusually good, but he himself admits the difficulty of carrying it out. He says: "Your mind should be as your body—not riveted to any one point, but so dreamily relaxed that if any one were to ask you 'What are you thinking about?' you would be unable to tell him." If we could free all our consumptive poor from mental anxiety, the thorough relaxation of mind and body would be an easy thing. Attention should be called to an interesting discussion on the help which the consumptive may derive from religion, where the author says, among other things, "More things are wrought by prayer than this world dreams of," and where he quotes the words of Professor William James: "The sovereign cure for worry is religious faith."

In the appendix there are given some instructions regarding the disposal of the sputum. There is nothing new among them and some of the directions are far from practical. How many patients in a tenement house who accidentally or carelessly spit on the floor would carry out the following instruction: "A 2 per cent. solution of either lysol or chlorinated lime should be poured on the area of floor contaminated, and allowed to soak for at least an hour before being wiped up." An injunction to scrub the "area of floor contaminated" thoroughly with hot soap-water would be carried out more readily.

The book contains many personal reminiscences of the author's sojourn in the sanatoria, and gives a number of illustrations showing groups of patients with whom he has associated. As a guide for the average tuberculous patient this book of 258 pages, although reasonable in price, is too voluminous and too scientific. As a volume to be added to the patients' library in a sanatorium where the intellectual class predominates it will prove interesting reading matter.

A HANDBOOK ON ANTISEPTICS. By HENRY DRYSDALE DAKIN, D.Sc., F.I.C., F.R.S., and EDWARD KELLOGG DUNHAM, M.D., Emeritus Professor of Pathology, University and Bellevue Hospital Medical College; Major, Medical Officers Reserve Corps, U. S. Army. Price, \$1.25. New York: The Macmillan Co., 1917.

THIS little book gives a concise account of the principal chemical antiseptics which have been found useful for surgical purposes during the present war. Information has been collected from various sources and put in convenient form, so that the proven facts and accepted theories may be easily available for the men

who are soon to be engaged in the care of the wounded. No attempt has been made to cover all antiseptics that have ever been used, but attention has been paid to those only which have received at least some measure of endorsement from military surgeons during the past three years. The methods of preparation and use of a multitude of antiseptics, plain and in various combinations and mixtures (in liquids, oils, or pastes), are concisely detailed. There are a number of tables showing the relative germicidal values of various well known as well as the comparatively new antiseptic agents. The potency of some and the almost utter uselessness of others are well shown. For example, the bacterial count of a medium infected with *Staphylococcus aureus* and acted upon by a solution of hydrogen peroxide decreased for the first five minutes, but increased rapidly thereafter and at the end of six hours was practically the same as before the test. The newer antiseptics, such as Dakin's solution, chloramine-T, dichloramine-T, and brilliant green, as well as the phenol group, iodine, etc., are adequately covered.

The book is not concerned with surgical details but gives all necessary information regarding the preparation and uses of the antiseptics themselves. For this it is a most valuable aid to the surgeon.

THE CAUSATION OF SEX IN MAN. A New Theory of Sex Based on Clinical Materials, Together with Chapters on Forecasting or Predicting the Sex of the Unborn Child and on the Determination or Production of Either Sex at Will. By E. RUMLEY DAWSON, L.R.C.P., London; M.R.C.S., England, etc. Price, \$3.00. New York: Paul B. Hoeber, 1917.

THE second edition of Dr Dawson's book contains considerable new evidence as to the correctness of his theory, which in brief is that the sex of the child depends on the ovary and on one particular ovary, the organ of the right side being termed by the author the male ovary. As far as the reviewer is aware, Dawson's theory has not been indorsed by those whose opinions carry weight, although his colleagues regard him as a conscientious and zealous worker and admit that he has been unusually successful in his forecasts. Doncaster, commenting on the theory (1914), states that it is of no value for certain mammals nor heterologous male twins; while the exceptions seen after unilateral ovariectomy are far too numerous to be explained by residual ovarian tissue. The arts of forecasting and determining sex seem as complicated as the theory itself is simple and necessitate the supposition that male and female ova are discharged during alternate months—something extremely difficult to prove. The author trusts that the immediate demand for a preponderance of male births will lead to the general use of his method, and as the latter is not in any way burdensome it is to be hoped that his wish will be gratified.

KIRKE'S HANDBOOK OF PHYSIOLOGY. Revised and Rewritten by CHARLES WILSON GREENE, A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Ninth American Edition. With Five Hundred and Nine Illustrations, Including Many in Colors. Price, \$3.75. New York: William Wood and Company, 1917.

A BOOK that reaches its ninth edition needs very little in the way of recommendation; such a record speaks for itself. We have always regarded Kirke's Handbook of Physiology as one of the old, reliable textbooks which has continually kept pace with the onward march of this all-important science. The present edition is no exception and contains some important revisions, particularly in the chapter on the subject of Nutrition. Professor Greene connotes the recent work of Osborne and Mendel in this country on food requirements during growth, and that of Voegtlin, Funk and others on vitamins in their relation to the deficiency diseases. There is also included a section on the influence of the diseases of the ductless glands on metabolism, a topic which is in keeping with the close association that now exists between physiology and clinical medicine. Throughout, the book is well up to the high standard maintained in previous editions. The illustrations are abundant and well selected. The print is good and the size of the volume makes it convenient for ready reference.

Society Reports.

SOUTHERN SURGICAL ASSOCIATION.

*Thirtieth Annual Session, Held at St. Augustine, Fla.,
December 18, 19 and 20, 1917.*

THE PRESIDENT, DR. WILLIAM D. HAGGARD, NASHVILLE,
TENN., IN THE CHAIR.

A Brief Résumé of the Causes and Treatment of Rupture of the Uterus During Labor.—Dr. E. GUSTAV ZINKE of Cincinnati said that the most frequent cause of rupture of the uterus was a prolonged second stage of labor, due to an obstruction of either maternal or fetal origin. The appearance of the contraction ring was the most significant sign of an impending rupture of the uterus. When rupture of the uterus was not the result of an imperfectly united cesarean scar, extirpated tube, myomectomy, etc., but was solely the consequence of an obstruction, its clinical picture was clear and definite. The symptoms were easy of recognition, and the rupture might be anticipated and promptly diagnosed if the attendant was upon the scene at the time. The management of rupture of the uterus during parturition differed according to the completeness or incompleteness of the rupture, the amount of hemorrhage, the condition of the mother, and also according to whether the patient was in a hospital or at home. If the rupture was incomplete, the child might be extracted per vaginam provided the hemorrhage was not severe and the patient was in her home; if the patient was in a hospital, an abdominal section, quickly performed, might save both lives even if the loss of blood had been great. If the rupture was complete, and the child was alive and vigorous, an immediate abdominal section was indicated, no matter what the condition of the mother, or whether she was at home or at a hospital. If the child was dead and the mother's condition was hopeless, it was of no avail to interfere surgically under any circumstances. If the child was dead and the mother's condition fairly promising, the child should be at once delivered through the abdomen, and the rent in the uterus and peritoneum repaired; or, if an infection existed, a hysterectomy should be performed. It was understood that this latter treatment promised little for the mother when it must be carried out at home; but that her life might often be saved if the operation was performed in a hospital.

Report of Eighteen Cases of Cesarean Section Done with Local Anesthesia.—Dr. HUGH H. TROUT of Roanoke, Va., thought it was interesting that while an increasing number of operations were being done under local anesthesia, cesarean sections, except in few instances, were not being done by this method. There was very little pain to the operation, only when the uterus was lifted out of the peritoneal cavity, and there was no pain on incision of the uterus. The eighteen cases proved Lenander's contention relative to the sensibility of the various viscera and parietal peritoneum. So often where cesarean section was indicated, a general anesthesia was contraindicated, chiefly in eclampsia, when local anesthesia was almost ideal. He introduced sutures into the uterus before incision was made into the same, and then, after the incision, these sutures were tied across the incision so as to give double locking mattress sutures which not only approximated the surfaces, but controlled the hemorrhage at the same time. The three maternal deaths in eighteen cases were all with eclampsia, and in all three delivery had been attempted with forceps before the operation. He felt where the condition of the mother made the giving of a general anesthetic unsafe, the employment of novocaine was indicated, and its use did not present the difficulties one would naturally expect.

Dr. I. S. STONE of Washington, D. C., said that if there was a rupture of the uterus we might, in the first place, hesitate as to the propriety of interference if the rupture was in the lower third. But the question arose, was the hemorrhage persisting or had it ceased? If it had ceased one would sometimes hesitate to perform an operation through the lower route. On the other hand, if the uterus was ruptured above, how could one hesitate very often in deciding to deliver by

forceps, by traction, or by version? The tendency at the present time was in favor of abdominal cesarean section. Having decided that there was rupture of the uterus and the hemorrhage was likely to proceed, one should go right after the source of the rupture and hemorrhage. Probably one would under all circumstances go after the hemorrhage at its origin and deliver unless the child was so far in the second stage as to make it necessary to deliver below because it was impossible to do so from above.

Dr. F. W. PARHAM, New Orleans, was very glad Dr. Trout had been so successful in his 18 cesarean sections. He was surprised to hear him say that in the last three cases he had found the absence of adrenalin of no consequence; that the anesthesia was as good without as with the adrenalin. This might be explained by the fact that cesarean section was a comparatively short operation so that the effect of the adrenalin did not pass off. Brown in his book on local anesthesia called attention to the fact that the addition of adrenalin enabled the surgeon to substitute novocaine for cocaine. He had had some trouble in getting novocaine in New Orleans and had recently been employing apothesis with satisfactory results. It was less toxic in its effect than novocaine and was absolutely as anesthetic so far as his observation and experience went. He had not seen any untoward effects from the use of apothesis.

Dr. JOHN WESLEY LONG of Greensboro, N. C., said that, several years ago, when he investigated very thoroughly the literature of cases of rupture of the uterus, the most surprising thing to him was that the rupture began from the peritoneal side rather than from the mucosa side. This was evident by the autopsy findings in cases of rupture of the uterus, and there were other ruptures found than the one that went clear through the uterine cavity, going through the peritoneum and partially through the muscularis. At that time, in a paper he read before the Washington Obstetrical and Surgical Society, he reported the only case of rupture of the uterus that had ever come into his hands. The patient was an old primipara, who was under the care of competent general practitioners; following a very severe pain (it was a vertex presentation) the fetal head had not descended, and on examination they could not find the uterus in the pelvic portion, so one of the practitioners introduced his hand through what proved to be a rent, took hold of the feet of the fetus, the fetus having escaped into the abdominal cavity, and delivered the baby in that way. He saw the patient about four hours after the delivery. She was removed 16 miles to the hospital, and 12 hours after the accident he opened the abdomen and did a supravaginal hysterectomy. The rupture occurred in front of the uterine artery so that there was very little hemorrhage. The woman made an uneventful recovery.

Dr. J. M. MASON of Birmingham, Ala., said that while it was a matter of discussion as to whether puerperal eclampsia in a woman who had not yet gone into labor should be treated by expectant methods or by cesarean section, he was of the opinion that cesarean section was the proper procedure in these cases. The great danger had been not so much the operation, which was perhaps not as shocking in many instances as prolonged labor, but the superadded general anesthetic which had heretofore been used in cesarean section. Local anesthesia removed the serious drawbacks to cesarean section.

Dr. HERBERT P. COLE of Mobile, Ala., expressed himself as being a firm believer in local anesthesia. Several years ago at Cincinnati he reported 700 cases of laparotomy done under local anesthesia. One of the patients was an 18-year-old girl from whom he removed a 40-pound ovarian cyst. Since then he had performed hysterectomies under local anesthesia. He had also removed a 14-pound myoma from a woman, 60 years of age, with a bad heart lesion, under local anesthesia without particular discomfort.

Dr. CHARLES R. ROBINS of Richmond, Va., said all were familiar with the fact that at the end of labor the veins were enormously distended and extremely tortuous, and he believed that in the vast majority of cases, where there was a fatal hemorrhage from rupture of the uterus, it was from the venous plexus and not from

the uterine artery. If there was an injury to the venous plexus, the veins being as large as the little finger, the bleeding was continuous and there was no effort at spontaneous stoppage. He believed that was the reason why we could always open the abdomen in preference to trying to complete the operation from below.

Dr. Zinke, in closing the discussion on his part, said it was not quite clear to him why we should resort to local anesthesia to perform a cesarean section when the other anesthetics, like chloroform and ether or the A. C. E. mixture, had been so satisfactory. It saved the woman the shock that she necessarily experienced when she witnessed the operation. There was no place for surgery in the treatment of puerperal eclampsia, and it had not added one iota to the reduction of the maternal mortality of eclampsia. Cesarean section, which was not formerly advocated for placenta previa, was now recognized as the proper procedure, and the speaker advocated it more than he had fifteen years ago.

Dr. TROUT, in closing, asserted that patients with eclampsia had not done so well in his experience under general anesthesia as they had under local anesthesia.

Cranial Decompression for Head Injuries Accompanied by Signs of Increased Intracranial Pressure.—Dr. R. L. PAYNE, JR. of Norfolk, Va., reported 29 consecutive cases of severe head injuries accompanied by marked increase in pressure in which subtemporal decompression was done in every case; 22, or 75.86 per cent., of these cases recovered, while 7, or 24.14 per cent., died. In the last 7 successive cases chosen for operation there was only one death following decompression. He divided head injuries into two types, mild and severe. The mild cases recovered without ever developing high increase of intracranial pressure. It was only in the severe types of head injuries accompanied by a marked increase of pressure that decompression should be considered. The indications for decompression in these severe head injuries depended on the four cardinal signs found from study of the pulse rate, the eye grounds, the spinal pressure, and the systemic blood pressure. With reference to contraindications for operations, he had never seen a case of acute high intracranial pressure with a pulse of 45 to 50 recover by operation if the case was left unoperated upon until the pulse on the secondary rise had reached 95. Results would be much better in these cases if, with the proper indications present, we would help to relieve the threatened danger to the medulla and the rest of the brain by a cranial decompression.

Arthrodesis and Bone Graft in Reconstruction Surgery.—Dr. F. G. DUBOSE of Selma, Ala., said that as a part of the general preparedness propaganda, he would ask the surgeons in civil practice to begin a more systematic and enthusiastic effort, advising operations where any cripple would be made better fit to do his little bit. Patience and persistence were necessary. He would call attention to the absence of quick and dramatic cures which were so attractive in other surgical endeavors, as compared with the tediousness and extent of time required before results and efficiency were obtained in orthopedic surgery. He would also emphasize that simplicity in armamentarium was easily obtainable by seeking the aid of blacksmiths and mechanics, and with the expenditure of some mechanical ingenuity on the part of the surgeon. He wished to exhibit a fixation frame model which permitted the patient to be securely immobilized at any part of the trunk, and extension and counterextension made on any of the extremities without risk of subsequent misplacement of the adjusted or apposed fractures or arthrodesed joints. A plea was made for the institution of operative relief before such destruction of the bony framework of joints had occurred which removed material essential for good results following arthrodesis. Attention was called to the rôle played by focal infections as an etiological factor and as a source of complications following bone and joint surgery; a thing to be sought for and removed before or at the time of operation. Stress was laid on the preliminary preparation of the patient, elimination, supportive, and vaccine or serum treatment. Lane's fanatically aseptic, knife and fork, technique was commended, and its adoption urged as essential to prevent loss of life and failure in obtaining results. The hypochlorite of soda solution saturation of

infected wounds, especially of bones and joints after the Carrel-Dakin method, was endorsed as the quickest means of obtaining fields fit for clean operative work, which were infected when presented for surgery. Murphy's formalin-glycerin injection in closed septic joints for removing the infection and preparing the joint for early operation had been repeatedly tried out by him with satisfactory results. Illustrative cases of arthrodiesis of hip, knee, and elbow ankylosis, bone graft in osteitis cystica fibrosa, and Pott's disease were reported.

A Specific for Every Pathogenic Microorganism.—Dr. EDWARD H. OCHSNER of Chicago said that the idea of a specific in medicine was not so very new, as both homeopathic and eclectic medicine were built up, at least in part, on this theory. The application of the theory in those instances was, however, premature as the etiology of disease was not sufficiently understood at that time. Today with our more accurate knowledge of infections, the theory was not only sound, but its application in these conditions was feasible. Every wild beast had its deadly enemy; every plant its parasite, and every parasite its parasiticide; and almost every known chemical poison had its chemical antagonist and probably also its physiological antidote. If the above statement was true, it should be possible to find a specific for every pathogenic microorganism which should not be harmful to the human host, but when we consider the different species of pathogenic microorganisms it was not likely that we would ever find a universal germicide. He took up the different pathogenic bacteria, such as the gas bacillus, colon bacillus, gonococcus, *Spirocheta pallida*, surgical tuberculosis, tetanus, etc., and discussed the remedies that had been found most effective by other surgeons as well as himself in the treatment of these various infections. In actinomycosis, removing the foci of the infection, such as diseased tonsils, teeth, beards of barley or chaff of grain, then laying open the sinuses to the very tips and giving the patient sixty grains of potassium iodide for three days, followed by an interval of four days, and then repeating, as first suggested by veterinarians in the treatment of lumpy jaw in cattle, had resulted in the cure of every case which he had under treatment. It was quite essential that all the above things be done carefully and conscientiously. He had seen a number of cases in which one or the other of the above directions were neglected. The disease persisted for months and was relieved only when they were all systematically employed. Giving the potassium iodide in large doses followed by an interval of suspension of the drug seemed quite an important item in securing prompt and permanent relief. In regard to the merits of Dakin's solution, he said that while in certain forms of saprophytic infection Dakin's solution might be of value, he considered it useless in some of the infections and even positively harmful in others.

Fracture of the Long Bones: A Clinical Study.—Dr. FRANCIS REDER of St. Louis, Mo., chronicled the clinical deductions gleaned from the case of a young woman, 24 years of age, who sustained a simple oblique fracture of the left femur about three inches below the great trochanter, and a compound fracture of the left tibia and fibula. The mandible at both angles was also fractured. From the treatment employed the patient at the present time was able to stand erect and was making satisfactory progress in walking. Mental fatigue and joint pains necessitated that the exercises be of short duration. The long confinement caused ligamentous relaxation in nearly all the joints of her body. This was exemplified in the frequent subluxations of her shoulder joints by some trivial movement. In summarizing it might be said that the dominant facts in this case were: the successful bone grafting 16 and 19 months respectively after the fractures had been incurred; the successful bone grafting following a septic process; the successful bone grafting after non-union following resection of the bone ends; excision of three inches from the femoral shaft, without causing any apparent damage to the mechanism of the thigh muscles; the violent and long continued muscular contractions; failure to anticipate these muscular contractions; failure to judge the violence of these contractions; failure properly to secure the bone ends of the left femur after excision; failure properly to immobilize the extremities from the start; the successful mould-

ing of the callus of the left femur four months after excision. The length of time it required for the consolidation of the callus to permit weight bearing, and the promptness with which the patient was able to discontinue the morphine.

Traumatic Rupture of the Spleen.—Dr. A. MURAT WILLIS of Richmond, Va., said that subcutaneous traumatic rupture of the spleen was unusual without other serious injuries, and especially was this true if the spleen was not markedly enlarged or unduly movable. The four cases he reported in his paper occurred in his service in a period of approximately three years. In summing up the histories of these four cases, he found that all presented the following points in common: All were males; blow on left side of body in splenic region; secondary anemia and leucocytosis; no external evidence of injury about the body; rigidity and tenderness of the abdomen; all had shock following splenectomy. All the spleens were practically normal in size with short pedicles and without any history of previous disease of the organ. Three out of the four patients had agonizing pain in the left shoulder, which was promptly relieved by splenectomy. The fourth case was that of a child sent in for concussion of the brain, and as he was in a semi-conscious condition it was impossible to elicit a satisfactory history. Three were operated on 24 hours after the injury. In two of the cases a marked increased leucocytosis persisted after the operation over a period of from two to four weeks. Three patients had satisfactory convalescence. One died eight days after operation. The fatal case showed a continuous fall in hemoglobin and a decreasing leucocyte count. In the first two cases operation was followed by direct transfusion with apparently good results. From his experiments on animals and his observations he was led to the belief that in certain cases of splenectomy following hemorrhage, death occurred as the result of a severe secondary anemia out of proportion to the amount of blood lost and probably incident to the abscess of the spleen.

Dr. EDWARD H. OCHSNER of Chicago said the paper brought up a number of very interesting points, one of which he would like to mention. One patient, who was doing just as well as the others, developed a severe anemia from which he died. In the experimental work related a number of dogs did not seem to be affected very much by the loss of blood, but a number in the same group showed exactly the same symptoms as the one patient who died. The question which arose in his mind was: Is not this difference in the reaction to the operation by patients or by dogs possibly explained by the fact that some of these patients and some of these dogs had supernumerary spleens and some did not? He believed many patients had an immunity, and a patient who had this immunity and a supernumerary spleen would stand splenectomy. He believed a little spleen tissue was absolutely essential to life.

Dr. F. W. DUBOSE of Selma, Alabama, asked Dr. Willis if there was any enlargement of the lymph glands in his series of cases. The speaker saw a man with a ruptured spleen who, after the removal of the spleen, developed a general lymphadenitis, otherwise his blood and general condition were apparently improved by the operation. The blood was carefully examined every two weeks for a period of three or four months, and within a year the lymphadenitis subsided.

Dr. WILLIS, in closing, said there was no lymphoid enlargement in his cases. All of them did not react alike, and what Dr. Ochsner had said was along the right line. In looking up the literature on traumatic rupture of the spleen he had found 250 cases of normal spleen, and the mortality from rupture varied from 80 to 90 per cent.

The Management of Subparietal Injuries of the Kidney.—Dr. J. M. MASON of Birmingham, Alabama, reported three cases of subparietal injuries to the kidney. (1) Rupture of the right kidney from a fall from a train; death in 20 hours from hemorrhage and shock while preparations were under way for exploration. This was a patient of Dr. B. L. Lester whom he saw in consultation. (2) Contusion or slight laceration of the right kidney due to a fall from an electric light pole. This case was complicated by fractured ribs, fracture of the neck of the left femur, and fracture of the right iliac crest. These complications prevented exploration

of the kidney injury, and the hematuria disappeared at the end of four days, with clearing up of the kidney symptoms, and recovery without operation. (3) Rupture of the left kidney from being knocked down by an automobile. This patient, a girl of 14, was seen on the sixth day following injury. She had hematuria, fever, pain, tenderness and tumor over the left kidney. The kidney was found deeply ruptured in two directions. Nephrectomy; recovery. In all these cases the sources of the hemorrhage and the presence of a second functioning kidney were determined by cystoscopy. He quoted Watson and Neilson, who gave to expectant treatment the highest mortality in uncomplicated cases—27 per cent. as compared with 8.5 per cent. for packing and drainage, and 22.5 per cent. for nephrectomy. He would urge prompt exploration in all cases where the presence of shock or complicating injuries did not demand delay. The advantages of early exploration were summarized as follows: (1) The danger of exploration in properly managed cases was slight, and was not to be compared with the risks of delay. (2) The nature and extent of the injury might be definitely and promptly determined. (3) Appropriate measures might be employed without delay, for the control of hemorrhage, to guard against infection, and to provide for drainage. (4) In certain favorable cases suture of the ruptured kidney might be successfully carried out, while in other instances the kidney might be saved by packing and drainage. (5) A hopelessly damaged kidney might be promptly removed, thereby shortening convalescence and restoring the patient to health in the shortest possible time.

Recurrence of Stone in the Kidney.—Dr. CHARLES R. ROBINS of Richmond, Virginia, stated that the publication in 1915 by Cabot and Crabtree of a study of end results in operations for kidney and ureteral stone, performed at the Massachusetts General Hospital for a period of eight years previous to January 1, 1914, was somewhat startling. In this it was shown that 49 per cent. of the cases suffering from kidney stones and 29 per cent. of those suffering from ureteral stone recurred. In 1917 Braasch and W. J. Mayo published a review of 450 patients operated on at the Mayo Clinic for nephrolithiasis, and on a careful analysis of these cases the recurrences were found to be slightly less than 10 per cent. The question of recurrence of stone in the kidney was brought somewhat forcibly to his own attention by having four cases under treatment at the same time. These happened to be the only patients in his practice that had come back, but there were doubtless others from whom he had not heard. In view of the two very large series referred to above, his individual statistics would hardly add much to the subject. However, as each of his cases showed a different type of recurrences, following a different operation, the histories themselves should be of interest. In dealing with stone in the kidney, he had followed Brewer in dividing his cases into two groups, one in which the stone was apparently the primary condition, and the second where the infection of the kidney was apparently the primary and predominating element. In the first case the removal of the stone was the indication, in the second the cure of the infection, which would usually mean the removal of the kidney, as the infection was ordinarily too advanced and the alteration and destruction of the kidney too permanent to hold out much hope of improvement from any form of conservative treatment. Whether this simple classification met the conditions, further investigation must prove. There could be no question about the soundness of the three principles of treatment laid down by Schede when he stated that the object of treatment was, in the first place, to remove a formed calculus; in the second place, to limit the injury thereby produced as far as possible; and third, to protect the patient against a return of the trouble. The first two had been amply met by the refinements of modern technique, but the third had apparently received very little attention. Previous to the publication of Cabot's and Crabtree's paper, there seems to have been no systematic effort to determine whether the trouble returned or not.

The Treatment of Certain Forms of Subacute Pancreatitis.—Dr. STEPHEN H. WATTS of Charlottesville, Va., believed that all surgeons were agreed that those cases of subacute pancreatitis in which there was

abscess formation should be operated upon and drained, the abscess often being indicated by a palpable mass in the pancreatic region, sometimes filling the lesser peritoneal cavity and even bulging the abdominal wall; but he believed little attention had been directed to those cases of subacute pancreatitis in which the symptoms at the time of operation were not very acute, a diagnosis of gallstones was made and at operation the pancreas was found to be thickened and indurated but still fairly well defined. In these cases there was little or no free fluid in the abdominal cavity, and this not bloodstained, attention being attracted to the pancreas only by the finding of disseminated fat necroses in the omental fat or in the peripancreatic fatty tissues. In previous papers he had emphasized the importance of early incision and drainage of the pancreas itself in cases of acute pancreatitis and had reported four such cases, in three of which recovery followed drainage of the pancreas; in the remaining case, which was a fulminant one, the pancreas was not drained and the patient died; however, he believed there would have been a fatal result in this case under any conditions. In the light of certain cases which he would report, he believed that the same thing should be done on those cases of subacute pancreatitis which seemed to verge almost on the chronic, in fact, he was inclined to believe that some of these represented an acute exacerbation of a chronic pancreatitis. He had operated upon three cases which seemed to belong in this category. In all of these cases a diagnosis of gallstones was made, gallstones were found in the gallbladder, and a cholecystostomy was done but the pancreas and peripancreatic tissues were not drained. In all of the cases fat necroses were found in the omental fat or in the fat about the pancreas and the pancreas itself was somewhat, in fact, in one case markedly thickened and indurated, but the outlines of the pancreas were fairly well defined. The condition, except for the fat necroses, suggested a chronic pancreatitis, therefore the organ was not drained. One of these cases recovered and was in good condition when seen a year after the operation. The other two died, the one nine and the other sixteen days after operation. Autopsies revealed extensive necroses of the head of the pancreas in both cases and in one there was extensive hemorrhage in the tissues about the pancreas. He believed that if pancreatic drainage had been instituted in these cases the result might have been different.

Dr. F. W. DUBOSE of Selma, Alabama, related a case in which a mistake was made in diagnosis. A negress was sent to the infirmary with a diagnosis of enormous fibroid tumor. An assistant made the examination and went through the usual routine tests—blood test, urine test, and so on. He reported that the pulse was quick, otherwise conditions were normal. The author did not make a preliminary examination, nor was an examination made of the feces. On opening the abdomen the speaker saw this enormous tumor with the stomach and duodenum spread out over it and densely and closely adherent to it. As soon as he lifted the omentum and colon and dissected the colon loose from this, he recognized an enormous retroperitoneal tumor, of a character which he had never seen before. He proceeded with the dissection, loosened the stomach and duodenum, and recognized a pancreatic tumor. It involved practically all of the pancreas except the distal three and a half to four inches. This was amputated, the tumor removed, and the distal end of the pancreas stuck into the duodenum, using a double row of sutures. He resorted to hypodermoclysis and as soon as the operation was finished he made use of intravenous transfusion. The tumor, after its removal, was examined and found afterwards to be a sarcoma of the pancreas, globular in form, and measuring about 15 inches in diameter. The woman lived seven or eight hours after the operation.

Dr. ALEXIUS MCGLANNAN of Baltimore stated that if we would do as Dr. Watts had recommended and in addition to draining the gallbladder establish drainage of the pancreas, we were not so likely to have infection that would end in disaster. We would provide an exit for the toxic material which formed and would give the patient an opportunity to get well rather than to absorb the material and die from a fulminating acute pancreatitis.

Dr. LEWIS C. MORRIS of Birmingham, Alabama, stated that about fifteen years ago he operated in a case in which there was marked enlargement of the head of the pancreas associated with stones in the gallbladder. The induration and enlargement were so great that he felt it was definitely a case of malignancy of the pancreas. He removed the stones and made an effort to get a specimen from the head of the pancreas for pathological examination, and in so doing a rent was made in the portal vein, which was clamped and tied off, but no further effort was made to secure a specimen for examination. The woman made a good hospital recovery and went home with the prognosis that death would probably ensue within a year or more. Two years ago he was in the same section of country she came from and had the pleasure of taking lunch at her home. Her case was one of chronic pancreatitis and not of malignancy, secondary to an inflammatory condition of the liver, gallbladder and liver duct.

Dr. GEORGE A. HENDON of Louisville, Kentucky, asked Dr. Watts whether or not in the cases he had operated on there existed in association with pancreatitis a cholecystitis or if gallstones were present.

Dr. JOSEPH RANSOHOFF of Cincinnati, Ohio, did not think it was good surgery to remove a piece of the pancreas for pathological examination unless one knew that the tumor was limited. The smallest kind of wound of the pancreas was apt to bring about by reason of autodigestion an enormous amount of damage. He asked the essayist how often he had made a diagnosis of acute pancreatitis before operation. Personally he knew of no way of doing it. If an acute case had gone on to the degree of suppuration or abscess formation, if the case was not one of hyperpancreatitis, it was possible to make a diagnosis.

Dr. JOHN E. CANNADY of Charleston, West Virginia, asked Dr. Watts to describe a good surgical method of dealing with typical chronic pancreatitis.

Dr. WATTS, replying to Dr. Hendon, stated that in all three cases of subacute pancreatitis gallstones were found. He made a diagnosis of gallstones, and not only found what he went after, but something else. He agreed with Dr. Ransohoff as to the difficulties attending the diagnosis. Replying to Dr. Cannady, he could not speak authoritatively. He thought Dr. LeGrand Guerry could say more about that. LeGrand Guerry thought cholecystectomy should be done, but the speaker had usually done by cholecystostomy.

The Use of Bull's Serum in the Treatment of Wounds Infected with the Bacillus Aerogenes Capsulatus Welchii. Dr. ALEXIUS MCGLANNAN of Baltimore said that Carroll G. Bull had proved that the destructive action of the Welch bacillus was due to a powerful exotoxin. This toxin, injected into muscle and other soft tissue, produced inflammation and necrosis, that is, gangrene, in the absence of the bacilli; and when injected into the circulation it produced an intense hemolysis. The clinical evidences of infection with the Welch bacillus, local gangrene and a hemolytic sapremia, therefore, might be produced experimentally by the filtered toxin. By properly conducted injections of the toxin into suitable animals, Bull had produced a blood serum which neutralized the action of the toxin both in vitro or in vivo. The antitoxin not only neutralized the toxin, but when injected into an animal prevented the development of the spores, and robbed the bacilli of their power to destroy tissue. The antitoxin, therefore, should be given whenever Welch bacilli could be recognized in smears or cultures from a wound, so as to prevent the development of gangrene. When the gas gangrene was already present the injection should be given and repeated every two hours until the fall in temperature and the increase in the number of red blood cells showed that the sapremia had been neutralized. Removal of the gangrenous area by excision or amputation should be done as soon as the patient's general condition warranted any operation. Three cases of infection by the Welch bacillus, with gas and gangrene present, were reported. Two patients recovered and one died. In all the cases the action of the antitoxin was prompt and decisive. In the successful cases the operations were excision of the gangrenous area from a shotgun wound, and amputation of an arm for compound fracture. In the fatal case, a thigh amputation was done following compound fracture, the result of an automobile accident.

The Development and Perfection of the Interposition Operation for Prolapse of the Uterus and Bladder.—Dr. I. S. STONE of Washington, D. C., stated that this operation was a result of the split-flap method of Arx and Sanger, who made a longitudinal incision through the anterior vaginal wall, and separated the bladder from it and the anterior wall of the uterus in the treatment of cystocele. Then came the various methods of Freund, Wertheim, and Mackenrodt, the latter calling his method vaginofixation, which was successfully used to overcome retroversion of the uterus. The methods of Freund and Wertheim, which were shown, involved turning the uterus out into the vagina and fixing the organ permanently in that position. This objectionable procedure was promptly followed by the method of bladder elevation upon the uterus and fixation of the uterus to the entire length of the upper and outer surface of the anterior vaginal wall, immediately upon the former site of the bladder. This operation was exploited by several continental surgeons, each of whom claimed priority, but it was absolutely certain that Duhrssen and Schauta in Germany and Austria respectively and Watkins in America were influenced by those operators who introduced vaginal fixation of the uterus, although they had or should have had the credit of developing, perfecting, and firmly establishing an operation which had proved the most reliable of all vaginal methods of treating prolapse of the uterus and bladder.

Long Resections of the Intestine.—Dr. J. E. CANNADAY of Charleston, West Virginia, said that all of the large intestine or half of the small bowel might be successfully resected. The habitual dietary of a race or a people might modify the length of the intestine to a considerable extent. Certain conditions, such as gangrene, gunshot wounds and tuberculosis, with multiple strictures, might bring about the necessity for such resections. There was a diarrheal tendency after such operations. The wastage of fats and albumins was large and must be met by generous additions to the diet. In the case reported by him there were multiple strictures of the small bowel, due to ileocecal tuberculosis. Ten feet of the small bowel, besides the cecum, and eight inches of the ascending colon were resected. Notwithstanding the fact that the patient had remaining an abnormally short small bowel, five feet, as shown by the post mortem, he made an operative recovery, and died some few weeks later of a fulminant type of pulmonary tuberculosis.

Intraabdominal and Slit Herniæ with Obstruction.—Major FRED W. BAILEY of St. Louis reported a case of hernia through the foramen of Winslow and six cases of slit herniæ or protrusions of the small bowel through apertures in the mesentery of the ileum and jejunum, gastrocolic omentum, omentum, and adventitious membranes. Acute obstruction with perforation of the gangrenous loop was present in the hernia into the lesser cavity, and death resulted. The issue was also fatal in an ileomesenteric hernia with volvulus and perforation. The remaining five recovered. There were four acute and two chronic obstructions in the group. Three of the cases were postoperative cases and three followed inflammatory processes in the peritoneal cavity. Believing that the present-day knowledge of the development, progress, and diagnosis of internal hernia had been clearly covered in the writings of Treitz, Moynihan, Jeanbrau, and Riche, and others, he refrained from unnecessary repetition. The majority of reports of cases of internal postperitoneal herniæ were discovered during operation or post mortem; in virtually all of them, acute obstruction was the predominant symptom; there were certain signs of impending obstruction which made mandatory immediate exploration; in the hands of a competent surgeon the exploratory incision was practically harmless, was a purely diagnostic step, and would, if applied with judgment, greatly lessen the mortality in acute obstruction. He made a plea for a more liberal campaign of public education in the danger signs, especially of acute abdominal disturbances, that early diagnosis and timely surgery might be given opportunity to conserve life.

Some Unusual Surgical Experiences.—Dr. ALBERT VANDER VEER of Albany, New York, said that his experience had brought him in contact with a class of cases, such as foreign substances in the esophagus, tra-

chea, the bronchi, also the rectum, requiring immediate treatment, a few of which he would like to report briefly. A boy, aged 7, while handling his father's lead pencil, loosened the head, and during the act of laughing this portion was inhaled. He coughed a little at first, but this soon ceased, and he was restless during the night. He was brought to the office the next morning, a distance of some fifty miles, breathing with considerable difficulty. On examination no respiratory murmur could be heard over the right lung, although there was no marked dullness on percussion. It was believed the foreign substance had lodged in the right bronchus, possibly just below the bifurcation. An anesthetic was carefully given, a rather rapid tracheotomy done, and curved forceps passed with much trouble down into the bronchus, where the substance could be felt. The first attempt at securing it did not succeed, but the second caught the edge and the tip was removed without any difficulty. Rather violent coughing followed. Upon prompt withdrawal of anesthetic, and after some considerable escape of mucus into the incision, the patient became conscious, was easily calmed, and very earnestly appreciated being told the pencil tip had been removed. He made a rapid recovery, and the trachea healed promptly. This case presented itself previous to the use of the x-ray. The speaker had seen fatal results from the toy mouth balloon, with immediate suffocation, yet with some remarkable recoveries from taking into the bronchus foreign substances, such as a kernel of corn, a bean, peanut shell, or portions of the peanut itself. He had seen some of these substances, particularly a locust pod, expelled as soon as an incision was made in the trachea, when a violent fit of coughing took place. He had also observed the abscesses that would sometimes result from foreign bodies, one, two, three, or four months after inhalation, in consequence of a large enough bronchus connecting with the cavity of the lung. With a sudden expectoration of pus the material would be discovered, although he had never operated upon an abscess of this sort from the exterior part of the chest. Metal substances, like a tack, or possibly a small nail in some instances, when inhaled, as he had observed, would become encysted, but any substance that would macerate was apt to be expelled. The most unfortunate, and quite impossible material to reach was a cork or some such substance. It could not be grasped by any ordinary instrument, and he did not think the bronchoscope had demonstrated reports of a sufficient number of successful cases to warrant much comfort, yet he believed it was in these cases such instruments were to prove of great value. A foreign substance would persistently remain permanently between the cricoid cartilage and the bifurcation, moving up and down, thus giving the child a chance to breathe, although lodged at that point. One such case would serve as an illustration. A girl aged 7 had inhaled a bean, and which was readily recognized as located in the respiratory tract. At times she would have severe attacks of coughing, but substance not expelled. She was brought to the hospital, no effort was made to remove it from above, but an immediate tracheotomy done, the bean found and removed, the patient making a good recovery. Foreign material taken into the esophagus, or the respiratory tract, and becoming lodged and encysted, might sometimes lead us astray regarding symptoms, as we gathered them from the patient. The following case was quite remarkable in many respects. Miss F. N., aged 20, in 1911, while dressing one evening, insisted she had swallowed a black-headed pin about 2 inches in length. She complained of distress in swallowing. The symptoms presented with such urgency that the speaker was induced to do an esophagotomy at the end of 24 hours. This was performed without any difficulty, but he was unable to find the pin at a point where it could be removed, although he could feel it through some thin tissue. He was obliged to admit it was outside of the esophagus, and not safe to attempt any further operative intervention. The patient made a good recovery, having a cough that was prolonged for quite a while, but which eventually disappeared. In the spring of 1916, during a severe paroxysm of coughing, Miss N. expectorated and noticed something in the material which she

thought was a bristle, but upon a more thorough examination was found to be the lost pin. The head had disappeared, and in handling it, thinking it a bristle, she broke off the little point. Here was a mistake in diagnosis. It was quite likely that she had inhaled this into the bronchial tube, instead of swallowing it. In examining her neck there was no evidence of any scar tissue to be observed; she has always had the thorough use of the neck muscles, and no trouble in swallowing. Undoubtedly the x-ray of today would have been of great service, and the bronchoscope most certainly so. Foreign bodies in the rectum had always been a source of considerable thought. Just how to remove them at one time gave him some little annoyance. At first they could easily be felt but not so readily grasped, and he early demonstrated in his own practice that it was safe to dilate the sphincter sufficiently so that a small-sized hand could be inserted, the substance being grasped in that way. It was well known that these foreign bodies had a very energetic way of getting up above the sigmoid flexure into the descending colon. He had come in contact with an ink stand, and such odd articles, but in the case he had in mind the foreign body was pushed into the rectum and caught in this manner. This specimen of candle, such as was used in the passenger cars of years ago, was most remarkable. The engineer of the train suffered from eczema about the anus and pruritus ani, and was in the habit of securing some relief by rubbing the parts with the end of a candle. While doing this on one occasion he suddenly became faint and sat down on the candle, which immediately disappeared in the rectum. It was difficult to reach this foreign substance and remove it, but it was finally accomplished with some considerable trouble by dilating the sphincter, when the candle dropped into view.

Sacral Teratoma; Glioma of the Upper Abdominal Region.—Dr. JAMES E. THOMPSON of Galveston said that the sacral teratoma was removed successfully from a child six months old. The tumor was as large as a cocoanut, and it was removed without any injury to the rectum. The tumor contained cartilage, unstriated muscle, gliomatous tissue, ependymal tissue and cysts lined by epithelium, and glandular elements, in which respect it resembled nearly all the teratomata that had been reported carefully. Its origin was attributed to irregular growth of the posterior growing point of the embryo. The second tumor occupied the upper abdominal region of an adult colored man. It was as large as a Rugby football. It was removed without particular difficulty, but its removal necessitated the removal of the spleen, the tail of the pancreas, and a portion of the greater curvature of the stomach. The patient made a very satisfactory convalescence. Microscopically the growth resembled a spindle-celled sarcoma. Careful examination revealed cellular elements, such as were seen in gliomatous tumors. Its probable origin was the splenic sympathetic plexus. Numerous lantern slides were shown illustrating the histological features of both of these tumors.

Traumatic Brain Surgery.—Dr. JOHN W. LONG of Greensboro, North Carolina, stated that traumatic brain surgery as seen in war was essentially like that of civil life, the principles governing both being in a large part the same. He substantiated his position by quoting from "War Surgery of the Nervous System," a recent volume issued by the War Department under the editorship of Major Seelig, as follows: "The laws of ballistics, trench life, the terrain of the battlefield, the problems of transport, and numerous other incidentals serve to modify established principles of surgery, but not more than that." His message was especially directed to that large number of southern surgeons who were being called from civil to military service. He would have them go to their new field of activity with that self-same confidence characteristic of the American hero, whether professional or in the ranks. They should know that although they go among strange peoples, speaking foreign tongues, their work as applied to brain surgery involved the same principles which they had been accustomed to follow in treating cracked skulls in railroad camps and pistol shot wounds of the head due to the time-honored custom of toting a gun in one hip-pocket and moonshine

liquor in the other. As to the various types of brain surgery, the brain might be seriously injured without wound of the scalp or external plate. Tangential, or gutter wounds, were usually accompanied by fracture of the internal plate, spicules of bone penetrating the bone substance and lacerating brain tissue. The mortality in this type of injury was high. An x-ray picture of a patient who had a penetrating wound of the brain two inches deep, made by a road pick, was shown. The patient was operated upon and made a good recovery. The essayist showed numerous x-ray pictures with abstracts of histories of gunshot wound of the brain, in some instances the bullet remaining in the brain. One case was that of a lad in whom the bullet lodged almost directly in the middle of the brain. A picture taken three years later showed that the bullet was still *in situ*. Many of the cases reported developed paralyses primarily which in every instance were relieved by the operation. Cerebral hernia was one of the most frequent complications following brain trauma. Of 650 patients with brain injury invalided back to England, 120 developed cerebral hernia. The largest brain clinic in this country never had a cerebral hernia. He reported a case of cerebral hernia developing from a late abscess of the brain due to trauma, in which the abscess eroded through the skull from inside out. The patient was operated upon and the skull perforation enlarged, the patient eventually making a good recovery.

(To be concluded.)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

OHIO STATE MEDICAL EXAMINING BOARD.

June 11, 12, 13, and 14, 1917.

(Concluded from page 133.)

PRACTICE.

1. Describe the symptoms of a moderately severe typhoid fever case at about the end of the second week, and give complications which might arise at that time.
2. What is mucous colitis? Differentiate it from appendicitis and outline treatment of a case.
3. What is aphonia? Give various causes and state how you would establish the diagnosis in a given case.
4. Give signs and symptoms of a well marked case of lobar pneumonia on the fourth day; what would be your treatment at that time?
5. What is the technical name of infantile paralysis? Describe the onset, course and termination of a well-developed case.
6. How would you recognize a case of epidemic cerebrospinal meningitis? Give treatment.
7. How would you recognize and treat a case of delirium tremens?
8. Give symptoms of a brain tumor in central region of the brain.
9. Give etiology of uremia.
10. Name the different clinical forms of la grippe, mention sequelæ and outline treatment.

OBSTETRICS.

1. Describe an acceptable method for relief of intracranial bleeding of new born.
2. Discuss relative value of rectal and vaginal examinations during labor.
3. Describe a practical method of minimizing labor pains.
4. How would you handle an interlocking twin case when both lie head downward?
5. Why is rupture of the uterus more common in the multipara than in the primipara?

SURGERY.

1. Name dangers and disadvantages of spinal anesthesia.
2. Give indications for trephining for Jacksonian epilepsy and describe method of brain localization.
3. Name the common anatomical varieties of hernia and advise treatment.

4. Differentiate cancer of the stomach from gastric ulcer.

5. Diagnose congenital dislocation of the hip and give treatment and prognosis.

PATHOLOGY, BACTERIOLOGY, HYGIENE, AND PUBLIC HEALTH.

1. Describe the healing of a nonapproximated infected wound in vascular tissue.

2. Describe the pathology of acute anterior poliomyelitis.

3. Describe the changes occurring in the heart (a) in aortic regurgitation; (b) in mitral stenosis.

4. Give the histological changes in the vermiform appendix as seen in the process of an acute suppurative inflammation of that organ.

5. Describe the histological picture of an epithelioma or epidermoid carcinoma of the lower lip.

6. Describe three unfavorable terminations of the exudate in lobar pneumonia.

7. Describe the technique of the Widal test and state its value in diagnosis.

8. How would you obtain specimen in suspected diphtheria and give method of making laboratory diagnosis?

9. What hygienic precautions would you take in a case of infantile paralysis?

10. Give in detail hygienic measures to be employed in a case of pulmonary tuberculosis.

DERMATOLOGY, SYPHILOLOGY, AND DISEASES OF EYE, EAR, NOSE, AND THROAT

1. Acne Vulgaris—give definition, symptoms, and treatment.

2. Give diagnosis and treatment of trachoma.

3. Give indications for the mastoid operation.

4. What is the significance of epistaxis?

5. Give point of difference between follicular tonsillitis and diphtheria.

ANSWERS.

PRACTICE.

1. During the second week of typhoid fever the temperature remains at a uniform level; typhoid state and delirium may be present. The pulse becomes rapid, weak, and dicrotic; the heart sounds are feeble; the tongue is coated, fissured, and tremulous; sordes appear on the teeth; the abdomen is distended; the stools are yellowish and offensive (said to be like pea soup); the Widal reaction may be positive; the spleen is enlarged; reddish spots may be found on the abdomen and chest.

Complications which may arise at this time are: Hemorrhage and perforation of the intestine; also albuminuria and bedsores.

2. "*Mucous colitis*, or mucous colic, is a chronic secretory neurosis of the colon, characterized by the regular or periodic passage of masses of mucus and paroxysms of abdominal pain. The chief phenomena are constipation, the passage of excessive quantities of mucus in the form of flakes, shreds, or casts of the bowel, indigestion, and paroxysmal attacks of intestinal colic. Symptoms of hypochondriasis, neurasthenia, or hysteria are also present in greater or less degree in most cases. Emaciation is sometimes marked. *Treatment*: The diet should be abundant and varied. Bulky foods are recommended. Mild laxatives, preferably frequent doses of castor oil, should be given. Tincture of nuxvomica in ascending doses with sodium bicarbonate is sometimes of service. Mild intestinal antiseptics may be beneficial. Colonic douches, with warm alkaline water or solution of silver nitrate (1:6000), or high injections of cottonseed oil (6 ounces), are often helpful."—(Stevens' *Manual of Practice*.)

For diagnosis of appendicitis, see DIAGNOSIS, Question 6.

3. *Aphonia*, or complete loss of the voice, occurs where the vocal cords cannot meet. Among the conditions which will prevent the approximation of the cords and cause aphonia are paralysis or paresis of the adductor muscles, on whatever cause it may depend; fixation of the cords by cicatricial contractions, or by ankylosis of the crico-arytenoid joints; their destruction by ulceration; any painful affection which makes the patient unconsciously rest them; or coating with

false membrane. But by far the most frequent cause of this aphonia is the abrogation or perversion of the will, occurring in the morbid mental condition of hysteria or other nervous disease; perfect power of phonation existing, but the patient, for months or years, declining to exercise the power, or to make the necessary effort. The intimate relations of the voice to the higher functions of the brain would lead us to expect that it would be influenced by the emotions. Thus we have a person hoarse with rage, speechless with terror, etc.; and the origin of these cases of nervous aphonia is frequently some sudden emotion, causing loss of control over the voice. Ziemssen believes that, even where the vocal cords cannot meet, by a great effort the patient may produce a hoarse, monotonous tone by vicarious vibrations of the ventricular bands.—(Quain's *Dictionary of Medicine*.)

4. *Lobar pneumonia at about the fourth day*: The patient lies flat in bed, often on the affected side; the face is flushed, particularly one or both cheeks; the breathing is hurried, accompanied often with a short expiratory grunt; the alæ nasi dilate with each inspiration; herpes is usually present on the lips or nose; the eyes are bright, the expression is anxious, and there is a frequent short cough which makes the patient wince and hold his side. The expectoration is blood-tinged and extremely tenacious. The temperature may be 104° or 105° F. The pulse is full and bounding and the pulse-respiration ratio much disturbed. Examination of the lungs shows the physical signs of consolidation—blowing breathing and fine râles.—(From Osler's *Practice*.) *Physical signs of lobar pneumonia*: "*Inspection*. In the second stage the healthy side rises normally, the affected side lagging behind. If both lower lobes are impervious to air the diaphragm cannot descend and the epigastrium does not project during inspiration, the breathing being conducted by the upper part of the chest (superior costal respiration). *Palpation*. In the second stage the vocal fremitus is markedly exaggerated, except in those rare instances of occlusion of the bronchi by secretion. The cardiac impulse is felt in the normal position. *Percussion*: In the second stage there is dullness over the affected parts, with an increased sense of resistance. Over unaffected adjoining areas the resonance is increased (Skoda's resonance). *Auscultation*. In the second stage there is harsh, high-pitched, bronchial respiration, at times resembling a to-and-fro metallic sound, except in those rare instances in which the bronchi are more or less filled with secretion. Bronchophony, or distinctly transmitted voice, is present and at times pectoriloquy, or distinct transmission of articulated sounds, may be heard. In the third stage the breathing changes from bronchial to bronchovesicular and the crepitant râle (crepitatio redux) returns. As resolution proceeds the breath sounds are associated with large and small moist and bubbling râles."—(Hughes' *Practice of Medicine*.)

Treatment: There is no routine treatment. The patient should be put to bed in a well-ventilated room; milk diet, and fractional doses of calomel followed by a saline should be administered. Symptoms are treated as they arise.

5. The technical name of infantile paralysis is acute anterior poliomyelitis. The onset is sudden, and is marked by fever, vomiting, convulsions, headache, restlessness, pain in the bones and muscles. Paralysis sets in in the course of a day or two; the lower extremities are chiefly affected. After a few days the paralysis may become less marked, but the muscles affected atrophy and lose their tendon reflexes. Permanent deformity may occur. Reaction of degeneration is observed.

6. *Cerebrospinal meningitis* has an incubation period varying from a few hours to a week or ten days. The onset may be gradual or sudden (generally the latter), and is usually marked by a chill and rise of temperature. Headache, rigid neck, and hyperesthesia are constant; and vomiting, and mental, motor and sensory symptoms are often present. In fatal cases paralysis, coma, and convulsions have been observed. The *diagnostic factors* are: The presence of the headache, retracted and rigid neck, and hyperesthesia; vomiting, fever, and convulsions; lumbar puncture shows increased pressure in the spinal fluid and the presence of

the *Diplococcus intracellularis meningitidis*. The presence of Brudzinski's sign and Kernig's sign are also said to be diagnostic. *Treatment* includes the use of Flexner's serum (injected into the subarachnoid space after about 40 c.c. of the spinal fluid has been withdrawn). The patient is to be kept in a dark room, with his head elevated (but not flexed) and an ice bag applied to head and spine. Nutrient enemata may be required; both bowels and bladder need to be watched. Nervous symptoms may demand an opiate or chloral; uterotripin is said to be of service.

7. *Delirium tremens*. "Very rare as the result of a single indulgence, this condition is frequent in habitual drinkers. It may follow upon injury, shock, or exposure, or may develop in the course of acute disease. It is to be distinguished from *mania a potu*, a transitory state of acute and often homicidal insanity which occasionally replaces ordinary intoxication in those of nervous heredity. The onset of delirium tremens is accompanied by irritability, restlessness, and disturbed sleep. Tremor is marked. The patient talks to himself, or answers imaginary voices. In a day or two visual hallucinations of moving animals (rats, snakes, or insects) appear, from which he tries to escape, often by springing out of bed; noisy delirium is present; perspiration is abundant; the temperature is somewhat elevated, and the pulse rapid and soft; and there is complete insomnia. Sleep returns as a rule about the third day, but in severe cases it may not do so till the fifth. In fatal cases, death may be due to exhaustion or the patient may die comatose or convulsed.

Treatment: "*Delirium tremens* being due to a toxemia, the first object of treatment is rapid elimination of the poison. Alcohol must be stopped at once, the popular idea that it is required to prevent collapse being altogether fallacious. Treatment should begin with a brisk mercurial purge. Many authorities advise sedatives and narcotics, and push them from the outset. But they do not act unless in large and repeated doses, and these may have a dangerous cumulative effect. Sleep usually returns about the third day; if it does not, sedatives may then be carefully used. Chloral is safer than morphine; and hyoscine, gr. 1/150-1/100, is often effectual. The diet must be fluid and bland, and vigilant nursing is essential. The strait-jacket should be used only when absolutely necessary."—(Wheeler and Jack's *Handbook of Medicine*.)

3. *Brain tumors*. "The symptoms common to all cerebral tumors are: Headache, persistent and increasing in intensity; defects of vision, even blindness, due to an optic neuritis, a very constant symptom; defects of hearing, taste, and of speech, the result of paresis of the vocal cords; vertigo, associated with nausea and vomiting and convulsions, epileptiform in character. These convulsions are usually limited to one side of the body and occur at regular intervals. They may be localized (Jacksonian epilepsy) to one or more groups of muscles and are never attended with loss of consciousness. Nystagmus is sometimes present. Palsies such as strabismus, ptosis, dilatation of the pupil, facial palsy, paraplegia, and hemiplegia are not uncommon symptoms. Defects of sensibility such as sensations of numbness and coldness in the limbs and body may also occur. Occasionally, there are disturbances of equilibrium, manifested by a tendency, when standing, to go backward or turn to the right or left. The intellectual faculties may be well preserved until late in the affection, when irritability of temper, depression of spirits, impairment of memory, emotional disturbances, and a gradually advancing dementia may develop. Slowing of the pulse, insomnia, and increased secretion of urine sometimes accompany cerebral tumors. The focal symptoms of the central region of the brain include motor aphasia, monoplegia, partial anesthesia, and Jacksonian epilepsy."—(Hughes' *Practice of Medicine*.)

9. *Etiology of uremia*. It is an auto-intoxication, due to disordered renal function; nitrogenous substances are probably retained in the blood. Acidosis, the toxic action of abnormal products of metabolism, and failure of some internal secretion of the kidney have also been urged as causative factors. Probably no one theory will explain all cases.

10. *Clinical forms of la grippe*. Respiratory type, gastrointestinal type, nervous type, and the typhoid type. *Sequelae* are: Nervous disorders (such as neu-

ralgia, neuritis, epilepsy, insanity, myelitis, cerebral hemorrhage), otitis media, headache, albuminuria, and chronic nephritis. *Treatment* consists of rest in bed; the pain may be relieved by phenacetin or sodium salicylate; the fever may be reduced by quinine or aconite; the diet must be regulated; liquor ammonii acetatis or Dover's powder may be given; tonics may be required, particularly if there are indications of heart failure.

OBSTETRICS.

1. *Intracranial bleeding of the newborn*. "The treatment of cerebral hemorrhage in infants is symptomatic. It consists of the administration of sodium bromide and chloral, of each two grains per rectum every six hours; mother's milk and quiet; icecap. Human or horse serum may be administered in an attempt to arrest the bleeding. Lumbar puncture may be used for diagnosis; as a therapeutic measure it offers little hope. The same is true of puncture of the fontanel, though in appropriate cases this should be tried. If the symptoms point to cortical pressure, that is, if they are localized, trephining should be considered. More is to be hoped from a decompression operation than we have heretofore expected."—(DeLee's *Obstetrics*.)

2. *Vaginal examination* shows the condition of the vagina and vaginal orifice as regards their patency and freedom from obstruction; also their temperature, moisture, and freedom from tenderness; the condition of the os uteri, its degree of dilatation, thickness, consistency, elasticity; to what stage labor has progressed; whether the bag of waters has ruptured; what the presentation is; the condition of the pelvis, whether normal or deformed; the state of the bladder and rectum. The one disadvantage is the liability to infection. *Rectal examination* is less liable to cause infection, but it is less satisfactory, in that it gives much less information than vaginal examination, and it is more distasteful to the patient.

3. *To minimize labor pains*. "When the pains are well established and are good, strong and regular, much relief may be given the patient by the administration of morphine and scopolamin hypodermatically into the arm or buttocks. The initial dose should be morphine sulphate $\frac{1}{4}$ grain, scopolamin 1/150 grain, followed in one hour by a second injection containing 1/200 grain of scopolamin; if the 'dammerschlaff' is not produced, the scopolamin may be repeated in an hour. The woman continues to have labor pains, but when roused has no recollection of her suffering."—(Polak's *Manual of Obstetrics*.)

4. "When both heads present at the brim, one may be pushed up out of the way by combined internal and external manipulation, and forceps then applied to the other to bring it down into the pelvic cavity. When both heads have passed the brim, push back the second one and apply forceps to the first (the lower) one. Should this be impracticable from the heads having descended too far, the lower head, and then the other, may be successively delivered by forceps. If this method fail craniotomy may be required, preferably on the first (lower) head, the second being more likely to survive. The same mode of treatment may be necessary when one head, having passed the brim, is arrested by jamming of the thorax against the second head, either at or above the brim. When pushing back the locked presenting parts appears impossible, it may still be made easy, in some cases, by placing the woman in a knee-chest position, which should always be tried before any serious operation; the parts go back by gravitation."—(King's *Manual of Obstetrics*.)

5. *Why rupture of the uterus is more common in the multipara than in the primipara*. "Naturally the lax and atrophied uterine wall of a woman who has borne many children does not stand the strain of labor as well as it once did. Then, too, in these days of repeated cesarean section, such a uterus not very infrequently contains a weak spot in the shape of a long cicatrix. Again, such a cicatrix may be the result of efforts to remove an adherent placenta."—(Shears' *Obstetrics*.)

SURGERY.

1. *The chief dangers of spinal anesthesia* are: Infection, injury to the spinal cord, loss of respiratory power, paralysis, poisoning from the drugs employed, and death.

The chief disadvantages of spinal anesthesia are:

The anesthesia is not always perfect; the patient is conscious, and therefore knows what is transpiring; its mortality is greater than that of ether; the after-effects are often severe and protracted, and may be very serious.

2. *Indications for trephining for Jacksonian epilepsy.*—These are thus given in Jacobson's *Operations of Surgery*: The operative treatment of Jacksonian epilepsy of non-traumatic origin is admissible under certain conditions, e.g. if an operable cortical affection (cyst, tumor, or abscess) is probably present. Should this not be so the prospects of a successful operation are slight. Operation is indicated in cases of cortical epilepsy following injury, especially if the cicatrix practically corresponds to a motor area. If at a distance from the Rolandic area the point for trephining should be that indicated by the attack. In all cases scars, spicules of bone, etc., should be removed. In many cases it is advisable also to excise the cortical center.

The motor areas are located and arranged on the cerebral cortex immediately in front of the fissure of Rolando. At the upper part of the convolutions in front of this fissure are areas connected with the movements of the lower extremities; then from above downward are located the centers for movements of the shoulders, arms, wrists, fingers, face, lips, tongue, larynx, and pharynx. Broca's area (*motor for speech*) is situated in the posterior part of the left inferior frontal convolution (in right-handed persons); it is probably a coordinating area which presides over the efferent impulses which leave the areas of the tongue, lips, and larynx, and which, when properly coordinated, result in speech. The visual areas are situated in the occipital lobes; the auditory areas are present in the superior temporo-sphenoidal lobes, and the olfactory and gustatory centers are present in the anterior part of the temporo-sphenoidal lobe. The areas for cutaneous and kinesthetic sensibility are situated posterior to the fissure of Rolando. There are three association areas: the anterior one in the most anterior part of the frontal lobes; the middle one in the gray matter of the island of Reil, and the posterior one in the posterior portion of the parieto-temporal region.

To locate the fissure of Rolando on the scalp: Draw a straight line over the top of the scalp from theinion to the glabella; bisect this line, and half an inch posterior to the midpoint draw a line downward and forward at an angle of 67.5° for a distance of three and one-half inches. This line will represent the location of the fissure of Rolando.

3. The anatomical varieties of hernia are:

- | | | |
|--------------|---------------|------------------------------|
| 1. Inguinal | Oblique | Acquired |
| | | Congenital |
| | Direct | Infantile or encysted |
| | | External |
| Interstitial | Internal | |
| | Intraparietal | |
| | Interparietal | |
| | | Extraparietal |
| | | [Incomplete, or Bubonocele.] |
| 2. Femoral | | |
| 3. Umbilical | Congenital | |
| | Of infants | |
| | Of adults | |
| 4. Ventral. | 5. Lumbar. | 6. Obturator. |
| | | 7. Diaphragmatic. |
| | | 8. Pudendal, etc. |

Operative treatment is the best, unless there are distinct contraindications.

For inguinal hernia, many operations are practised, but Bassini's is the most useful. "An incision 2½ inches long is made over the inguinal canal, exposing the structures of the cord and the external oblique. The external oblique fibers are split from the apex of the external ring to expose the canal. The sac is found, opened, emptied of its contents, and isolated from the structures of the cord up to the internal ring. If the hernia is irreducible, the intestine is freed and returned to the abdomen, omentum being ligatured and removed. The neck of the sac is then transfixed and tied with silk, and the fundus removed. The stump returns to the abdomen, three or four stitches are then passed through the conjoined tendon and arched fibers of the internal oblique and transversalis muscles above, and the deep part of Poupart's ligament below. These are tied behind the cord. The external oblique is then

sutured in front of the cord, leaving just sufficient opening for it to pass through without pressure. The skin is then closed by a continuous stitch. The patient should be kept in bed for three weeks, and should not exert himself for at least six weeks. If the wound has suppurated, or if the case is one in which the abdominal muscles are weak, it is advisable that a light truss should be worn afterward for six months."—From *Aids to Surgery*.)

4.—

CANCER.	ULCER OF STOMACH.
Is rare under forty years of age.	Usually in young adults, especially women.
Epigastric pain is more or less continuous, and not much relieved by vomiting.	The pain is rendered worse by food, and vomiting gives much relief. The pain is also more localized and xiphi-vertebral in character.
Anorexia is marked.	Appetite is good, but the patient is afraid to eat.
Vomiting is not frequent, but is copious; and in the vomited matter the Oppler - Boas bacillus may be found. Cancerous fragments are rare. Free HCl is diminished or absent, and lactic acid is often present.	Vomiting is frequent, and the vomited matter contains free HCl often in excess.
Hemorrhage is seldom copious, but may be frequent ("coffee-ground" vomiting); most common in the later stages.	Hemorrhage is not so frequent, but is copious at times. May be the first symptom.
Loss of flesh; the development of cachexia is rapid.	When the gastric symptoms are severe and prolonged, a cachectic appearance may develop, but never to the same extent as in cancer.
Epigastric tumor is usually easily detected.	No epigastric tumor, though there may be some rigidity of the rectus.

—(Wheeler and Jack's *Handbook of Medicine*.)

5. CONGENITAL DISLOCATION OF THE HIP. *Symptoms.*—"The first evidences are limping, and shortening of the leg, and the trochanter is seen to project. By manipulating the leg with the pelvis fixed, the movements are found to be abnormal, and in thin children the head may be felt rolling on the ilium. The trochanter lies above Nélaton's line, and there is lordosis, and scoliosis toward the affected side, both of which disappear on laying the child on its back. If the child stands on the affected leg, the pelvis (and with it the gluteal fold) hangs at a lower level. In double dislocation these signs are all present, and in addition there is a more waddling gait, and generally more prominence of the buttocks. *Diagnosis* from other conditions. In *rachitic deformity* with lordosis and waddling gait, the bone lies on Nélaton's line, and cannot be moved from the acetabulum. In *coxa vara*, with the trochanter above Nélaton's line, and shortening of the legs, there is inability to abduct them, and no unnatural mobility of the head. In *paralytic dislocation* with displacement similar to that of the congenital form, the head is easily replaced, and there is weakness and flabbiness of the muscles, and paralysis of the legs. In *contractures following tubercular hip disease*, there is want of the free mobility seen in dislocation."—(Buchanan's *Surgery*.)

Treatment is not very satisfactory. If the deformity is discovered before the child walks, an attempt should be made to get the head into the acetabulum and keep it there by fixing the leg in plaster in the fully abducted position for twelve months. From two to five years of age *Lorenz's bloodless method* has its advocates. (1) The abductors which prevent reduction are ruptured subcutaneously by manipulation; (2) the head is replaced in the acetabulum by flexion and abduction, and fixed by plaster with the leg in that position; (3) at the

end of six months the leg is gradually brought down into the straight position. After five or six years of age, *Hoffa's operation* may be done; i.e. the joint is freely opened, the acetabulum is enlarged, and the head is shaped up to fit it. The limb is then immobilized in the abducted and everted position. In many cases a high boot on the side of the deformity is perfectly satisfactory."—(*Aids to Surgery*.)

PATHOLOGY, BACTERIOLOGY, HYGIENE, AND PUBLIC HEALTH.

1. *Healing by granulation or second intention* occurs when the edges of the wound have not been brought together, when the edges have been so damaged that sloughing occurs, when sepsis has prevented healing by first intention. Exudation of plasma and leucocytes occurs, followed by fibroblasts and budding from the capillaries, thus forming granulation tissue. The dead tissues or sloughs are separated, and a red area of granulation is then exposed. The deeper layer of granulation tissue is converted into fibro-cicatricial tissue, which contracts, and so the wound gradually lessens in size. In the meantime epithelium spreads in from the edge over the surface, and so the scar is complete."—(*Aids to Surgery*.)

2. *Pathology of acute anterior poliomyelitis.* "The primary changes are in the vessels of the anterior horn (anterior spinal artery), which are congested, distended, and surrounded by small-celled infiltration. Thrombosis is common, but not necessarily present. Secondary interstitial changes take place in the gray matter, and its multipolar cells undergo cloudy swelling and ultimate destruction. Degenerative changes can be traced into the anterior roots. Later, the motor nerve trunks show marked change, the fibers being smaller and fewer in number. The neuroglia becomes increased, and the anterior horn as a whole is sclerosed and shrunken. The muscles are pale and flabby; atrophy begins early and is well marked; and microscopically, they show loss of their transverse striations and increase of fibrous tissue, as the result of destruction of their trophic center. In the epidemic form there may be vascular irritation and cellular infiltration in the higher centers, but the ganglion cells of the medulla, pons, and optic thalamus usually escape. Flexner describes extensive hyperplasia of lymphoid tissues, and necrosis of small groups of liver cells."—(Wheeler and Jack's *Handbook of Medicine*.)

3. In *aortic regurgitation*, the left ventricle becomes at first dilated and then hypertrophied; the heart may become enormously enlarged; failure of compensation ensues. The gradual enlargement of the left ventricle leads to mitral insufficiency with dilatation of the left auricle followed by hypertrophy of the right ventricle.

In *mitral stenosis*, the left auricle becomes hypertrophied and dilated; this is followed by dilatation and hypertrophy of the right ventricle.

4. *Catarrhal appendicitis* is characterized by slight swelling and minute erosions of the mucosa. The muscular and serous coats will show slight infiltration and the lumen will contain epithelial and pus cells. In the *necrotic or gangrenous* variety the inflammatory processes are destructive. The mucosa is destroyed and the muscular and serous layers are soon attacked. The inflammation involves neighboring surfaces and a fibrinous peritonitis develops. This may be local, and by giving rise to adhesions between adjacent tissues no further extension takes place. The process may be very rapid and perforation follow before any restricting adhesions form; this is accompanied by a general and frequently fatal peritonitis. In *interstitial* appendicitis there is a tendency toward excessive connective-tissue formation and it generally terminates as a chronic thickening.—(McConnell's *Pathology*.)

5. "Squamous epitheliomata present themselves as nodular, wart-like elevations of the skin or mucous membrane, tending to become ulcerated on the surface. Those of the mucous surfaces are more elevated and softer. Histologically there are seen branching columns of epithelial cells extending downward from the papillae of the skin into the deeper structures. These consist of large translucent squamous cells which show a tendency to arrange themselves in certain places concentrically to form epithelial *perles*. The latter

frequently undergo a horny transformation and sometimes even calcareous change. Metastasis is frequently seen in the neighboring lymphatic glands, but the malignancy is less marked than in glandular carcinomata."—(Stengel.)

6. *Three unfavorable terminations of the exudate in lobar pneumonia:* "(1) The lung may become the seat of purulent infiltration—diffusely infiltrated with polynuclear leucocytes and appearing yellowish, soft, and puriform to the naked eye. (2) In other cases the lung process goes on to abscess formation (one large abscess or several small abscesses that usually fuse to form a large one)—due often to secondary infection with streptococci and other pyogenic microorganisms; or a portion, or an entire lobe becomes gangrenous—due to defective blood supply and to secondary infection with putrefactive bacteria. (3) In other cases resolution is delayed and may be followed by induration of the lung, or tuberculosis."—(Kelly's *Practice of Medicine*.)

7. Widal's test in typhoid fever "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their motility and gather in groups, the whole called 'clumping.' Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. . . . A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps and cease their rapid movement inside of twenty minutes."—(From Thayer's *Pathology*.)

Its diagnostic value is believed by some to be great; others place little reliance on it. It may be absent in cases of typhoid fever; it may be present for several months after an attack of typhoid; the reaction may not be obtained till the third week of the disease; it may be present in other diseases or in perfectly healthy persons. The above have all been urged as objections; certainly, only positive results have any value at all.

8. A sterile swab is rubbed over any visible membrane on the tonsils or throat and is then immediately passed over the surface of the serum in a culture tube. The tube of culture, thus inoculated, is placed in an incubator at 37° C. for about twelve hours, when it is ready for examination. A sterile platinum wire is inserted into the culture tube, and a number of colonies of a whitish color are removed by it and placed on a clean cover slip and smeared over its surface. The smear is allowed to dry, is passed two or three times through a flame to fix the bacteria, and is then covered for about five or six minutes with a Loeffler's methylene-blue solution. The cover slip is then rinsed in clean water, dried, and mounted. The bacilli of diphtheria appears as short thick rods with rounded ends; irregular forms are characteristic of this bacillus, and the staining will appear pronounced in some parts of the bacilli and deficient in other parts. *Methods of culture:* The bacillus of diphtheria grows upon all the ordinary culture media, and can be readily obtained in pure culture. Loeffler's blood serum, particularly with the addition of a little glucose, is an admirable medium for the rapid growth of this bacillus. The medium should be alkaline and not less than 20° C.

The characteristics of the bacillus of diphtheria: The bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly or in pairs, or in irregular groups, but do not form chains; they have no flagella, are nonmotile, and aerobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue.

9. *Hygienic precautions in a case of infantile paralysis:* "No definite or effective system of prevention

can be formulated until we are sure of the mode of transmission. Meanwhile health authorities are entirely justified in requiring cases to be reported, isolated, and all known lines of preventive measures applied, such as disinfection, screening, and guarding against insects, allaying unnecessary dust, etc. A fly campaign directed with especial reference to the stable fly is plainly indicated, and the infection must also be fought as one conveyed from man to man directly. . . . The following measures are recommended: The patient should be isolated as completely as possible in a clean, bare room, well screened to keep out insects. Visiting should be interdicted, and only the necessary attendant should be allowed to come in contact with the patient. All discharges should be thoroughly disinfected, and special care should be taken that cups, spoons, remnants of food, etc., which may have become contaminated by the patient are burned, scalded, or otherwise purified. Towels, bed linen, and other fabrics should be boiled or dipped into a germicidal solution strong enough to destroy the typhoid bacillus. The nurse and physician should observe the same precautions regarding their hands and clothing as they would in attending a case of scarlet fever. . . . Since the virus can be killed experimentally by a 1 per cent. solution of peroxide of hydrogen, antiseptic gargles, sprays, and nose washes of this solution are recommended to be used by the patient, the nurse, and physician, and other members of the family. Street and house dust should be kept down by sprinkling or oiling. During epidemics children should be kept away from public gatherings, prohibited from using public drinking cups, and special attention given to the diet to prevent gastro-intestinal disorders, for many a case of infantile paralysis starts with a digestive upset."—(From Rosenau's *Preventive Medicine and Hygiene*.)

10. *Hygienic precautions to be taken in case of tuberculosis:* "The patient's quarters should be free from dust, and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spit-cups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practising lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. . . . The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily sponge-baths of lukewarm alcohol and water."—(Thompson's *Practical Medicine*.)

DERMATOLOGY, SYPHILOLOGY, AND DISEASES OF EYE, EAR, NOSE, AND THROAT.

1. *Acne* is an inflammatory disease occurring in and around the sebaceous glands, characterized by papules, tubercles, or pustules, affecting chiefly the face, and running a more or less chronic course. *Symptoms:* The forehead, cheeks, and chin are the regions usually affected, although the chest, shoulders, and back are not infrequently involved. The lesions are papular, pustular, or nodular, or a combination of these may be present. Comedones or blackheads and oily seborrhea often coexist, the former frequently giving rise to acne lesions. The primary manifestations are pinhead- to pea-sized, bright- or dark-red, discrete papules appearing at the orifices of the sebaceous glands and hair-follicles. These vary in number from two or three to several dozen. After a period of a few days or weeks the lesions either become pustular and discharge or undergo absorption, being followed by reddish stains or, in some cases, by scars. A new crop succeeds the old, the affection thus continuing for months or years.

Treatment: The underlying cause must be removed; generally dyspepsia and constipation need correction. Hygienic measures such as cold baths, exercise, regular habits are indicated. The diet may need regulation. Local remedies, as sulphur, may be applied in

the form of salves or pastes; ointment of zinc sulphide has been recommended; so, too, have mercurials and the use of the x-rays.

2. *TRACHOMA.*—*Symptoms:* Often the presence of the disease is unsuspected until the lids are everted. Usually there is more or less photophobia and discharge with lachrymation; there is slight ptosis, and the edges of the lid are purplish and thick. When the lids are everted, the upper lid is found most affected. The papillæ are exaggerated so that they look like plush pile (papillary form), and the lymph follicles of the eye are enlarged and prominent (granular form), so as to suggest sago grains or frog's spawn. Both features may be present in one case (mixed form). The discharge is intermittent and contagious; it is rarely great in quantity.

Treatment consists in an attempt to reduce the inflammatory symptoms and secretion, and to check and remove hypertrophy of the conjunctiva, thus shortening the duration and diminishing the liability to conjunctival cicatrization and to sequelæ. This is accomplished either by the use of certain irritating applications, or by mechanical (surgical) means.

Irritating applications: Sulphate of copper in the form of a crystal or pencil is the favorite local application. Nitrate of silver (1 or 2 per cent. solution), glycerole of tannin (5 to 25 per cent.), and the alum stick are also employed.

Mechanical (surgical) treatment includes expression, grattage, excision, curetting, electrolysis, x-rays, and galvanocautery."—(From May's *Diseases of the Eye*.)

3. *Indications for the (radical) mastoid operation* are thus given in Jacobson's *Operations of Surgery:* Generally speaking, the operation is called for in chronic suppuration in the middle ear and mastoid. The following are the chief indications for the operation in a patient suffering from chronic suppurative otitis media: (1) When acute mastoid disease becomes chronic, i.e., the wound behind the ear does not heal, and discharge of pus from the ear persists. (2) Recurring attacks of swelling and pain over the mastoid process. (3) The spontaneous occurrence of facial paralysis. (4) Recurrent attacks of vertigo, either spontaneous or from syringing. (5) When cholesteatomata are present in the attic and the mastoid. (6) For tuberculous disease of the mastoid. (7) For necrosis of the temporal bone or for recurring masses of granulations springing from carious areas. (8) When occlusion of the meatus is associated with a chronic purulent discharge. (9) When intracranial complications are present.

4. *Epistaxis* may be due to some disordered condition of the blood (purpura, hemophilia, plethora, anemia, chlorosis), diseases of the blood vessels, atheroma, syphilis, increased blood pressure (from nephritis, or disease of heart, lungs, or liver), ulcerations and tumors of nose, traumatism, certain infectious diseases (typhoid, pneumonia, measles, scarlet fever, diphtheria, influenza); it may be a precursor of cerebral hemorrhage; rarely, it may be a form of vicarious menstruation.

5. In *diphtheria* the onset is more gradual; the temperature rises to about 101° to 103° F.; the tonsils are not much enlarged; there is an exudate of a thick grayish membrane which is very adherent, is removed only with difficulty, and leaves a bleeding surface; this membrane soon re-forms, and may be found on the fauces and pharynx as well as on the tonsil; in the exudate the Klebs-Loeffler bacilli may be found. In *follicular tonsillitis* the onset is more sudden; the temperature may be a little higher than that of diphtheria; there is no membrane, but the tonsils are red and swollen, and in the crypts are seen white cheesy spots or plugs, which consist of broken-down epithelium, and are easily brushed away; Klebs-Loeffler bacilli are never found.

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†
Alabama*	.....	Montgomery.....
Arizona*	J. W. Thomas, Phoenix.....	Phoenix.....
Arkansas.....	T. J. Stout, Brinkley.....	Little Rock..... May 14
California.....	C. B. Pinkham, Sacramento.....	Sacramento.....
Colorado.....	David A. Strickler, Empire Building, Denver.....	Denver..... April 2

Connecticut*	Chas. A. Tuttle, New Haven	New Haven.	Mar. 12
Delaware	J. H. Wilson, Dover	Wilmington	June 18
Dist. of Col.*	E. P. Copeland, Washington	Washington	April 9
Florida*	W. M. Rowlett, Tampa	Jacksonville	
Georgia	C. T. Nolho, Marietta	Atlanta	May 30
		Augusta	
Idaho*	Charles A. Dettman, Burke	Pocatello	April 2
Illinois	F. C. Dodds, Springfield	Springfield	Feb. 6
Indiana	W. T. Gott, Crawfordsville	Indianapolis	July 9
Iowa	G. H. Sumner, Des Moines	Des Moines	Feb. 5
Kansas	H. A. Dykes, Lebanon	Topeka	Feb. 12
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. W. Mahler, New Orleans	New Orleans	June 6
Maine	F. W. Searle, Portland	Portland	Mar. 12
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 18
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston	Mar. 12
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Ann Arbor	June 11
Minnesota	T. McDavitt, St. Paul	Minneapolis	April 2
Mississippi	J. D. Gillevlen, Jackson	Jackson	
Missouri	G. H. Jones, Jefferson City	Jefferson City	Mar. 19
Montana*	S. A. Cooney, Helena	Helena	
Nebraska	J. J. Ilompes, Lincoln	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	May 6
N. Hampshire	Walter T. Crosby, Manchester	Concord	June 24
New Jersey	A. MacAlister, Trenton	Trenton	June 18
New Mexico	R. K. McManahan, East Las Vegas	Santa Fe	April 8
New York	H. H. Horner, Univ. of State of New York, Albany	New York	May 21
		Albany	
		Syracuse	
		Buffalo	
N. Carolina	H. A. Royster, Raleigh	Raleigh	June
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks	July 2
Ohio		Columbus	
Oklahoma	J. J. Williams, Weatherford	Oklahoma City	April 9
Oregon	B. E. Miller, Portland	Portland	July 2
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia	
Rhode Island	B. U. Richards, Pawtucket	Providence	April 4
S. Carolina	H. E. Booser, Columbia	Columbia	
S. Dakota	P. B. Jenkins, Waubay	Deadwood	July 9
		Memphis	
Tennessee	A. B. DeLoach, Memphis	Nashville	June
		Knoxville	
Texas	M. F. Bettencourt, Mart	Austin	June
Utah	G. F. Harding, Salt Lake City	Salt Lake City	April 1
Vermont	W. Scott Nav, Underhill	Burlington	Feb. 12
Virginia	J. W. Preston, Roanoke	Richmond	
Washington*	C. N. Suttner, Walla Walla	Tacoma	July 2
W. Virginia	S. L. Jepson, Charleston	Charleston	June
Wisconsin	J. M. Dodd, Ashland	Milwaukee	June 25
Wyoming	H. E. McCollum, Laramie	Laramie	Feb. 6
National Board	J. S. Rodman, 310 Real Estate Trust Building, Philadelphia, Pa.		

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

THE SURGICAL CLINICS OF CHICAGO. December, 1917. Vol. 1, No. 6. 1350 pages. Illustrated. Price, \$10.00 a year. Published bi-monthly by W. B. Saunders Company, Philadelphia and London.

THE MEDICAL CLINICS OF NORTH AMERICA. November, 1917. Vol. 1, No. 3. 811 pages. Illustrated. Price, \$10.00 a year. Published bi-monthly by W. B. Saunders Company, Philadelphia and London.

BALDNESS, ITS CAUSES, ITS TREATMENT AND ITS PREVENTION. By RICHARD W. MULLER, M.D. 178 pages. Illustrated. Price, \$2.00. Published by E. P. Dutton & Company, New York.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by H. R. M. LANDIS, M.D. Vol. IV. Twenty-seventh Series, 1917. 314 pages. Illustrated. Price, \$2.00. Published by J. B. Lippincott Company, Philadelphia and London.

BIRTH FRACTURES AND EPIPHYSEAL DISLOCATIONS. By EDWARD D. TRUEDELL, M.D. 135 pages. Illustrated. Price, \$4.00. Published by Paul B. Hoeber, New York.

DISEASES OF THE SKIN, THEIR PATHOLOGY AND TREATMENT. By MILTON B. HARTZELL, A.M., M.D., LL.D. 753 pages. Illustrated. Price, \$7.00. Published by J. B. Lippincott Company, Philadelphia and London.

DISEASES OF THE HEART. By EDWARD E. CORNWALL, Ph.B., M.D. 127 pages. Price, \$1.50. Published by Rebman Company, New York.

Therapeutic Hints.

Treatment of Lobar Pneumonia.—Scott gives the following therapeutic measures for this very prevalent condition: The open-air treatment is the latest and best in the therapeutics of this disease. The patient must be well wrapped up and protected, and then allowed all the fresh air that is available; it is beneficial in every way, modifying most of the symptoms and aiding all forms of medication. If patients are allowed more fresh air at the beginning of the disease, less call for oxygen will be made at the end; fresh air bears about the same relation to canned oxygen that good porterhouse steak does to embalmed beef.

The diet must be of the most nutritious but easily digested food, and given at periods of every three hours, watching that it be assimilated. A distended stomach and abdomen are dangerous. Strong black coffee throughout the disease is valuable. Liquid or semi-solid substances, such as milk, broth, eggs, etc., are especially valuable.

If gastrointestinal conditions are present, a calomel purge is indicated. The administration of arterial sedatives, such as aconite, veratrum viride, may also be used. In pneumonia of children, small, frequently repeated doses of tincture of aconite are useful in the early stage. Continuous creosote inhalations are beneficial. If heart is weak, digitalis, citrated caffeine, nitroglycerin, sparteine, or strychnine may be given.

During the second stage indications are to sustain the heart and to lessen the fever. Strychnine sulphate, gr. 1/32 to 1/20 every three hours by mouth or hypodermically, citrated caffeine, gr. ij to v, every four hours, or tincture of strophanthus, mxx to x, every three hours, prove strong cardiac allies. The employment of digitalis and nitroglycerin depends on the circulatory conditions. If tension is low, digitalis in full doses is indicated; if tension is high, with right heart embarrassed, nitroglycerin combined with aromatic spirits of ammonia, should be administered every hour or two. Alcoholic stimulants, judiciously administered, are helpful in overcoming cardiac weakness. Small doses are indicated at first and the heart's condition is indicated by the pulse. In the aged or feeble, alcohol should be used from the first. Other indications would be a frequent, feeble, irregular, or intermitting pulse; a dicrotic pulse; delirium, muscular tremor, and subsultus; immediately following crisis, and the period of collapse. Hypodermoclysis of hot normal salt solution is also recommended. When collapse threatens, camphorated oil hypodermically is of great service.

For the cough, morphine, codeine, Dover's powder, citrate of potassium, ammonium chloride, and ammonium carbonate are beneficial.

In the third stage the treatment is a continuation of the second, with the addition of the following formula:

R Ammonii chloridi . . . gr. v to x (0.3 to 0.6)
Strychnina sulphat . . . gr. 1/24 (0.003)
Aqua chloroformi . . . f5j (4.0)
Syr. prun. virg. f5iij (12.0)

M. et Sig.—Every three hours diluted.—Hughes' *Practice of Medicine*.

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Original Articles.

SOME THERAPEUTIC CONSIDERATIONS OF PERIODIC MENTAL DEPRESSIONS.*

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THE prognosis of cyclothymia or periodic mental depressions and excitements ranging in severity from the so-called neurasthenic types or simple mental retardation to the severest grade of manic-depressive insanity, is well known to be poor. While recovery from individual attacks almost invariably occurs, making the disorder one of the most benign of the psychoses, the completeness of recovery in the interval period and the possibility of ridding the sufferer from interval symptoms as well as a recurrence of his disorder at some future time, is a problem which psychiatry has still to solve. Fairly obvious reasons why this should be so are in evidence, as shown in the inheritance and the makeup of such individuals. Practically our efforts to overcome these defects in the past have been confined to laying down simple rules in mental hygiene for the individual depressant and warning him especially from the life stresses and conflicts frankly shown to have been precipitating factors in the specific attacks from which he may already have suffered.

For instance, in a cursory review of the literature upon prevention of attacks in periodic depressants, the record is especially barren. The subject is closely bound up with the general rules laid down as prophylactic measures for all individuals with hereditary taint of psychotic reactions. Here the prevention concerns broad rules of avoiding harmful factors which may be social, pedagogic, psychic, or somatic, principles fairly well known to all dealing with psychotic individuals. On account of the innate inability of many cyclothymics to really understand themselves, and furthermore because they are frequently impenetrable pessimists, Kraepelin has suggested the use of hypnotic procedures. He holds that under such a plan the patient may be thereby enlightened both as to the mental state and the causes which produced the condition. Then the physician may follow up such an advantage to further enlighten the patient.

In considering the quality of insight which recovered cases possess, Clark at the Kankakee Hospital found about 10 per cent. had no real degree of insight, which of course gives them necessarily a poor chance of non-recurrences. Bianchi firmly be-

lieved recovered cases ought to make a prolonged stay in the asylum as such a procedure tended strongly to prevent recurrent attacks. He thought the line of treatment which recovers the individual cyclothymic if long continued after the attack, possessed the power to fortify the patient against recurrences—a view shared by many other intramural psychiatrists. Many, including Ring,¹ Storch,² Strohmayer,³ Clouston,⁴ Ziehen,⁵ Pilcz,⁶ Ballet,⁷ and Falret⁸ have used and advised different patterns of drugs and physiotherapy to ward off recurrences. Such plans on the whole seem to be directed toward suppressing an incipient attack and are probably too short sighted in clinical and psychological view of the essential disorder to be largely beneficial to the disease as a whole. For the most part all modern authors are content in portraying a system of bed rest, hydrotherapy, forced feeding and avoidance of all kinds of psychic and somatic insults for the attacks themselves and have little to offer in the way of purely psychic treatment as such for preventing recurrences or for making the interval periods of such individuals quite free from vestigial symptoms.

However valuable the therapeutic principles cited from the literature may have proven in the past, it is quite obvious that such lines of guidance are not yet greatly effective as the interval symptoms are almost invariably present and recurrences of depressions and manic attacks are the rule. A few workers in this special field of psychiatry have made an intensive study of the makeup of the periodic depressive to make clearer the individual problem. While Hoch, for instance, has shown that the periodic depressive or manic individual may have an obvious anamnestic record of having been from earliest life a depressive or "open" type of personality, it is not sufficiently obvious just what is at fault when an individual of this type develops the specific mental disorder. Such studies as this, however, as well as those upon the "shut in" type of the precox and the egocentric one of the essential epileptic, are valuable and pave the way naturally to the more exact and precise analysis of the mechanism by which such psychotic reactions evolve. Such studies tend to make more patent the unconscious or real motives which dominate the periodic depressive in his episodic attack.

While it would be too good to be true to indicate the sequence of a special psychosis by the particular type of makeup of an individual, we may have some hope of moderately approximating this goal by using a quantitative and qualitative analysis of the makeup either in the mildest beginnings of such a mental disorder, during the frank attack, or in the free interval. To search most intently the unconscious forces activating the lives of the periodic

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depressant in this manner is, so far as I know, here undertaken by psychoanalytic methods for the first time with the purpose of seeing whether the interval symptoms and recurrence of the frank episodic attacks themselves may not be aborted or lessened or done away with altogether. One cannot doubt but that many analysts have already undertaken this work in a routine manner, but such data have not, so far as I am aware, been given out in a specific clinical report.

In order to make our thesis clearer it is necessary to restate the clinical groundwork upon which we are engaged, together with the hypothesis of the mechanism of periodic depressions as elaborated by Hoch, and finally to see how definitely our investigations bear out his hypothesis and note the outcome of an analytic therapy upon such material.

As is well known, the course of periodic mental depressions of the simple retardation type, as well as those designated as frank manic-depressive types, are marked by recurrences which may be separated by intervals of comparatively good mental health. There are not a few clinicians who maintain that any individual once afflicted by an attack is never quite free from vestigial symptoms or temperamental attitudes characteristic in such individual types of this psychosis (Stransky). However that may be, usually individuals once free from the specific episode of their mental disorder, are to most intents and purposes well, or at least capable of undertaking the ordinary affairs and obligations of their everyday existence. In a small per cent. they pass directly from one phase of depression or excitement to another without any appreciable interval of so-called normal health.

Even though one or two attacks only occur in the life of the individual, the separate attacks are in no wise essentially different from those who have frequent attacks. It rarely happens, however, that all of many attacks in a single individual are of the same type. On the other hand, one patient during life may suffer from all possible forms, from simple neurasthenoid or hypomanic states (mildest states of excitement) to profound depressions or even stupor. The first attack is usually a depressive one. This is especially true of women. Commonly the first distinct depressive attack runs a mild course and in about half of the cases it is followed immediately by a free interval. A first excitement attack is almost immediately followed by a free interval, seldom by a depressive episode. If the first attack is one of excitement, the majority of succeeding attacks will probably be those of excitement. The duration of individual attacks vary from a few days to several years, the usual duration being from six to twelve months. The free intervals vary considerably in length from a few weeks to many years and stand in no very definite relation to the severity of the previous individual attacks themselves. The intervals are apt to be longer at the beginning and shorter as the attacks recur until the intervals may disappear altogether, the attacks then merging more or less imperceptibly one into another. At the beginning the intervals are usually of one or more years' duration.

In women at the climacteric the intervals tend to become shorter and lengthen out in later life. A few cases in which from the beginning the attacks

succeed each other without marked free intervals, the type of the maximum of the crises is usually light, having little more than mild excitement or simple retardation. Sometimes after a long series of such recurring attacks there may appear a long free interval. Although as a rule during the interval the patients appear quite well, often reenter the family, employ themselves profitably or return to their professions, they are apt to show restraint, lack of independence, a tendency to moroseness, an undue susceptibility to fatigue, some sleeplessness or a diminished capacity to do close or painstaking work, or what is more common, a pettish or irritable mood follows. In addition to these latter temperamental peculiarities such individuals may and often do become more markedly egotistical, unstable, and excitable. They also may present in course of time marked emotional deterioration resulting in poorer social adaptations. Finally in some a weakening in logical thought and memory and a more or less failure in the will and judgment exists. Many patients during the interval fail to show a thorough appreciation of the nature of their disease. Nor do they recognize its serious portent or bearings upon their life activities nor upon the relatives and friends responsible for them. After the milder attacks they often admit they were excited and nervous, but most frequently they attribute it to some fault in the family life or environment. Often in the intervals many patients suddenly develop short periods of moderate exhaustion, flightiness, irritability, and unusual activity. On the other hand they may be unnaturally apprehensive, suspicious, despondent, inactive and indifferent to their various life duties. These transient symptoms of their disorder usually disappear abruptly and in another individual might not be counted as essentially morbid. It is very difficult to distinguish between the mildest forms of cyclothymia and certain morbid peculiarities of the personality. The latter are not infrequent in individuals with a more or less regular vacillation of the emotional life. The depressive periods of ill humor, the impetuous exhilarations are often mistaken for simple whims. They are ascribed to all sorts of deleterious influences, exogenous as well as endogenous. Physicians who believe in the so-called uric acid diathesis, endocrinismus, and auto-intoxication often encourage such patients to look upon their disorder as a purely somatic one. From time immemorial such individuals have been designated as hysterics, neurasthenics, or hypochondriacs since it is only in the depressive states that the patients are brought to the physician's notice or are even considered ill. The patients themselves among the more intelligent class often correctly surmise the nature of their malady and dread its periodic approach. In the milder depressive types the simple lack of decision is often so characteristic that it often suffices for the patient as well as the physician to recognize the real nature of the disorder.

As is very well known, these borderline cases are very numerous, and form a large part of the sanatorium population.* We are here mainly concerned with the therapeutic attempt to see wherein we may

*For the more minute and complete differentiation from the numerous neuroses and psychoses frequently confounded with this special mental disorder, the physician may be referred to the well known textbooks of formal and descriptive psychiatry.

possibly modify in future the present well known unfavorable view of the prognosis of the disorder, especially as regards the certainty of recurrent attacks throughout the life of the individual. Probably all clinicians admit that in the small per cent. of those individuals who pass directly from one attack to another, alternating or continuous, the prognosis is invariably poor. Unfortunately even in the great majority of patients who suffer from this disorder, many psychiatrists have taken such a gloomy view of the prognosis that too little effort has been expended in trying to modify this opinion. The task is doubly difficult, first, because the frequency of subsequent attacks and the duration of the free interval is wholly uncertain. We still have no means of judging just what the future course of the individual case will be. It is usually held, however, that it is safe to predict frequent recurrence of attacks with short intervals where the psychosis manifests itself early and without external cause. If, however, the first attack appears late and follows some external cause, such as childbirth, there will probably be but few attacks. If the disorder appears previous to the period of involution one may expect a recurrence during the climacteric. While in formal psychiatry the descriptive phases of the disorder by Kraepelin, Ziehen and others leave nothing wanting in the clinical delineation of the disorder, we have no clear analysis of the essential mental mechanism of the induction of attacks either of the manic or the depressive episodes, although the work of Hoch, Kirby, and Campbell are noteworthy in this respect. One is bound to agree that in time, after numerous attacks of either or both phases of the disorder, there are often important alterations in the emotional lives of such individuals. The statement is made in face of the fact that such authorities as Kraepelin state that mental deterioration occurs in only a few cases where the attacks appear during the period of development and are long, frequent, and severe. It is held that in the free intervals even these patients are considered well oriented and retain a good memory. So much for the purely intellectual faculties; but it is freely conceded that many such cases show deterioration in habit and conduct, such as indifference, irritability, increased susceptibility to alcohol, and deficiencies in judgment. Such may become in time more unstable in daily attitude toward life, freakish, often becoming schemers or incapable of any consistent and productive employment. In this cursory review of the best modern clinical sense regarding the course and prognosis of periodic mental depressions, while the episodic manifestations themselves are considered benign, the ultimate course and prognosis of the disorder as a whole is gloomy in the extreme. Several points of attack for bettering the prognosis are open to us.

It is the general opinion that early hospital or sanatoria treatment makes for a speedier and more enduring recovery from individual attacks. While this undoubtedly holds true for the frank disorder, perhaps the great majority of individuals suffering from periodic depressions (a term we shall employ to characterize the milder types of the manic-depressive disorder) either in the initial attacks or in a series of attacks are capable of being successfully treated in private practice. This being the

case, the physician is most frequently called upon to recognize the true nature of those protean forms and treat such individuals accordingly. Obviously the majority of cases occurring in such practice are of the depressive type as the individual suffering from the alternating stage of extra well being or hypomanic condition does not submit himself for treatment; or either does not consider himself as ill, or if so, the state is not sufficiently unpleasant to drive him to the physician for aid. As before stated, when the periodic depressive consults the physician, most frequently it is to gain relief from the numerous physical symptoms and only incidentally from the mental symptoms. The case, however, does not remain under observation for long before one is usually made aware that the real seriousness of the disorder is in the mental realm and that, too, in the emotional field of the patient's activities. A careful analysis of the early life of such patients usually discloses a definite abnormal individual, family or social adjustments owing largely to inherent or congenital defects of the instinctive life. Especially is this true in the home life of such individuals when called upon to make the social adjustments at puberty, adolescence, or the later adult life.

In order that some of the lines of therapeutic study here given may be fully understood, it is necessary to recapitulate some of the more recent studies made upon periodic depressions.⁹ These deal with that part of Freudian psychology which concerns *unconscious motives*. For some time antedating Freud's work it was known that in so-called post hypnotic suggestion it was possible to experimentally create motives for action, and that the latter could be carried out without the motive itself entering consciousness. It remained for Freud, however, to reveal to us a new world of such unconscious motives of which we had previously been comparatively unaware. He insisted that these motives of earliest life did not disappear from the individual's life but underwent a further development. From the very nature of their further development the original form of their existence ceased to be a reality to the normal adult consciousness. Freud found on analysis one of the great unconscious motives of the strivings of earliest life was a tendency for a strong attachment of a child to the parent, and particularly a great love for the parent of the opposite sex. One recognizes at once the possible role that such a love attachment might play in the development of the adult love-instinct. But adult love contains sensual elements which are not present in the child, and can, therefore, play no part in that tender feeling toward the parent. However, as puberty approaches, these sensual elements appear. It has been shown that the great task of puberty is to dissolve the bonds of the home tie and to transfer a part of the affections shown previously for the parent to new objects in the service of the instinct of propagation. This puberty-process, for some as yet unknown reason, is not possible to every individual, and the assumption is made that in such instances the trend of the sensual impulse then flows in the direction of the tender feeling formerly felt for the parent. But the conscious personality strongly opposes this process, hence this sexually intensified part of the attach-

ment for the parent remains repressed and unconscious. One may say, therefore, that in the course of adult development certain normal steps remain undeveloped, or are arrested. Hence this defect of undeveloped instinctive desires—which later are the very core of the personality—results in a defective adaptation especially in the sexual sphere, and, as has been carefully pointed out, when one states there is a sexual cause in every neurosis it does not necessarily imply a sexual cause in the adult sense, but in the sense that the cause lies in the imperfect development of the instinct. It has been shown that the unconscious has different depths, as it were, and that the infantile motives just mentioned are undoubtedly among the deepest repressed strivings. But in order to understand these infantile motives aright one needs to free himself from the ordinary adult logical way of thinking and meet the situation on the infantile level. Not a few persons, and even physicians, knowing that Freud has spoken of sexual causes and the child's longing for the parent, have simply combined or translated this into terms of adult sexuality. This is probably wrong, because adult sexuality has many qualities added at puberty which have no such formulation in the infantile life. Often the ideas of desire, expressed in the depressive psychosis in particular, are much more vague. They not infrequently express a mere desire of possession of some sort. This is well shown in the so-called benign psychoses wherein the longing is often expressed as a wish to die with the father or the wish for removal of the mother. "For instance, a woman may become neurotic when she becomes engaged. After marriage she refuses to submit to the marriage relations and then develops a psychosis in which the ideas expressed are essentially that her marriage is annulled, her mother is dead, and that she herself is following her father into his grave and is united with him in his coffin. In other words, it may be inferred in such a case that the woman was unable to adapt herself to her married life and therefore regressed to a union with the father. It can readily be seen that this psychotic setting is not sexual in the adult sense, though it is an evidence of imperfect adaptation of the sexual life."

"There still remains another important point, namely, the thoroughly illogical nature of the above example. On logical grounds it is absurd to wish—and we regard the delusions as expressions of unconscious wishes—that the mother should die, when all that is desired is to be united with the father in death. But the psychosis does not think logically, but autistically, as Bleuler has expressed it. The wish for the mother's death or removal exists, because to the child she is the rival in the affections of the father. We must not forget that the ideas expressed in psychoses are often, so far as we know, direct emanations of unconscious desires which cannot be understood by the observer or the patient when standards of logical thinking are applied to them. And, when we try to cast them into logical or adult form, we are doing something which is, strictly speaking, not possible, and the formulation is apt to become onesided and artificial. To recognize this is important. The vagueness of these trends is not due to our imperfect knowledge of them so much as to their very nature, and we are

not improving matters if we attempt to make them clearer than they really are."

"It has been said that the infantile motives, upon which Freud lays so much stress, have been revealed by a method which is questionable, owing to the great latitude given in it to interpretation. But in studying the psychoses we find exactly the same motives as those which Freud has inferred, and here very often no complicated interpretation is needed, since the unconscious desires are expressed directly in the ideas of the patient. This is what should make the central claims of psychoanalysis so convincing to the psychiatrist. Freudian psychology, however, can be understood only when the dynamic importance of the deepest infantile motives is fully grasped, and this is a side on which even much of the psychoanalytic literature does not lay adequate stress, since it emphasizes more the method and the motives which are more closely related to our adult way of thinking. The psychoses, more than anything else, impress us, however, with the importance of the infantile motives."

In this brief outline of unconscious motives we have the principal teachings of Freud, as elaborated and formulated by Hoch⁹ and applied to the mechanisms of the depressive episodes of the benign psychoses. From the foregoing it will be seen that after the formal and descriptive analysis of the individual case history of a periodic depressive is gone over, the therapeutic inquiry should undertake to make patent and clear to the patient the logical sequences of defective emotional adaptation which his individual life discloses. The next step is to bring into consciousness as far as possible a more complete rationalization of the life activities which were possible at the periods of defective adjustments. Lastly, one may undertake a more strictly psychoanalytic approach by dream analysis and association methods. The latter is not essentially different from that used in treating the neuroses but the inquiry is undertaken with the greatest care as one is dealing with individuals abnormally sensitive and often greatly shocked and pained by the ruthless manifestations of the unconscious motives disclosed in the life analysis.

However, we are justified in going to considerable pains and effort to lead the patient to thoroughly understand his individual conflicts if the method of therapeutic inquiry may hold out a fair hope that by such an investigative treatment the patient may make a better life adjustment, thus possibly preventing recurrent attacks of the disorder.

Before giving an abstract of several cases which have been treated on the above hypothesis, it may be said that the well organized sanatoria or even state hospitals might very properly undertake a similar therapeutic procedure either during the course of the milder depressions or at the end of severe attacks before final discharge to the home is made. The defects of the individual case might also be properly imparted to the after-care social worker connected with the state hospital service in order that she may keep watch over the patient and in case called upon might profitably report to the psychiatrist, or induce the patient to revisit the physician at the sign of serious defect in the emotional adjustment outside. We may be sure that a

wise and intelligent development and cooperation of physicians residing in and outside of the mental hospitals will not long neglect the conservation of the mental welfare of the periodic depressives which at present is so often neglected in the free intervals both by the physicians as well as by their friends and relatives. It cannot be too definitely stated that the above analytic treatment of the periodic depressives must always be carefully adjusted to the individual case both to the nature of the advice as well as the analysis itself. Often the not over-intelligent patient must have the whole matter carefully and very simply explained. And above all the defects of their adjustments can only be of service to the patient when the individual himself comprehends wherein the fault really lies and makes its correction his own vital concern. The method cannot, of course, hope to be of great benefit in the very ignorant, the aged, or those possessing a rigid and fixed mental outlook on life. Even in such cases, however, the trained physician can often, from a simple anamnesis and most cursory survey of the individual's difficulties, use his knowledge of the portent of the defect encountered for a wise conscious guidance of the patient to his lasting advantage.

For the practical purpose of this paper an attempt at a fairly complete presentation of the individual cases is neither necessary nor practicable. It is hoped, however, that sufficient data is offered for one to recognize the clinical type of the disorder under treatment, the main mechanism of their evolution in the specific case, and the result of the analytical treatment as a prophylactic measure, both to improve the mental state of the free intervals, if the latter are to be counted only as intervals, as well as to show that this type of therapeutic inquiry may ambitiously help in rendering some individuals free from recurrences.*

CASE I.—The first case studied was that of a married woman who had passed the climacteric and who had two periodic depressive attacks yearly (simple retardation in type) since her twenty-fourth year. The attacks were characterized by insomnia, mental indecision, and a sense of unworthiness. The onset was usually gradual, the height of the attack being reached in about two weeks. At first the patient developed mental sluggishness. Next, the mental indecision was attended by an inability to speak or write or find words to express herself. Her head felt tired and she could not follow a line of consecutive thought or grasp the meaning of ordinary conversation. She finally talked little as she "had nothing to say." Associated with the mental retardation familiar facts could not be remembered. She remained thoroughly oriented throughout the attacks in spite of the slowness of apprehension and thought. Finally psychomotor retardation became marked and she did little or nothing whole days at a time. All her simple everyday duties loomed before her as insurmountable tasks. She would then say life was useless for her and she had better be left to die. A large part of the time was spent in bed in spite of a persistent insomnia. At the depth of the attacks she had compulsive ideas that God did not exist and that there was no religious hope of immortality, which belief she had entertained all her life. She had full insight. The usual explanation of some unpleasant experience or a change from the country to the city she alleged as the common cause for the attacks. The episodes usually lasted from six weeks to three months.

*More detailed studies of Cases II and III may be found in my previous report, "Mechanism of Periodic Mental Depressions as Shown in Two Cases, and the Therapeutic Advantages of Such Studies," *Review of Neurol. and Psych.*, October, 1914.

The recovery was gradual and there would be about three months of comparative well being, although many irritable and vacillating moods occurred in the interval periods.

Intensive analysis showed that the patient had a very close attachment to the home tie. The marriage was a cold and childless one and the marriage relations were especially unpleasant. It was possible to carry out but little actual psychoanalysis of the unconscious but sufficient was disclosed to show the main tenets of the foregoing hypothesis of the depressions were true and the patient quite realized it. Analysis was carried on through the greater part of one complete but fairly mild attack. Although this patient has been under report for the past seven years no subsequent attacks of depressions have occurred aside from a "slight flurry" of the old depression two years ago, which, however, consisted mainly of a few weeks of interval symptoms formerly regarded merely as "indispositions" of the free intervals. The patient has enlarged her social and community interests, her home life is contented and happy and she has a levelness of emotional "keel" never experienced before and for this she is extremely grateful. One might have expected that this patient was a little too old to show such a good readaptation, but she was remarkably plastic and intelligent for one of her position and station in life.

CASE II.—This was the case of a middle-aged widowed woman with one grown son. She had just passed the climacteric. She had had several recurrent attacks of "neurasthenia" dating from the birth of her only son. The first attack at her son's birth was in fact that of a simple retardation attended by a refusal to eat, a sense of unworthiness, that she was to lose her mind and become dependent upon charity. She could not make mental decisions, wept a good deal without apparent cause and contemplated suicide and even made preparations for it which were frustrated. She did not care for her husband and could not bear to have her child near her. This depressive attack disappeared in two or three months, and ever since, a period of twenty-four years, she has had a short depressive episode every five or six months, sometimes as severe as the first attack, but usually a little less so.

Analysis showed an intensive home tie, especially to the father. Her engagement existed ten years before it was finally consummated in marriage. The marriage was cold and was followed by the first depressive episode at the birth of her son. After ordinary mental analysis had been given our patient submitted to a partial and modified psychoanalysis lasting over a period of several weeks; since that time, four years ago, she has been entirely free from depression or even any vestigial symptoms supposed to persist even in interval periods. She is busily and profitably employed, has widened her social and community interests, and has a continuously hopeful outlook for the future.

CASE III.—This is the case of an unmarried man of the middle thirties who had attacks of simple mental retardation for thirteen years. During that time he had seven distinct and separate attacks occurring at irregular periods, the longest period between attacks being less than two years. The attacks in the main were as follows: He gradually grew quiet in manner, was disinclined to meet social obligations, sat about the house and worried in a mildly anxious manner that he was to lose his job in the city's employ or that other fellow workers were to be promoted above him. In a few days the real depression appeared; he lost his appetite, slept little, grew more restless and vague of purpose, could not make simple decisions and all physical acts were performed slowly. Finally his thought "came slowly" and he thought he was to go insane, was insane in fact, and he senselessly reiterated that he wished he might die, the psychic pain was so intense.

Analysis showed that our patient was intensely attached to the mother ideal, that his emotional makeup was very labile and infantile and that attempts at adult adaptations in assuming an independent position or employment or attempt at getting married were always attended by attacks of depression in which alcoholic indulgences and prostitutions played a certain rôle in his efforts to meet the adult demands. Psycho-

analysis has resulted in the patient's avoidance of any future attacks of depression now over four years. The greater advantages obtained, however, have been in the improvement in his social and business conduct and the elimination of alcoholic indulgence. There is a marked history of periodic depression in the family; the mother herself died insane from exhaustion in a manic attack. Undoubtedly the conscious and foreconscious analyses and psychotherapeutic talks based upon these analyses were very helpful here, but similar efforts of this character by others before had not been productive of such good results as attended the same procedure here, plus a prolonged course of psychoanalysis which broadly covered the entire mental life of the patient. It is interesting to note that certain neurotic symptoms seemingly quite independent of the psychotic depressions were also swept away in the treatment of the main disorder for which the patient sought treatment. The whole therapeutic procedure seems to have resulted in a marked character alteration of our patient's underlying bad adaptive instincts.

CASE IV.—This is the case of a married woman who has passed the climacteric and who had her first attack of simple retardation (neurasthenia) at twenty years of age, brought about seemingly by her father's unkindness to her. She had always been very closely attached to her father. The attack lasted for several months and was characterized by headaches, indecision, motor and psychic retardation, insomnia and thoughts of suicide. The marriage was cold and our patient had her first severe attack of depression at the death of her first child at three years of age. She always worried over this child "from the time it was born." The attack lasted for a year. Since that period she has had more or less severe attacks every year until two years ago, when the state of depression was more or less persistent, with fluctuations of intensity in the depressive symptoms from time to time. The analytic treatment was carried on for a year; it disclosed the dominance of the home tie as a child and especially the father attachment, the really loveless and stressful marriage, the inability to take on the added marriage bond of bearing children, and the final collapse of the effort in frequent "blue spells" and at last a more or less enduring depression. The results of the analysis are shown in the adaptation to home and community life, absence of vestigial symptoms of "blue spells," greater productive work, absence of irritability and fatigue, greater independence, and less sensitiveness and inactivity. She takes a continuous interest in her household affairs, which were formerly indifferently neglected for years. Too short a time has elapsed since the treatment was discontinued (about one year) for it to throw any light on the permanency of the free interval, the advantages of the analytic treatment being as yet confined to the absence of vestigial symptoms and freeing the patient for a natural healthy life.

CASE V.—This is one of a woman now in the early twenties who has had classic manic and depressive episodes since her seventeenth year. There have been several such periods, the majority being manic and followed by depressions. The first "neurasthenic" attack followed an innocent love episode. On its being broken off she was slightly depressed, self-accusatory, insomnia, and had frightening dreams in which there was a reappearance of the father who died some five years previous. This episode soon passed in a month or so, to be followed by the first distinct manic attack after a serious love affair. In this, during the manic excitement, the patient thought there was an actual reappearance of the father. There was a typical flight of ideas, extreme motor restlessness, and a keen antagonism against the mother. In two months this state passed into a slight depression which gradually shaded out into the normal state in three months. The second attack began three days after the birth of her first child. She hoped "the child would be like her brother and father" who were dead. She did not care to see her husband, and when her child was brought to her at her earnest solicitation, under a seeming disguise of extra affection for it she really hurt it in handling it. The manic attack lasted two months and was followed by a short period of depression (six weeks).

The third attack was depressive. She would have nothing to do with her husband and child, read love

stories constantly, and remained in bed the greater part of the time. She was insomnia, ate little, and neglected herself. The period lasted about six months and ended in gradual normal state with many vestigial symptoms of irritability, extra fatigue; she was quarrelsome, moody, and assumed little independence of action. She remained fairly well for one year. The fourth attack was depressive. She disliked her husband and child and exalted her father's virtues in a contentious, querulous manner at the expense of her mother, husband and child. This depression lasted about six months. The fifth attack was a manic one, followed by a depression; both together lasted eight months. In this last period her brothers, mother, husband and child were all *unfriendly* and *distasteful* to her. Only the memory of her father was a "comfort" to her. She had imaginary lovers and hallucinated the return of her dead father and brother.

The analysis showed the intensive infantile attachment to the father and the mother antagonism, the latter openly expressed at three years of age. She encountered innumerable love episodes in early life which were all quite fantastic until her final engagement and marriage. The marriage was treated by her as an inconsequential love episode and a manic attack followed the birth of the child, to whose presence she remained unreconciled for two or three years. The analysis was undertaken at the beginning of the sixth depression, following a manic excitement and continued for six months. The results were shown in a complete readjustment to the mother, brothers, husband and child. The husband and mother report that "for the first time in ten years she has been perfectly normal without nervous and physical symptoms." She has assumed her social and household duties with content, and says, "Now I fully understand, and I have assumed all my adult duties and am quite serene and happy."

CASE VI.—The sixth case is that of an unmarried woman of middle life who for the last five years has had a circular type of mild depression and excitement each lasting six months. The condition developed gradually out of the "natural" fluctuation of her mood for ten years before the definite and precise depressions and excitement which now constitutes her mental life. During the latter part of this five-year period of mental disorder while in a hypomanic state a type of paranoid ideas developed and she undertook analytic treatment as soon as the depression followed this period. The period of depression promptly ceased after the first month's treatment. In the ordinary course of previous attacks this change was not due for at least two months later. In the mild hypomanic state that succeeded this analyzed depression the paranoid trend did not reappear, nor was the excitement so intense as formerly. The patient was able to continue at her rather complicated intellectual and literary work and at the time when the hypomanic period might have been expected to have appeared no depression took place. Instead a milder exhilarative mood nearly normal in character quite comparable to that which she used to experience before the last five-year cyclothymic state developed. However, our patient was too set and rigid in mental attitude to submit to a complete psychoanalysis and only an investigation of the foreconscious was fairly undertaken and carried out. Sufficient data, however, was brought forth in this analysis to show that the infantile fixation on the father and her own egoistic makeup held her back from the development of a normal, cooperative, easy, free and generous emotional adolescence. There was always present a rather "idealistic and poetic concept of soul-mate lover" in the dreams which had an inconstant fixation in real life upon various father types of individuals. Her casual friends believe she is quite well now, but those who know her best can see that she is not as stable mentally as she was a score of years ago, although they consider she is very much better than she has ever been at any time since her distinct cyclothymia has been in existence. She is an only child. Her father is decidedly cyclothymic, having had two distinct periods of "nervous breakdown," one lasting a year. One may at least say here that this patient has undergone great mental reconstruction, but she is probably the least satisfactory as a clinical showing of all the cases

of the series. Unfortunately her present state of well-being is sufficiently comfortable, so she is unwilling at present to attempt further analysis.

In conclusion I would say several other cases of periodic depressions are under treatment but have been so for too short a time for report and at this time. However, sufficient clinical data is here presented, I believe, to show that a modified psycho-analytic approach to these psychoses is a safe and sound procedure and one worthy of earnest trial in the future treatment of such disorders, especially in carefully selected cases of the more promising type of individuals.

REFERENCES.

1. Ring: *Boston Med and Surg. Jour.*, 1914, Vol. CLXXI, p. 376.
2. Storch: *Zeitsch. f. Psychopathol.*, 1912-4, Vol. II, p. 382.
3. Strohmayr: "Manic-Depressive Insanity," 1914.
4. Clouston: "Mental Diseases," (6th ed., 1904).
5. Ziehen: "Psychiatrie," 1908.
6. Piloz: "Periodic Mental Disturbances," 1901.
7. Ballet: "Mental Pathology," 1903.
8. Falret: Mentioned in Ballet's "Mental Pathology."
9. Hoch: "A Study of the Benign Psychoses," Johns Hopkins Hos. Bull., May, 1915.

125 EAST SIXTY-FIRST STREET.

FOOD.

CLASSIFICATION OF FOODS; PREPARATION OF FOODS; GENERAL CONSIDERATION OF DIETETICS.

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FOODS, considered with regard to their life-giving power, fall under five heads:

1. Those foods which build tissue and repair the daily waste (proteins), such as lean meat, fish, white of egg, milk, cheese, peas, beans, and gluten in wheat.

2. The fatty foods which give heat and energy such as cream, yolk of egg, fat meat, olive oil, and oil of nuts.

3. The hydrated foods which give heat and energy such as carbohydrates; cereals, corn, rice, wheat, oats, buckwheat, potatoes, beets, carrots, and bananas.

4. Those foods which strengthen the bone and purify the blood through their mineral salts, as found in fruits and vegetables.

5. Water, as found in beverages, fruits and vegetables, which dissolves the food and helps to carry it to all parts of the body.

All these foods should enter into each meal each day, and upon the extent to which they enter in the right proportion depends the proper feeding of the family. While it is true that each daily meal should contain a certain amount of each class of foods, it is also true that each class should be represented in an amount to suit the age and occupation of the person as well as to suit his physical condition and the climate in which he lives.

A model meal is one which consists of a few things which are in harmony with the needs of the family, the capacity of the pocket-book, and the time and strength of the housekeeper. If these few things are well cooked and attractively served, the meal will be classed as a perfect one if a spirit of cheerfulness goes with it. Food is meant to sus-

tain life and not to destroy it and yet when too much food, too little food, the wrong sort of food, poorly prepared food, or food taken at the wrong time, is taken into the system, the person so doing is taking one long step toward destruction.

Coffee is not a food, but a stimulant. It should not be given to children and should be taken in moderation by adults. The adult who feels that he cannot do his day's work without the aid of three or four cupfuls of coffee, is the person who should give it up altogether and produce the necessary energy by the use of proper food rather than to spur the organs of the body to overwork, which must result in a weakened condition of those organs. The person who lacks strong nerve control should not drink coffee. The person with a questionable heart action should not drink coffee. The same thing pertains to the use of tea.

The importance of fruit in the daily diet is too often underestimated and fruit is too often looked upon as a luxury rather than a necessity. The nutritive value of fruits lies chiefly in the sugar that they contain. The fig, the raisin, the prune, the apple, and the grape are all fruits which are especially rich in nutritive value. Probably of greater importance, however, is their laxative action and this alone is a mighty argument in favor of the free use of fruit in the daily diet. The prune, the fig, the date, the peach, and the apple are especially laxative. It is a common thing to find children eating nothing but coffee and bread for breakfast and sometimes going to school without food. Cornmeal prepared in the form of a hot mush, served with milk, is an excellent and nutritious food for children. Beware of advising a meal composed of cold cereals alone.

There are certain general principles that are applicable to all forms of food; in the first place, if one desires to increase tissue and, therefore, to increase the intake, there should be especial care that the food is prepared and served in as appetizing a form as possible. This fact is often sufficiently understood, but the point is by no means properly followed up in actual practice, and it is frequently woefully neglected in institutions for the sick. There are many easy and inexpensive methods of making foods acceptable to the palates of the sick poor that are used far less than they might be, largely because they are not known or because the slight effort that is involved in carrying them out is avoided. On the other hand, in cases in which the diet should be restricted, one needs in many instances not only to limit the amount of food, but deliberately to see to it that the manner of preparation is, while wholesome, not too tempting; otherwise the total intake will still often remain too high.

It is also necessary to watch over the methods of preparing food for another general purpose; the more elaborate the composition of food-preparations, the more difficult it is, as a general thing, for digestion and metabolism to deal with them. It has been shown by exact investigations that digestion and absorption are less complete, in many instances, when a number of simple foods are taken coincidentally than when but one of these foods is taken alone, even though the latter be used in amounts equivalent to the previous total.

Also while, as I have stated, a mixture of protein

and carbohydrate, at least, is essential to normal metabolism, it has been almost as clearly shown in relation to metabolism, as it has in relation to digestion, that a variety of forms of these foods and of fats may cause more tax than a small number. Hence, when digestion or metabolism is already impaired, we often limit the variety of food-articles as strictly as can properly be done; and restriction of variety in the manner of their preparation is very commonly still more needful. One of the main reasons for this is that many preparations so intermingle the different foods used that each, so to speak, has to wait until the others are cared for by the digestive juices before any can be well digested. Consequently, digestion is delayed on all sides, and proceeds only bit by bit, and the digestive organs are overburdened and irritated by the undue retention of food; and furthermore time is given for fermentation and putrefaction to occur. Butter, eggs, and sugar may, for example, be well digested when not artificially mixed, but pastry may be very badly borne by the same person.

In many preparations, also, the food is rendered relatively indigestible or innutritious by the manner of preparation, when perhaps even a slight change in the method would have made it wholesome. Meat roasted a long time, until thoroughly done, is less digestible than rare meat, and meat slowly boiled is less nutritious than that quickly boiled.

Furthermore, and this is often more important, elaborate methods of preparation involve the use of relatively large amounts of condiments and sauces of various kinds, and these substances, when used very freely, probably do harm throughout the whole course of their progress from their ingestion to their excretion.

While one must grant that a considerable proportion of persons, particularly among the well-to-do, eat too much total food and too much of certain food-articles, there can, I think, be little doubt that many more persons are damaged by the culinary form in which they take their food. Over-eating consists, I believe, more largely in this factor than in any other; that is, persons in comfortable circumstances more frequently do themselves harm by taking unwholesome food freely than by mere excess in amount.

In this connection may be mentioned the temperature at which foods should be eaten. This cannot, of course, be regulated within narrow limits, but it should be controlled to the extent of preventing the habitual use of very hot or very cold foods or drinks. This is commonly the cause of chronic gastric and intestinal disease, and it often causes acute disturbance also. Ices, and other iced drinks, when taken very slowly and in small amount, are so warmed on the way down that they do no harm, but the complacent American habit of taking them in unlimited quantities, in spite of the objections to them, is a fruitful source of evil. Persons need to be taught that ice-water does not allay thirst so well as cool water, and does much more harm. Often, in very acute gastric disturbance, however, food or fluid, when served very hot or very cold, is comfortably retained by the stomach when otherwise it would be rejected or give distress.

Another general fact is of extreme importance to the severely sick, but also to others, and it is true of

all foods. It is evident without demonstration that the more finely divided and the more nearly in solution foods are when taken, the less irritation do they cause, and the more readily are they digested and absorbed; therefore in acute disease, and in cases of difficult digestion fluids or semi-fluids, or at most, finely divided forms of solids are used. Often even a small portion of poorly subdivided food may cause grave disturbance in such cases. On the other hand, it is common experience that in cases of considerable duration fluids and very finely divided food-articles readily become repulsive. For this reason, and because the gastrointestinal tract, as well as other organs, should not be prevented from performing their normal functions when they can be carried out without damage, such foods should not be used for an unnecessarily long time.

Preparation of Meats.—Meats, if finely divided, are usually slightly more digestible when raw than when cooked. There is, however, danger of bacterial and parasitic infection when they are used raw. For this reason, and still more because they are usually more palatable when cooked, they are in this country seldom taken in the raw state.

The methods of cooking have an important influence upon their digestibility as well as upon their palatability. The chief methods are broiling, boiling, frying, and roasting. As ordinarily done, broiling and roasting are the only thoroughly acceptable methods. Frying is never wholesome, because when cooked in this way, meats are usually harder, more of the albumin being firmly coagulated, unless the frying is very well done; and because also the fat used in frying so permeates a large part of the meat as to make it difficult for the gastric and intestinal juices to get at the lean and digest it.

Boiling, when well done, is a good method; when not well done, a poor one. The chief point of importance concerning boiling is that raising the temperature slowly removes salts, extractive substances, and a very considerable part of the nutritious and very digestible soluble albumin. On the other hand, placing the meat in water that is already nearly or quite boiling quickly coagulates the external portion, and this prevents the extraction of much nutritious material, for the coagulated portion acts as a more or less impervious coating. Hence, when the meat itself is to be eaten it will taste better if boiled quickly, because the substances that lend flavor are extractives, and these are largely removed in slow boiling. The meat will also be more nutritious when quickly boiled. If, however, it is being boiled in order to make soup or broth, slow boiling is essential in order that the soup may be well flavored and nutritious.

In all instances when cooking meats it is to be remembered that prolonged cooking at a high temperature firmly coagulates the most digestible and nutritious portions of the meat, and thereby makes them less digestible than when they are cooked for only a short period. Prolonged cooking, particularly prolonged boiling, may dissolve and loosen a good deal of the denser connective tissue and make the meat seem, upon superficial observation, more tender, but as an actual fact it merely makes the meat more easily fragmented, while the individual fibers themselves are harder to digest.

It is a well-known fact that keeping many meats for some time before they are eaten is essential to making them tender and highly flavored. There have been various theories as to the cause of this, but recent investigations have shown that it is the result of a natural partial predigestion of the meats. The ferments present in the tissues, if time is given them, carry out a partial autodigestive or autolytic process which softens the meats, and substances formed in this process heighten the flavor. This is one of the many instances in which accurate investigations have ultimately demonstrated that many, if not most, such general customs are based upon rational physiological principles, although the customs may have been empirically established.

The Preparation of Carbohydrates.—The preparation of carbohydrates is, in many of its most important parts, carried out before these foods are purchased, except in connection with the fresh vegetables. In the preparation of cereals, the indigestible cellulose and woody fiber are usually removed and the cereal is frequently finely ground. The effect of this is to remove most of the irritating elements of the food; consequently the only way in which such preparations are likely to upset the digestion afterward is through the possible occurrence of fermentation or through promoting constipation. With irritable digestive tracts only cereals that are finely ground, largely freed of cellulose, and thoroughly cooked are permissible. With sluggish digestive tracts, on the contrary, especially when there is constipation, the less finely ground cereals, more particularly those that contain all the elements, including the cellulose (whole-meal preparations), are valuable.

In the domestic preparation of carbohydrates the elements of chief importance in sparing the digestive tract are fine division of the food and thorough and prolonged cooking. The cooking, as is well known, causes the starch-granules to swell and ultimately to rupture, and this accomplishes the most important purpose in their preparation, which is to make the starch accessible to the diastatic ferments of the digestive tract. When prolonged, cooking also converts some of the starch into fluid starch, and even partially predigests some of it into dextrins, small portions of it, indeed, becoming digested as far as the maltose stage. Cooking also softens the cellulose and thus helps to break up the food into small particles, or to make it easy for the individual to do so in mastication. For this reason it is of vastly more importance than is usually recognized to have carbohydrate foods, and especially those that contain a good deal of cellulose and woody fiber which is closely intermingled with the other substances, cooked very thoroughly. Such foods, for example, are all the green vegetables, tubers, such as beets, carrots, parsnips, and turnips. Unless young and tender, they are relatively indigestible, at best, and they become a suitable food only after very prolonged cooking. For persons who have troublesome digestions they should also be very finely divided, as by being put through a colander.

The Preparation of Fats.—The most important element in the preparation of fats is to avoid their too intimate mixture with the other foods with

which they are served. A French salad-dressing, for example, in which the oil is nearly free, is with most persons comparatively digestible, while a mayonnaise is, as a rule, very indigestible.

Another point, however, is frequently of much importance: With delicate digestions, the chief factor in making the fats digestible is usually to give them in a finely divided form or in such form that mastication will finely divide them. The first is done with artificial emulsions and the latter can sometimes be done in cooking. For example, in addition to the effect upon the appetite, a piece of greasy, dripping bacon is much less easily digested than a piece that is crisply cooked, probably chiefly because the latter can be very easily broken up into small fragments in mastication.

Preserved Foods.—But few points concerning preserved foods need be mentioned here. In the first place, as is well known, all kinds of preserved foods, but particularly meats, occasionally undergo some degree of decomposition, and this more especially occurs when the containers in which they are purchased have been opened and the food has been exposed to the air for some time before it is eaten. Preserved foods, unless preserved by chemicals, often more readily undergo decomposition when the opportunity for bacterial invasion is given than do fresh foods; it is, therefore, quite true, as is commonly supposed, that they should be eaten reasonably quickly after they are opened, or not at all. It is improbable that there is any truth in the common belief that, if left in the can, some specially toxic substance forms. It is more likely that the whole matter is merely a question of bacterial invasion.

Nearly all the preserved foods bought on the market contain some form of antiseptic or chemical preservative. Whatever view may be taken about the use of these substances in small amounts by normal persons, I think that there can be no rational doubt that most of them are irritants and tissue-poisons when taken in considerable amounts; therefore, when one is especially shielding the digestive, the metabolic, or the excretory organs, even from very slight irritants, I think the patient should be instructed to avoid any foods that are preserved by means of chemicals.

Those foods that are preserved by such domestic measures as the use of sugar-solutions, salt, smoking, etc., are, as a rule, less digestible than the fresh foods; for delicate digestive tracts they are, therefore, less suitable, although in varying degree. Salted and smoked meats are usually somewhat toughened by the process of preserving, and the large amount of salt contained in the former may damage digestion, metabolism, or excretion. On the other hand, preserved vegetables and fruits are at times, through the prolonged boiling to which they are subjected, often made more digestible than they were when fresh, providing large amounts of sugar are not used in preparing them.

Certain General Considerations.—In the first place, in cases that are at all difficult simplicity in the diet is one of the most important things—more important, perhaps, in the general run of cases than any other one point. Its value lies chiefly in two directions: First, the patient will often adhere more closely to his diet if it is made severe at first, but

the prospect of a frequent increase in the variety of foods is given him. More important than this, a disturbed digestion and metabolism can deal much more easily with a small number of food-articles than with a large variety.

The mere fact that food-articles contain a certain amount of protein, carbohydrate, fat, salts, and water is but a small part of the knowledge that we should have of their composition and their effect upon digestion and metabolism. We know already many minor differences, and there are many more to be learned. Even though these differences may have little or no influence when only a small variety of bland foods is given, each difference in detail complicates the task that the digestive organs and the tissues must complete in making use of the food. A weary brain may do a few simple things well, but will do a multiplicity of simple things ill; likewise, a weary digestion or metabolism may deal very readily with a few simple foods, but be undone by a great variety, even though all are individually suitable.

A very large proportion of gourmands, then, suffer not so much because they eat too much food, as because they take a diet that is extremely varied and elaborate, particularly in the manner of its preparation. On the other hand, it must always be remembered that the variety in food-articles must, when possible, be made reasonably large; otherwise, the appetite soon fails, and the patient becomes undernourished. Great simplicity, therefore, cannot ordinarily be wisely continued for any considerable length of time, unless circumstances force this upon one.

In many cases of acute digestive disturbance temporary entire withdrawal of food is the most important point in the whole treatment. This is but too rarely appreciated and acted upon. Persistent vomiting, of course, demands it, but it is important in much less violent disturbance of the stomach and in great irritability of the intestines, especially when foul bowel movements show that excessive putrefaction is going on. The extreme value in some cases of temporary starvation is becoming widely recognized in dealing with young children, but it needs to be even more generally used with them in proper instances; and with adults its great usefulness is much less extensively appreciated. Just as it gives the gastrointestinal tract opportunity to empty itself of irritating material and to rest for a time, so does it permit of the excretion of toxic material in toxemias, and provide some rest for the organs of metabolism and excretion. Consequently, it is frequently useful in some toxic states due to disease of the liver or kidneys, as well as in gastrointestinal disturbance.

It is a long-established fact that irritability of the stomach or intestine usually necessitates small meals, the proper total amount being then secured, as far as is possible, by frequent feedings. Large bulk usually means in such cases that the stomach expels the food quickly by vomiting or by driving it on into the intestine before it has been properly prepared for intestinal digestion.

Diarrhea is often caused or prolonged in both acute and chronic cases by taking unduly large meals. In some instances, however, large meals taken at wide intervals are better borne by a dis-

turbed digestive tract than are small or moderate sized meals that are taken at more frequent intervals, but this is relatively uncommon.

David Edsall says that one factor in producing much of the gastrointestinal disturbance in America is the very large breakfast habitually taken by many persons. Although the interval since the last meal is a long one, there has, as a rule, been almost no work or exercise in this interval, and therefore a large meal is not usually demanded. At any rate, as a practical fact, a large number of persons have better digestion when a rather small breakfast is taken, and Edsall has repeatedly known this to relieve chronic digestive disorders.

On the other hand, it is common, among young women especially, and particularly among those who work for their living or who are much pampered, to take little or no breakfast, and this is a common cause of poor general nutrition, headaches, a chlorotic state of the blood, and other disorders.

Similarly important is the fact that many articles of food that are, for people in general, digestible and nutritious, cannot be taken by some individuals without ill effects, owing to some more or less obscure idiosyncrasy. Milk, for example, which, with the great mass of humanity, is very easily digested and is more nearly a complete nutriment than any other single food-article, is sometimes a poor form of nourishment. This, however, is far less frequently the case than many persons believe. Most commonly, the difficulty in taking milk is dependent upon repugnance for it, erroneous preconception, bacterial infection of the milk, or factors that can readily be overcome by simple methods of preparation. In such cases flavoring the milk with a little salt, tea, coffee, cocoa, or some preparation of alcohol will often overcome this repugnance; it will also frequently make the milk digest better, probably because it does make it more palatable. Adding gruel or an alkali to milk will often modify the curd, and will frequently overcome the digestive disturbance that it causes, with adults as well as with children. The fat is commonly at fault, and in that case skimmed milk will often be well taken. Very frequently, indeed, especially when there is already delicacy of digestion and hence susceptibility to infection, heating the milk will stop any gastric symptoms, intestinal fermentation, or diarrhea that it produces—partly through the chemical and physical changes that heating produces in the milk, but much more because it kills the bacteria in which most market milk abounds. The latter fact is now pretty generally recognized in treating young children, but it needs to be far more widely appreciated in the care of older children and adults than it yet is. In spite of all these measures, however, milk is, in a small number of cases, extremely repulsive, or it persistently causes untoward symptoms without any evident good reason. In such cases it is not a good form of nourishment, and something else must be given in the place of it.

Similar statements are true of eggs. Instances are not uncommon, especially in young children, in which eggs cause more or less severe disturbance, particularly of the stomach, even though taken raw or but slightly cooked, and even though the manner of preparation may have so far disguised the

taste of the eggs that the patient did not know that he had eaten them. This is generally due to the yolk, and caused by the fat in it. Such patients can usually take egg-albumen with great freedom. In some curious cases, however, it is due to the albumen.

Very many persons believe that they have an idiosyncrasy toward fish and other seafoods. These foods not infrequently cause digestive disturbances and signs of general poisoning, but while these are at times due to a peculiarity of the individual, they are much more commonly due to the fact that seafoods are very likely to undergo bacterial changes before they are eaten.

There are, however, other real and important idiosyncrasies, such as the curious toxic symptoms that may result from eating strawberries and some other fruits, and the milder symptoms that seem to be caused in individuals by many other foods. Such peculiarities, if they seem to be real, should not, except for very especial reasons, be fought, but should be yielded to.

The appetite also often has to be pampered for other reasons, by fair means or foul. One sometimes mildly deceives those that are habitually heavy eaters, and insist upon filling their stomachs, by permitting them to eat freely of foods that have a large bulk, but only a small fuel-value. In obesity, for instance, and in some digestive disorders, that permit of this, the sensuous gratification that results from this measure frequently leads the self-indulgent patient to persist in proper treatment when otherwise he would rebel. The same purpose may often be accomplished in another way: one may grant some degree of freedom in the amount of food, but exclude the use of condiments and sauces and of water at meals. The patient then usually reduces his intake unconsciously. When, on the other hand, the appetite is so depressed that too little food is taken, one may often, if this is suitable for the digestion in the individual case, increase the intake by giving food in as concentrated a form as is compatible with attractiveness; but the appetite should especially be stimulated by delicate methods of preparing and serving the food, by using condiments, or by various other devices, such as beginning the meal with a small amount of some light but stimulating and agreeably flavored food-article like bouillon or fruit.

Mere insistence upon the patient's taking a much larger quantity of food than his appetite calls for is a very unsuccessful and ill-judged way of treating malnutrition from any cause, unless it be hysteria, insanity, or the anorexia that may develop in severe emaciation and inanition.

The appetite needs to be carefully considered, also, when one establishes regulations that differ largely from normal customs or the patient's habits. In such circumstances, particularly if the restrictions imposed are pretty narrow, the food-articles ordered readily become repulsive, and the patient, then, if he adheres to his diet, may become ill-nourished, merely because he can take only a small amount of what is permitted him. For this reason one needs, in cases that are at all protracted, to be careful to restrict the diet only so far and so long as is essential, especially if there is danger, already, of malnutrition. Very often, indeed, one's chief

duty is to enlarge the diet, because the patient is suffering from the effect of a restriction that has been imposed upon him, or that his own overfearfulness has led him into. In fact, one of the most common and most serious errors made in dietetics is to advise, or to permit the patient to carry out, too great a restriction in the amount and variety of food, and thereby to produce more or less serious malnutrition that is very often worse than the original disorder.

There is another fact that is dependent partly upon the frailties of the patient and partly upon the carelessness of the physician: Diets are very frequently adhered to but loosely. This is extremely difficult to control, in many instances, in family practice, and hence patients that need rigid regulation of their diet often do much better in institutions than at home. This trouble, however, can be largely overcome if one is absolutely definite and specific in stating the constituents of the diet, the character of the separate meals, and the time at which they are to be eaten; and, as far as possible, in regulating the amount of the different food-articles permitted. All these statements, in all cases in which the diet is of decided importance, should be written out in detail. Furthermore, the patient should be required to keep a record of his meals, and this should be carefully supervised and controlled. When a list stares him in the face, he cannot plead a lapse of memory, and specific statements, together with a sense of being frequently under detailed inspection, serve as a very effectual control in most instances.

The most important things that we actually do in employing dietetics are really comparatively few in number in most cases; first of all, one of the most important things we have to do is to study carefully the dietetic habits of the individual and correct anything that would be essentially wrong for any one. The great variety of errors in diet that we find, and the commonness with which they are present, makes this one of the most important features of dietetics, and it must always be remembered that it is not a question of discovering a person's indulgences only, but frequently of discovering rather bizarre fancies, or peculiar family customs, and a variety of other things which unconsciously to the patient are doing him harm. Then we must determine whether the patient is undernourished, overnourished, or normally nourished, and if he is either of the former we must correct this, if possible, by choosing amounts and kinds of foods, according to their known values. Then, in a large proportion of cases, whatever the disturbance, particularly when it is digestive, we shall find it desirable to limit temporarily both the amounts and the kinds of foods—that is, to put the patient upon a somewhat insufficient diet for a very short time, and upon an extremely simple variety of foods, in order that opportunity for rest may be given as an important part of overcoming the effects of previous errors. This, however, is by no means always to be done, as in many cases the patient needs from the first to get more generous feeding, and in any case underfeeding should continue for only a short time, and the patient's general nutrition must be constantly watched, as there is always danger of damaging it through dietetic

regulations unless this is guarded against. In disturbances of digestion, whether the main condition producing them is disease of the digestive organs or of some other kind, we are influenced relatively little by the name of the disease, except in so far as we know that the disease involves certain dangers, and, therefore, demands a severity of restriction that we otherwise might not use. We are influenced, on the contrary, first by the evidence of irritation, and in accordance with the severity of any signs of irritation, such as nausea, vomiting, pain, gastric hypersecretion, diarrhea, we permit only foods that are more or less simple and bland in their physical and chemical characters. Again, we always have in view the necessity of stimulating peristalsis and the expulsion of fecal matter by choosing foods that leave a residue or that yield substances that excite peristalsis, or, on the other hand, if this function is already excessive, we exclude precisely such foods and use those that have the contrary effect. Finally, and in a large proportion of digestive cases, most important of all, we determine, by a study of the feces, which type of foods is giving disturbance, and just as is done in infants and young children, we restrict the protein, carbohydrates, or fats in accordance with this; or, better, when possible, we choose reasonable quantities of these from those forms that are easily digested and do not readily decompose in the digestive tract. The principles that have been established by the careful studies of pediatricists are nearly as applicable to adult patients as they are to the very young, and they need to be followed much more than they are. Indeed, pediatricists are much more rational in their dietetics than are the mass of those who deal with adults; very naturally, however, because it is so much easier for them to determine, in the much less complex pathological circumstances of very early life, which is chiefly at fault.

In dealing with diseases which lie beyond the digestive tract, we have, in most instances, except in diabetes and obesity, only general conceptions to work upon, such as the existence of intoxication, for example, which demands some flushing with water, limitation of the foods to such as are relatively easily metabolized and excreted, and restriction of the amounts of these as closely as can be done without damaging general nutrition—all this so that the powers of metabolism and excretion may be spared for the control of the toxemia; or we know, for example, in hepatic cirrhosis and such conditions that something is causing chronic irritation, and we make regulations that are in the main the same as those above mentioned, in order to meet these conditions. Much the same thing is true in chronic nephritis. In other conditions, there are certain details that are especially suitable in some of these conditions, rather than in others, but the most valuable of all the regulations that we possess are covered by a scheme such as that I have sketched, and one strikes much nearer his aim if he fixes such a scheme as his basis of action, and slowly adds special details, as study and experience demonstrate to him their importance, than if he starts with the belief that he must arrange first the details to fit each condition.

220 KELKER STREET.

THE PROBLEM OF "NEUROTICS" IN MILITARY SERVICE.*

SOME RECOMMENDATIONS.

BY ALFRED GORDON, M.D.,

PHILADELPHIA.

IN the selection of men for defense of our country and for bringing the war to a successful conclusion not only the quantitative form should be taken into consideration, but also the qualitative value of each soldier. There is a class of men who are very little understood whose manifestations are being regarded as spurious, imaginary, and consequently of too little importance to be considered at all. The average medical man ignores their complaints because of absence of concrete physical signs. In reality there is always present a multiplicity of physical disturbances alongside of psychological factors which are sufficiently powerful to cause actual and genuine disability and unfitness for responsible military work in war time. The other reason why these cases are treated lightly is the fact that the individuals show a strong tendency to recover promptly, but unfortunately those recoveries are only superficial and recurrences are very frequent. In the latter feature lies the essential characteristic of the patient's condition, and so-called recoveries take place only in the episodic morbid manifestations, but not in the underlying fundamental nature of the individual. Without entering into a detailed definition of various forms of functional nervous disorders of a psychological bearing, I will use for present purposes the general term "neurotic" to cover the vast field of individuals whose mental make-up is such that at any time during life, under the influence of the least emotion they are apt to develop mental or physical disabilities of a functional nature so as to render them useless in the community. Recognition of such a type of individuals and of their psychic mechanism is of paramount importance at present, as it is urgently essential to know who is fit and who is not fit to undertake the great task of protecting his country. It is gravely important for us to know beforehand who is capable or incapable to withstand the horrors and hardships of war, as success will depend on the selection of the first group and on the weeding out of the second group. The subject is therefore of immediate vital importance.

Let us briefly outline the essential characteristic features of the "neurotic" individual.

The most conspicuous and the most important is a want of equilibrium in the intellectual faculties, and the mental instability may sometimes be extreme. Such individuals are introspective, emotional, timid, extremely sensitive, impressionable, suspicious, and egotistic. Their psychophysical resistance is constitutionally diminished and there is an interruption of harmonious equilibrium normally existing between various functions of cerebrospinal centers, and consequently the co-operation and adaptation of the latter are incomplete. It does not require a special mental effort to conceive that individuals of this psychic make-up are apt to develop morbid manifestations of any sort

*Read before the Philadelphia County Medical Society, January 9, 1917.

under the influence of some emotional factor. In practical life we observe that depressive emotions, prolonged physical or intellectual efforts, a prolonged waking state, excesses of any sort, or disturbances of nutrition and intoxications are the usual causes of neuroses in neurotic individuals.

Among the various neuroses which a neurotic most frequently develops is a so-called "anxiety state." As an illustration the following example may be presented:

A young attorney of 25, who frequently during his student days suffered from obsessive ideas, with morbid impulses, has now developed a morbid state of a different kind. He expects to be called to the colors. Being constantly in a state of tension, he is extremely restless, irritable, has difficulty of concentration so that he frequently neglects his work, sleeps very poorly, is easily startled when he falls asleep, dreams constantly, and sees in his dreams fighting, with bloodshed. He feels always fatigued, and sleep does not refresh him. He is very apprehensive, reads the war news in as many editions of newspapers as he can procure. He is in a state of disquietude, converses frequently regarding the issue of the war. Any bit of news unfavorable to the Allies accentuates the above symptoms and precipitates a prolonged insomnia, with all its horrors. Formerly he suffered from periodic imperative micturition. Now the disorder became so persistent that he is obliged to urinate every half hour. This phenomenon is associated with a state of tension in the perineum. In arguing once a case in court he was obliged to excuse himself several times and go out to empty his bladder. When the time came for him to address the jury he was thrown into such a state of anxiety that he was unable to go further than to say: "Gentlemen of the Jury." One may infer at first glance that the element of fear is the chief etiological factor in the neurosis of my patient. However, I may say that he was a man of high principles; he was truly patriotic, which he has demonstrated in various ways; he was eager to do "his bit," but his psychic mechanism was such that a manifest instability would occur upon the least provocation. Soon he developed nightmares and of course he would awaken in cold sweats and terror, frequently screaming. They became so frequent that he commenced to fight sleep, because he actually feared sleep, which, of course, deprived him of sufficient rest. For days he would get but a few minutes at the time of actual sleep. The facial expression corresponded to the mental state of my patient. It manifestly revealed an emotional strain; the features were drawn, forehead frequently frowned, and there was an evident effort to maintain control of himself; there was an evident mental pain. The patient, being perfectly conscious of these disturbances, feared intensely that because of them he would not be able to fulfill his duty towards his country. On the other hand, in case of being rejected by the military authorities he feared that he might be considered by his friends as cowardly and unworthy. This fear intensified his "state of anxiety," and he spent days in actual mental agony.

Such is briefly the picture of the neurosis called "state of anxiety." In some cases it may be more, in others less, pronounced. One of its characteristics is improvement and even disappearance of some or all of its manifestations, but on the other hand recurrences are equally characteristic of this affection. The above patient improved greatly after each attack, but the neurosis would soon return. The most interesting and important feature of the subject under discussion is that such individuals appear objectively normal. So it was with our patient. To all his friends and relatives he was a man of good physical health. Indeed, with the exception of the above mentioned urinary symptoms, there was at no time any somatic disturbance. He

knew that duty called him to join the forces and that he would cheerfully assume the duties assigned to him, but the intense fear of being unable to face responsibilities of grave nature made him feel great shame over this and caused the disturbances enumerated above. Does not that feeling of fear or the state of anxiety indicate grave defects in the individual's attempt to adapt himself to new conditions and to meet situations in spite of objective normality?

Besides anxiety neurosis there is a multiplicity of other functional disturbances of a psychological nature.

Take for example the category of hypochondriacs. There the disorder is characterized by a vivid sense of having one or more organs in a morbid state. The patient complains of a multitude of vague symptoms referable to one or several organs. Believing that a special organ is affected, he will observe its function from day to day or from hour to hour, and the most insignificant symptom will be interpreted by him as pathognomonic of some disease in a state of development. After having concentrated his thoughts on one organ for some time, he soon abandons it and takes up another organ in the function of which he finds disturbances. Digestive tract, genito-urinary apparatus, heart, nervous system—may all be taken up seriatim and become a subject of great solicitude by the patient. The heart particularly is very frequently considered to be at fault. Heart neurosis is a frequent accompaniment of the "anxiety state." While objectively no evidences of valvular trouble are present, nevertheless the individual will present sometimes palpitation, dyspnea, and dizziness, especially in connection with some emotional provocative agent. Whether those suffering from heart neurosis have actually some disturbance in the function of the ductless glands which per se is capable of producing the above symptoms, or whether the latter are the exclusive result of a mental condition which tends to produce physical symptoms, it is difficult to say. The fact nevertheless remains that neurotics do present heart symptoms which may disappear after the patient makes a recovery, although a temporary one. It stands to reason that in presence of a heart neurosis the individual thus affected will be constantly subject to a neurotic reaction which will prevent him from undertaking responsible work.

The neurotics may present psychic disturbances of another character. In phobias the individual may fear to cross or to find himself in an open space (agoraphobia) or in a closed space (claustrophobia). He may fear to be alone (monophobia). He may fear touching objects. Morbid doubt or indecision is another variety of neurosis; here the individual is never sure of the correctness of his acts. In obsessions the patient is unable to free himself from thoughts, ideas, or images (auditory or visual) which once have invaded his mind, and irresistible impulses may follow. In abulias the individual does not possess the power to do certain acts which he had intended to do. Here we find a deficient will. Should he try to overcome it he will be thrown into a state of anxiety and suffer intensely.

This brief description of some of the varieties of the tendencies and abnormalities of neurotics is sufficient, I believe, to give a general idea of the character and nature of the work that they may be expected to perform. There is a general common feature in this group of individuals, namely, that they are all fully conscious of their own disability and they are all constantly at work to overcome and repress the latter. They not only fail in their efforts but on account of the attempts at repression the mental abnormalities increase in intensity so that they become totally incapacitated; the more they struggle against their disabilities, the less they see themselves capable of undertaking a task assigned to them, their nervous energy is exhausted before they commence the work. The exhaustion is more mental than physical as the difficulties are more psychological than physical in their operations.

A little excursion into a deeper psychological explanation of the various psychic mechanisms underlying the abnormal manifestations of the neurotics will necessitate a discussion of the subconscious factors which possess the power of producing anxiety states, fears, obsessions, and other phenomena. The relationship of the subconscious world to the conscious ego is of no small importance when a true *modus operandi* for the abnormal psychology of the neurotic individual is sought for. Such a discourse would lead one to speculations which for the present would not answer the purpose of my address. My aim is to call attention to the necessity of personality study since we are confronted with the grave problem of individual capacity for warfare. To be conducted efficiently the latter must be conducted by efficient individuals. Persons who show psychopathic tendencies, persons who in civil life present evidences of ill-adaptation, are certainly poor risks for military work in time of war. We must have on the firing line the best and the most competent men who present the strongest guarantee of resisting a continuous physical and mental strain. This consideration is not exclusively an *à priori* judgment, but it is amply borne out by the experience of France and England. There the medical officers soon began to realize the error of admitting to the ranks at the front mentally unstable individuals. At first their difficulties were enormous and rapidly in very great numbers men were sent back with various psychoneurotic manifestations which rendered them absolutely unfit for actual service at the front. They had to undergo special treatment in special neurologic and psychiatric centers. It is needless to emphasize the material sacrifices and the difficulties of the respective governments created through an injudicious and indiscriminate selection of men for the most responsible activities at the front. Osler in a recent letter to the *Journal of the American Medical Association* (July 28, 1917, p. 290), speaks in strong terms of the disastrous results of carelessness in selecting recruits for the British Army. Let us profit by the unfortunate experience of our Allies in the selection of our men and let us avoid unnecessary casualties since the condition is largely preventable. Let us avoid a useless burden which neuratic recruits would necessarily throw upon our government engaged at the present time most seriously in solving most difficult problems. It has come to my knowledge that

various neuropsychopathic wards are being planned now for base hospitals at cantonment camps and psychiatrists from the base hospitals will be on duty at casualty clearing stations, also that psychiatrists and neurologists are now detailed to each of the American camps for the purpose of examining the troops in a systematic way in order to eliminate those who are found mentally unfit for war service. The desirability of such institutions is clear. But a question arises: Would it not be of a more direct and greater advantage to all concerned to decide the individual's fitness or unfitness at the time of enlistment instead of accepting the neurotic, of sending him to the camp and only then trying to find out his make-up. In war time, when so many complex problems arise almost daily, when the material sacrifices are enormous, when the government's responsibilities are unusually difficult, at such a time the simpler and at the same time more effective a method is devised, the more desirable it is. Proper recognition and immediate rejection of neurotic individuals before they are admitted to the military service would save considerable time and material sacrifices to the government. Immediate rejection of the candidates would obviate the necessity of clothing, feeding, and training them for an indefinite time. The present method adds an additional and unnecessary burden to the strenuous work of the authorities. Let the elimination of unfit recruits when found in the camps continue as mentioned above, but neurologists and psychiatrists attached to the home recruiting stations during the enlistment would greatly reduce the responsibilities of the military authorities in every possible way. Many of the specialists who are unable for one reason or another to perform active military service would gladly, I am convinced, render their assistance to the government and offer their services for special examinations. It is needless to emphasize the fact that by this method the work of the military authorities would be greatly simplified.

Recommendations for rigid exclusion of insane, feeble-minded, and neurotic individuals are self-evident, but it is particularly to be recommended that the act of excluding should be especially done at the home station during the enlistment. In case repeated examinations are necessary they can be made at home. When it is found necessary to obtain information from relatives concerning the previous health of the recruit it can be very readily done. In case a necessity arises to keep the individual under a more or less prolonged observation, the aid of one or more hospitals can be secured and the individual can be kept in bed under continuance study. Such a procedure can be carried out without any expense to the government, will save considerable time, and will relieve the army from the unnecessary burden which it is struggling to surmount. There is no doubt that individual physicians and hospital authorities will render such service to the country without any thought of compensation.

The home elimination method presents another advantage in that prolonged observation in a hospital will enable us to detect malingering and determine the diagnosis between a neurosis and malingering. While as a rule the differential diag-

nosis is not difficult, nevertheless occasionally we are confronted with some puzzling case demanding very careful discrimination. Kept in bed under constant and close observation of a psychiatrist and a nurse, confronted with facts gathered from friends and relatives, knowing well that he is subjected to expert examinations, a malingerer will soon break down and will be revealed in his true light. In presenting the recommendation of home examination and elimination of neurotics I intentionally omitted to point out the actual aggravation of their morbid symptoms by their transportation to camps, but under the circumstances the latter is a secondary consideration and must be ignored, as the welfare of the country is of paramount importance.

In connection with such a plan another thought suggests itself. Types, varieties, and subvarieties of neurotics are many. While all are unfit for actual military work at the firing line, some of them nevertheless are capable of performing some duties of a nature different from fighting. A good number of them could be utilized for work of a secondary character behind the firing line and thus release the men who are more fit to face the enemy. A large contingent of good and strong men will thus be added to the fighting force. The home examining psychiatrist after a profound study of the recruit's personality will determine the variety of the neurosis and the degrees of its development, and will thus be able to make suggestions and recommendations to the military authorities as to the kind of work a given neurotic individual could be assigned to. A systematic plan can be worked out by which the examining psychiatrist will familiarize himself with the multifarious duties incidental to military service in war time so as to be able to make the proper recommendation in behalf of those neurotic men who are not totally rejected. It appears to me that the military advantages and benefit of such a procedure will be of enormous assistance to our government with regard to time, efficiency, and expenditure.

To sum up, it is my opinion that apart from the consideration of the neurotic's welfare it will be a matter of expediency for the government to institute special examinations of each recruit at his home before he is sent to camp. For the reasons enumerated above more efficient examinations and accurate recommendations as to the individual's fitness for certain duties will thus be made. A great deal of labor, expense, and difficulties will thus be prevented.

1812 SPRUCE STREET.

THYROID DISEASE AND THE WAR.

By S. P. BEEBE, PH.D., M.D.,

NEW YORK.

THYROID disease as found in both groups, soldiers and civilians, will be markedly increased during the war. This statement is based upon the observations which have come to us from abroad where the intensity of the struggle has produced reactions as yet comparatively unknown to us, and upon experience gained in previous periods of intense hardship and emotion.

Knowledge of thyroid disease has increased so

much since there has been any previous big war that recognition of the true nature of conditions that have passed heretofore as neurosis is possible. The thyroid gland reacts instantly to a nerve stimulus by discharging its peculiar iodized protein into the circulation. This may be, as Crile and Cannon maintain, a defensive mechanism; the physiological effect is none the less produced. Students of thyroid disease need no long argument to be convinced of the close interdependence of intense emotion and the awakening into pathological activity of a hitherto quiescent thyroid gland. Not infrequently a so-called simple goiter, or colloid goiter, is whipped into sudden and dangerous activity by a single intense fright, or depressing sorrow. The activity continues long after the sudden shock which initiated it.

The writer several years ago had as patients four men who developed severe hyperthyroidism during their experiences in the army serving in the Philippine Islands. They were in excellent health on entering the army and could definitely date their trouble to a particular campaign. Later, at the time of the Kishineff massacre in Russia, patients who had been subjected to the horrors of this experience came to New York City with severe hyperthyroidism, the incidence of which they definitely dated from the fright and hardship then endured. The San Francisco earthquake produced similar cases. The writer saw three patients with this condition developed from the Triangle Shirt Waist Co. fire. These are a few concrete instances of the effects of intense emotion in stimulating the activities of a latent thyroid. In this connection it is interesting to quote from McCarrison's recent book on the Thyroid in Health and Disease, "a proportion of cases may be precipitated by some accidental circumstance, such as a train disaster, a fall from a horse, or by such circumstances as seduction, attempted rape, or the excitement and strain of war," and he cites among the factors which affect the thyroid apparatus, "Fright, mental distress and worry, business or social cares, unfortunate love affairs, violent emotion, and mental and physical exhaustion with loss of sleep such as occurs amongst soldiers in the trenches."

Factors of this kind affect a thyroid gland which has previously maintained itself within a normal range of size and activity, and prove potent indeed when certain types of enlarged glands are involved. The writer has repeatedly called attention to the marked effects which are sometimes seen in cases that have been classed as simple goiter as a result of factors of this sort. Some observers have maintained that glands of so-called simple type including therein small colloid goiters do not under any circumstances give rise to those severe toxic manifestations which we recognize as Graves' disease. Such a conclusion is due to faulty or limited observation and the writer is gratified to see that McCarrison agrees upon his point as he states that "Again Graves' disease may be superimposed on a goiter due to foetal or simple adenomata or it may commence in a thyroiditis due to some acute infection."

The medical observers abroad have noted that many cases of "soldier's heart" are in reality cases of hyperthyroidism and while there is not complete agreement on the part of the observers, the symptom

complex described corresponds with that of hyperthyroidism so closely that it does not appear that wrong interpretations have been made. Sir James Barr was the first to call attention to this condition and more recently Hurst has confirmed the observation and described the treatment that he employed. Our own army has as yet taken little part in the great struggle, but inquiry at the army hospitals has revealed the fact that the preliminary training in this country has already developed cases of hyperthyroidism among those who were accepted as physically sound. As the factors above cited become more conspicuously operative, the percentage is bound to increase.

The treatment of the hyperthyroid patient is not suited to the wards of a general army hospital. The number demanding treatment will assuredly be enough to warrant some special provision for their care. The recovery is slow, the disability will have been incurred in the line of duty, and the responsibility will be upon the government hospital service to provide suitable treatment. The treatment employed by Hurst does not seem to the writer entirely suited to the condition. Opium for mental restlessness and belladonna to check the thyroid and adrenal secretions is a form of therapy that has been largely discarded in civil practice. Suitable quarters and treatment are necessary if these men are to have what they deserve.

The civil population will suffer from somewhat similar emotional disturbance. The wives, sisters, sweethearts and mothers of the soldiers have had some foretaste of what is to come and unless all previous experience is to be contradicted, the incidence of hyperthyroidism will be markedly increased. The recognition of this condition during recent years has constantly improved, yet even now too many cases are unrecognized and poorly treated.

It is to be presumed that unusual care has been exercised in the physical examination of the men accepted for service in the army and navy, yet the reports from the army hospitals in this country show that men are already being admitted who have well marked conditions of hyperthyroidism. In view of such conditions it is to be presumed that the proportion will be increased as the provocative factors become more intense. The disability having been incurred in the line of duty is one which should be cared for by the medical service. As far as the writer can learn no special provision has been made for this class of patients. They need and deserve such care. It is to be hoped that a policy of wholesale operation, which has been so popular in recent years in this country, will not be adopted for such cases.

The thyroid patient needs special care quite as much as the tuberculous patient, or those having injuries and deformities requiring orthopedic correction. The pressing need for action in other fields has been great, without question, but here is a field also already incapacitating the country's soldiers and in some fashion it must be met.

The cases occurring in the civil population will be cared for in the usual way by the civilian physicians, but the organization of the nation's resources for war signifies attention to detail. A soldier or civilian invalided by hyperthyroidism is quite as much an ineffective as though rendered helpless by

a bullet wound, with the added burden of requiring a longer time to effect recovery. The early stage of the disease is the period most easily remedied. The early recognition of thyroid disease and its proper treatment is therefore a part of the great struggle.

417 PARK AVENUE.

EXAGGERATED VIEWS ABOUT THE CON- TAGION AND OUTCOME OF PUL- MONARY TUBERCULOSIS.

BY BEVERLEY ROBINSON, M.D.,

NEW YORK.

THE great evil at the present time, connected, as I believe, with the growth of knowledge and modern specialism, is morbid introspection, which exists in many persons.

Witness what has occurred in regard to tuberculosis. Consumption has become a great dread to the individual and to the community. It is only necessary for a few physical signs in the chest to be noted by a practitioner and immediately there is a shake of the head, or a doubtful tone of voice, and very soon the patient is obliged to be over-careful in every way. With a slight cough and expectoration added, the sputa are examined microscopically. If perchance a few tubercle bacilli are found, nothing short of a sanatorium is advised, or insisted upon. Then, what results? A home or business broken up and imperative exile of many months follows. This is done to help cure the individual and protect the public. The individual is not infrequently rendered unduly morbid as a consequence and a disease which is often thoroughly curable with a little time, fairly good surroundings and a few properly selected medicines, becomes a badge of martyrdom.

As to danger to the community. In my judgment, it is very slight, especially from patients at the first stage, or even the second stage, of the disease. Later, when pulmonary cavities, profuse expectoration and all the symptoms and signs of a grave general condition are present, it is different. Then, careful and special precautions should be taken. Even so, exaggerated fears should not be allowed.

The sputa, of course, should always be properly disposed of according to established rules, and the patient should not cough where others are present, without protecting his mouth with his handkerchief. Further, he should have a room to himself for sleeping and he should be careful to wash his hands when soiled and to have his own towels and table utensils.

But as to innumerable rules of government to protect others from the disease, or to be helpful to himself, these I do not consider important from a broad and sane viewpoint. If tuberculosis were very contagious it would be more widely transmitted everywhere: in street cars, in the subway, in theaters, churches, and, indeed, wherever crowds collect and there is insufficient fresh air. I, for one, am convinced it is not true, although apparently hallowed by modern teaching.

Money and work without stint or limit have been used to build sanatoria and help cure this disease. Have the results thus far obtained proven satisfactory? To my mind, no, if statistics are properly

interpreted. On the other hand, let it be understood that I uphold absolutely every effort to promote cleanliness and decent living for all, not merely for the tuberculous. This is progressive work and is the best we can do for general and individual health and well-being. To build up bodily vigor in every way is to destroy, as far as may be, inherent physical weakness, so that tuberculosis cannot take root or grow for long. The disease soon becomes self-limited or neutralized, and there need be no fear, usually, of its ultimate outcome. True, in some instances the bacilli may still be present in the sputa, but they are then the scavengers rather than the "fons et origo" of the disease.

At all events, adjoined to them, is no longer the poison that has once been there, even though the habitat is the same. There are exceptions, as always in medicine. We must admit there are some persons who cannot live in the city. They must live in the country, if they would enjoy tolerable health and stay the march of disease. Again, there are persons in whom when the disease has once taken hold it goes from bad to worse more or less rapidly and despite our efforts to check its onward and fateful march. This is notably true to-day, because we have to a large extent lost our faith in time-honored and, to me, useful medication.

Latterly, I am glad to add it has been proven by reliable statistics, that results obtained in a model "home hospital" are quite equal to those secured by sending patients to sanatoria, thus breaking up family ties and business affairs and causing great mental distress, which surely does not help "a cure."

In the advent of the "home hospital" is found an additional plea for healthful homes for the poor, and in this way to prevent tuberculosis and not simply to cure it when it is already present. The managers of the Association for Improving the Condition of the Poor in New York have established in their "home hospital" a model to be followed by all who wish to improve tenement-house conditions. I regret that at the present time we have no "home hospital" for our ill-colored citizens.

The summary, taken from the last "Home Hospital" report, is most instructive. I append it here.

"1. Since, so far as is known, no individual not previously infected with tuberculosis has developed symptoms of the disease while a resident at the Home Hospital, it would seem that under proper medical and nursing supervision tuberculosis may be treated in homes without serious danger of infecting well members of the family.

"2. Since the condition of the children has been so greatly enhanced the Home Hospital affords treatment at least the equal of preventorium care. Moreover, adequate corrective work is accomplished.

"3. Since most of the incipient and many of the moderately advanced cases have been restored to health the medical results compare most favorably with those of the best sanatoria; and finally

"4. Since so much has been accomplished in the social and economic rehabilitation of the families, the medical and economical practicability of the Home Hospital method of treatment seems to have conclusively demonstrated its real practical value in the treatment and control of tuberculosis in urban communities.

42 WEST THIRTY-SEVENTH STREET.

STERILIZATION AND PURIFICATION OF WATER WITH ISOTONIC SODIUM HYPOCHLORITE SOLUTION.*

(WITH THE NEUTRALIZATION OF THE WATER BY PEROXIDE OF HYDROGEN.)

BY WILFRED G. FRALICK, M.D.,

NEW YORK.

THE writer has been experimenting since 1901 with hypochlorites of various kinds for both surgical and sanitary purposes. About 1903 the isotonic sodium hypochlorite solution was perfected by me for surgical work and has been used in various concentrations for treatment of superficial and deep wounds, for introduction into closed cavities, and, with proper technique, for intravenous infusion. Its value has been repeatedly demonstrated for the dissolving of infected blood clots and necrotic tissue.

The application of isotonic sodium hypochlorite solution to water purification is of long standing and has been recommended by me because of the purity of the reagent and its high concentration of oxygen-ions (0 Cl). The method of preparation,† bactericidal action, and phenol coefficient have already been published (*Medical Times*, July, 1917) and it remains now in this connection to set forth some of the recent work which I have done on the application of this reagent to the disinfection of water in containers, such as the portable emergency outfits used in the present campaign by the United States Army.

Stability.—I have been able to stabilize the isotonic sodium hypochlorite solution by the addition to it of a small quantity of potassium permanganate. This method of stabilizing hypochlorites seems to depend largely on the deflection of the photochemical rays of light by the pink color of the permanganate solution. Recently the technique of preparing the Carrel-Dakin fluid has been modified to include my method of stabilizing hypochlorites.

Strength.—A typical series of tests by the author on the comparative bactericidal powers of phenol and isotonic sodium hypochlorite solution will indicate the strength of the latter reagent for water purification.

	Isotonic Sodium Hypochlorite Solution	Phenol
<i>Streptococcus pyogenes</i>	1 = 2000	1 = 40
<i>B. dysenteriae</i>	1 = 2500	1 = 50
<i>B. diphtheriae</i>	1 = 2700	1 = 60
<i>B. typhosus</i>	1 = 2000	1 = 45
<i>B. coli-communis</i>	1 = 3500	1 = 90
<i>B. suispestifer</i>	1 = 2500	1 = 60
<i>Microspira cholera</i>	1 = 2500	1 = 70

Time exposure, 5 minutes.

The phenol coefficient with various organisms ranged between 60-120 in many series of tests.

Manheimer‡ conducted tests on this solution

*From Dr. Fralick's Private Research Laboratory.

†The method of manufacture which has been published, with slight modification could be elaborated for industrial application. Careful regard for technical details is of great value, if the production of chlorates and other harmful byproducts is to be avoided.

‡Research Laboratory of the Health Department of the City of New York.

with water heavily infected with sewage organisms and obtained 99.6 per cent. purity using a 1 per cent. solution of the chemical in 8,000 parts of water. This is equivalent to 1 part of chemical in 800,000 parts of water, and when we consider the large amount of heavily contaminated water he was treating, the results must be considered as exceptionally good.

Neutralization.—At the present time the disinfection of water in emergency outfits (Lister bags) using chloride of lime, while effective in water sterilization only if an excess of chemical be used is objectionable on account of the taste and slightly poisonous character of the water resulting. It has been the writer's contention for years that the present method of calcium hypochlorite water sterilization adopted by the United States Army, should be discontinued in view of the injury produced by the ingestion of the excess chlorine and other products in the water and in view of the fact that the troops avoid drinking it wherever possible. Where the calcium hypochlorite is still used, it becomes necessary to make the water at least palatable by neutralization of the excess hypochlorite according to the method below. The addition of small quantities of isotonic sodium hypochlorite solution is entirely effective as a disinfectant and its presence in the water, while noticeable when in excess, is not injurious upon ingestion.

The writer* has proposed and demonstrated the use of two chemicals for water purification in emergency outfits (Lister bags), so as to produce a safe water, entirely free from objectionable tastes and odors. To do this he has recommended the use of the isotonic sodium hypochlorite solution as a disinfection and the neutralization of the excess NaOCl by peroxide of hydrogen $\text{NaOCl} + \text{H}_2\text{O}_2 = \text{NaCl} + \text{H}_2\text{O} + 2\text{O}$, while the effectiveness of this method had been repeatedly demonstrated at this laboratory, field tests under army conditions were conducted and the testimony of a number of sanitary experts obtained. There was a unanimous opinion expressed that water neutralized with the H_2O_2 was entirely free from any objectionable or even noticeable taste or odor, while bacterial tests demonstrated its freedom from microorganisms.

Conclusions.—1. In view of the disagreeable and probably injurious qualities of water disinfected with calcium hypochlorite, in emergency outfits (Lister bags), and in view of the fact that troops avoid drinking this water, we recommend its discontinuance.

2. Water can be sterilized with small quantities of isotonic sodium hypochlorite solution, and subsequently neutralized by the addition of peroxide of hydrogen.

3. Water treated with isotonic sodium hypochlorite solution and neutralized with H_2O_2 is sterile, free from taste, and absolutely palatable.

4. This system of water purification as presented to the Surgeon General of the U. S. Army is efficient, economical, and practical.

33 EAST SIXTIETH STREET.

*The writer, in a personal visit to the office of the Surgeon-General, explained his method of preparation of the isotonic sodium hypochlorite solution and offered his services to assist the Government in the production of the chemicals necessary for use in the army.

Medicolegal Notes.

Workmen's Compensation — Idiopathic Conditions Causing Injury.—The California Workmen's Compensation Act, like practically all the others, allows compensation to the dependents of an employee only where the proximate cause of his death is a personal injury sustained by an "accident arising out of and in the course of his employment." It is held that the death of an employee engaged in the erection of a building upon a scaffold 30 feet above the ground, properly guarded by a rope along its outer side, as the result of an epileptic fit in which he fell down on the scaffold and rolled over the edge, was not within the statute; the question whether the injury arose "out of" the employment not depending on the height from which the employee fell or the extent of the injury.

Prior decisions in similar cases are for the most part to the same effect. In *Van Corder v. Packard Motor Car Co.* (Mich.), 162 N. W. 107, an employee, while at work on a scaffold 6 feet in height, was seized with an epileptic fit, which caused him to fall off the scaffold to the floor, whereby his skull was fractured and his death ensued. It was held that the fit was the direct and only cause of his injury, and no compensation was payable. In *Butler v. Burton on Trent Union*, 3 B. W. C. 355, the deceased, while on duty, was sitting at the top of a stairway. A fit of coughing, due to the fact that he was afflicted with tuberculosis, came on and made him giddy, causing him to fall down the steps. From the injuries resulting therefrom he died in a few days. It was held there could be no recovery. In *Collins v. Brooklyn, etc., Co.*, 171 N. Y. App. Div. 381, the deceased, while at work, fell to the ground in a swoon due to heart disease, and thereby received the injury which caused his death. It was held that it did not arise out of the work. The court drew a distinction between cases of this character and those where the accident, though partly caused by the idiopathic condition of the employee, is due in part also to the overexertion of the employee in performing his work, or to the lack of proper safeguards against the ordinary dangers of the place of work, or to the nature of the work, or the appliances furnished with which to work, the injury being sometimes greater because of his idiopathic condition. In these cases the injury is held to arise out of the employment. An example of these cases is *Fennah v. Midland, etc., Ry.*, 4 B. W. C. C. 440, where the deceased, an engine driver, was tightening a nut in the engine and suddenly fainted and fell. The court, from the evidence, was of the opinion that his fainting fit was brought on by the work, and held that the injury arose out of the employment. Where the idiopathic condition and the employment are each contributing causes of the accident the employer is liable, but not where the idiopathic condition is the sole cause.

The only case to the contrary is *Wicks v. Dowell*, L. R. [1905] 2 K. B. Div. 225. The deceased was seized with an epileptic fit while standing on a wooden stage in a ship, close to the edge of a hatchway opening into a hold, and while guiding the descent of a bucket into the hold by means of a long pole and as a result he fell into the hold and was injured. The award was made. But this case stands alone and is contrary to the later decisions arising in England under the same law. *Brooker v. Industrial Accident Commission*, California Supreme Court, 168 Pac. 126.

Accidental Injury Under Workmen's Compensation Act.—The Michigan Supreme Court holds that where an employee who had had heart trouble of long standing died as the result of heavy physical labor which ruptured an auricle in his heart, there could be no award under the Workmen's Compensation Act for his death on the theory that it was accidental, it appearing that the work was done as he intended and agreed to do it, and that the death resulted merely from the strenuous labor.—*Stombauch v. Peerless Wire Fence Co.* (Mich.) 164 N. W. 537.

Workmen's Compensation Act—"Accidental Injury."—The Texas Court of Civil Appeals holds that where the lifting of a can of paint caused a blood vessel in a servant's lungs to burst, there was an "accidental injury" within the meaning of the Workmen's Compensation Act, and it was immaterial that it had burst before, but had healed over and might burst again.

Military Medicine.

THE CARE OF DIGESTION FOR THE SOLDIER.

BY MAX EINHORN, M.D.,

NEW YORK.

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DIGESTION deals with the food intake and its complete assimilation. The aim of the soldier is efficiency and a capacity for strenuous work, without injury to the system. In order to accomplish this, greater amounts of food than normal must be taken. The demands made on the soldier's digestion will be correspondingly greater.

The usual principles for the care of digestion can be briefly summarized as follows: Regularity in taking meals, eating leisurely, diversity of foods, frugality, work and rest proportionately divided. Neither overfatigue nor too much leisure should be allowed to occur.

Although these maxims pertain to all individuals alike, the soldier included, and should be followed, whenever feasible, the army-man is so placed that he frequently cannot obey these laws.

For this reason it appears appropriate to consider how best to act in these precarious conditions of a soldier's life.

I. *The Food Problem.*—A greater diversity of foods is usually impossible in camp life. The soldier will therefore do well to partake of every article of food offered him, in order to avoid a diet that would be too one-sided.

As a rule he should endeavor to partake of the entire portion of cereals, vegetables and fruits allotted to him and of meat as much as he desires. Peas, beans and lentils contain a considerable quantity of protein and should be indulged in liberally. Fruit-jellies and jams are useful when fresh fruit cannot be had. The foods usually being concentrated, it is important to have tea, coffee, or cocoa, with milk and sugar at each meal, also good drinking water. The latter should be taken, one to two glassfuls (according to the requirements of the body; more in hot weather than in cold) at each meal.

II. *Rules for Meals.*—(a) When activity is known; (b) For exceptional and undeterminable work.

(a) The soldier should lead as regular a life as is compatible with his duties. Meals should be taken at regular intervals, if possible, at about the same time every day. Some time should be spent in consuming a meal, eating leisurely neither too fast, nor too slowly. The morning meal should be the lightest of the three meals. A short period of rest (spent in conversation, smoking, etc.) after meals is advisable. After the evening meal, this period of leisure should be extended over a longer time. Anything that contributes to the amusement of the individual will be of help toward a healthy digestion. Playing of games or listening to music and story telling is, therefore, highly commendable.

(b) When there is a hurry call and the mealtime must be considerably shortened, the soldier will do well to partake of a rather small quantity of light foods. A cup of warm (not hot) coffee or tea and

bread and butter or a sandwich, or porridge will best serve the purpose. Hot dishes and meats are not appropriate at such hurried occasions. The reason why larger meals and heavy foods are here not desirable is because the soldier then has no time, nor the desire to masticate the food properly. A heavy meal faultily ingested may easily lead to bad consequences.

Similarly a meal which must be taken after exhausting marches or other over strenuous work or after prolonged fasting, should be of a light character and of a rather moderate quantity. After a period of rest the next meal may be taken in full amount and in the usual manner.

III. *Urination.*—Passing of urine should be done at regular intervals, if feasible. Empty the bladder when arising and retiring, also before starting out for a prolonged march or other important steady work.

IV. *Defecation.*—Attempt to have a movement of the bowels when arising. If unsuccessful do not worry about it, nor think of it. Whenever there is an inclination for defecation, nature's call should be obeyed; otherwise wait until the next morning. Drinking of water, ingesting larger amounts of fruits, salads, jams and vegetables will greatly contribute toward a regularity of the bowel movement.

V. *Rest.*—The soldier being subjected to strenuous work, must also have periods of rest. This applies here in a still higher degree than in ordinary life. Efficiency is impossible unless there is complete recreation after fatigue.

VI. *Sleep.*—Sleep is the acme of rest. In this state the muscles, nerves, and brain cells are completely relaxed, and the blood stream washes out and carries away all waste products which had accumulated during the period of work. Eight hours' sleep should be allotted, unless in exceptional straits, when this period may be somewhat shortened.

Rest and sleep are essential factors in keeping the digestion in good trim. For this reason as much attention should be paid to these two factors as to the other items regarding nutrition.

At first glance it appears rather impossible for a soldier to take good care of his digestive apparatus. For many of the conditions prevailing in army-life are necessarily contrary to hygiene. In reality, however, the soldier quickly accommodates himself to the new conditions, and his digestion is as good as in civil life. It is a great blessing of nature to have fitted our organism with a great deal of elasticity, so that it can adapt itself to the most unfavorable states.

In observing the rules outlined, good digestion will be considerably enhanced in the soldier.

20 EAST 63D STREET.

Ear Injuries in the War.—In an article in *The Journal of Laryngology* for November, 1917, Major W. Sohler Bryant of New York calls attention to the large number of aural injuries received by soldiers in active service at the front. The proportion of these injuries is much greater than in previous wars by reason of the increase in large guns, shells, mines, bombs, grenades, etc., together with the longer exposure to rapid-fire arms. The loud detonations rupture the tympanic membranes

and cause hemorrhage, ecchymoses, and molecular disintegration of the ear apparatus. Continued irritation of the ear apparatus by less violent explosions causes a molecular change and nutritional impairment, resulting in a dry inflammation of the ear apparatus. Deafness and vertigo are common effects of "commotion" and "shell shock," of whatever kind or nature. At the front, the susceptibility of ears to damage is increased through obstruction of the nares, the pharynx, and the Eustachian tubes. The presence of nutritional disturbances, otosclerosis, "dry catarrh," calcification, and fibrosis renders the ear mechanically more delicate and susceptible to injury.

Dr. Bryant divides the nature of the injuries of the ear and their complications into three categories: (1) Rupture of the tympanic membranes. (2) Complications of ruptured tympana; (a) acute or chronic suppuration of middle ears; and (b) mastoiditis, mastoid abscess, and its complications. (3) Commotion of the viii cranial nerve apparatus. (The cochlear branches always suffer, the vestibular branches less frequently.)

Although among the troops the onset of ear diseases is naturally more rapid than it is in civil life, convalescence is, by way of compensation, often considerably shorter than in civil life. The clinical histories of many ear patients show the rapid (a few weeks) sequence of degenerative, dry inflammatory conditions of the middle ear following ear injury at the front. With appropriate care, however, ruptured tympanic membranes heal without suppuration, and with restoration of function in five to twenty-one days. Convalescence is considerably shorter than the course of middle-ear suppuration is in civil practice, and averages about twelve days. Uncomplicated middle-ear suppuration among the soldiers yields very quickly to dry treatment, probably because the condition is primarily traumatic, and is not due, as in civil practice, to an underlying pathological state.

As to treatment, Dr. Bryant says that the treatment of ruptured tympanic membranes and the prevention of complications is directed to the encouragement of spontaneous repair, which is best secured by the prevention of infection and suppuration. The care of the perforations should be aseptic, dry treatment, removal of moisture in the meatus by wiping, insufflation of sterile boric acid powder, and plugging of the meatus with sterile absorbent cotton painted with collodion. The dressing should be repeated sufficiently often to secure the desired protection against suppuration. The treatment of suppurating middle ears and consequent complications is the same as is required in civil practice. The good results of treatment and operative intervention are surprisingly quickly obtained among the soldiers, and are very satisfactory.

Volhynia Fever.—This affection was described early in the war as occurring in Volhynia. Later it was comprehended under quintan fever and recognized on other fronts. It is a new kind of infection which may have sporadic or epidemic incidence. Fever and pain last for one or two days and a new crisis occurs every five to seven days. It must therefore be distinguished from fever which runs its entire course in five or seven days. It is conveyed from man to man by the body louse. Quintan fevers have represented a

type of malaria since the time of Hippocrates and the new malady was regarded originally as of malarial nature and later as a form of influenza (trench influenza). Numerous designations have been proposed to distinguish it from other trench fevers. It has now been seen on all of the chief fronts save the British-German. Its occurrence in Italian sectors is responsible for the publication of an article by Ceconi in *Il Policlinico* for November 18 (Practical Section). Its actual cause is probably a protozoan carried, as already stated, by the body louse. The blood of patients can be made to infect guinea pigs. In cases in which animal tests were negative the disease has been shown to be inoculable in man. Blood was injected into the buttocks and the incubation period was found to be 21-23 days. When louse transmission was made possible infection of well men by infected men occurred sooner or later, but the interval was long, some six months, showing that time is an important element in the transmission of the disease. The presumption that a spirillum is the cause of the disease is strong and several observers claim to have found spirochetes in the blood. Riemer even succeeded in cultivating one in inactivated human serum. The significance of such a find is weakened by numerous other positive results obtained by other men. This muster of inharmonious discoveries is also seen in connection with exanthematous typhus, with which affection volhynia fever has other points in common.

It has been asserted in fact that volhynia fever is only a mild, abortive form of typhus, but such a view is opposed by the fact that while one attack of typhus protects the subject from further infection, volhynia fever readily recurs after a space of six months. Furthermore, volhynia fever bears no clinical resemblance to mild typhus nor what is known as Brill's disease. Shin ache is a very prominent symptom in volhynia fever and may be the only symptom of an access, while fever and tibialgia together are the prevalent manifestations. Diagnosis is made chiefly by the quintan course and the chief conditions to be excluded are malaria and relapsing fever, in both of which positive blood finds should be obtainable.

The entire course of the disease is four to five weeks on the average, while the period of convalescence is two to three weeks. Soldiers return to the ranks in from seven to eight weeks after the beginning of the infection. Although it is nominally a benign affection some writers assert that by reason of certain sequelæ, chiefly segmental hyperesthesia, only 18 per cent. of the men are left fit for active service. But such an experience is quite exceptional. There is no specific, spirillocide remedy, and only drugs like aspirin or pyramidon render transitory service. Anti-louse measures should prevent the development of the disease.

Plans for Rehabilitation of Disabled.—Comprehensive plans for the vocational training of disabled soldiers and sailors as well as of civilians employed by private firms, have been outlined in a report from the Federal Board for Vocational Training recently submitted and an appropriation of \$10,000,000 has been asked. It is calculated

that 100,000 men will be disabled during the first year of the war of which 20,000 will require total or partial reeducation. The Canadian estimate shows that 10 per cent. of the men sent overseas return physically unfit for military duty.

Navy Again Appeals for Eyes.—The Navy Department has again sent out an appeal for more binoculars, spy-glasses, telescopes, sextants, and chronometers. The recent appeal brought some 6,000 glasses of various kinds, but the supply is as yet wholly inadequate. Glasses may be sent to Assistant Secretary Roosevelt, Navy Department, Washington, D. C.

Deaths and Sick Rate in Army Camps.—The sick rate in both National Guard and National Army camps for the week ending January 25 shows a slight increase over that of the preceding week. The non-effective rate for the National Guard was 50.4 per thousand as compared with 49.1 for the preceding week. The non-effective rate of the National Army was 53.9 as compared with 51, and the hospital admission rate was 39.6 as compared with 36.6. There were 81 deaths in the National Guard camps, compared with 66 the preceding week. Of that number 47 were due to pneumonia. Deaths in the National Army numbered 108, against 149 for the previous week, 71 being due to pneumonia. Camp Wheeler, Georgia, showed the highest non-effective and admission rates. There was a slight increase in measles at Fort Logan, Texas, with a few new cases of this disease in other camps. Camp Doniphan, Okla., and Camp Wheeler showed considerable increases in the number of pneumonia cases. Among the National Army camps the highest non-effective and admission rates were at Camp Travis, Texas, where mumps prevails. There was an increase in meningitis in all of the army camps. Scarlet fever is declining at camps Sherman and Pike, but increasing slightly at Camp Lewis, Washington. Camp Wadsworth is under quarantine, following a conference of United States Public Health Officers and civil and military authorities, on account of cerebrospinal meningitis, there being seven cases in the camp. The camp of the United States Ambulance Corps at Allentown is under quarantine on account of the prevalence of measles.

Red Cross Appropriations.—An announcement from the Headquarters of the American Red Cross on January 28 shows that the appropriations of that organization to cover the period up to April 18, 1918, for relief work in France, will amount to \$30,519,259. In addition to this amount \$768,649 has been appropriated for the purchase of supplies in the United States which will later be shipped to France.

Deaths in the Service.—LIEUT.-COL. JOHN D. MCCRAE, Chief Medical Officer in Brigadier General Morrison's command, and author of the war poem, "In Flanders Field," died recently of pneumonia, in France. He was a graduate of the University of Toronto, in the class of 1898, and was 46 years of age.

LIEUT. FRANK HANBIDGE, Medical Reserve Corps, U. S. A., died of pneumonia in France on January 31. He was 30 years old and was a graduate of the College of Physicians and Sur-

geons, New York, in 1916, afterward serving as interne in the Kings County Hospital. He was a son of Dr. William B. Hanbidge of Ogdensburg, N. Y.

Three Hospitals Damaged by Bombs.—A dispatch from Rome states that on the night of January 26 Austrian air raiders dropped bombs on hospitals in Trevisa and Mestre, causing great material damage to three hospitals in Mestre and wounding some of the attendants.

Tetanus Antitoxin in Frost-bite.—Chavasse, in a recent communication to the Société de Chirurgie de Paris emphasizes the importance of employing preventive injections of tetanus antitoxin in all the complications of frost-bite with phlyctenulae, ulcerations, or gangrene. The first dose should be 20 to 30 c.c., and, according to the advice of Raymond, the injections should be repeated, in doses of 10 to 15 c.c., in all these cases, at intervals of a week until recovery.

Campaign for Army Nurses Successful.—Surgeon-General Gorgas has reported to Secretary Baker that, as a result of the special campaign for the enlistment of army nurses (as announced in the MEDICAL RECORD of January 12), the deficiency in that branch had been made up. Instances in which soldiers in camp hospitals had to endure unnecessary discomforts have been traced in nearly every case to the fact that the War Department had failed in its efforts to obtain enough trained nurses and hospital attendants to permit the assignment of an adequate number to each camp. General Gorgas has recommended additional buildings at the camps for housing the nurses.

U. S. Army Hospitals at Vichy.—M. Justin Godart, the French Under Secretary of State of Medical Service, has placed at the disposal of the American forces ten hotels at Vichy, the well-known watering place of Eastern France. The Americans plan to install five hospitals in the hotels. Seven thousand beds have been requisitioned.

Fight on Tuberculosis in the Army.—The National Association for the Study and Prevention of Tuberculosis estimates that from 1 to 3 per cent. of the men being examined in the different training camps of the new army are being dismissed on account of tuberculosis. At the lowest estimate this would mean 100,000 tuberculous men in the first 10,000,000 classified for service. In order to obtain a wider support by prominent physicians and public spirited laymen in its effort to check the spread of this and other diseases in the army, the National Association began a thirty-day campaign on February 4 for 5,000 new members. The present membership is 2,500. The appeal for membership is to doctors and philanthropists and not to the general public.

Christian Scientists as Chaplains.—Secretary Daniels of the Navy has appointed Richard J. Davis of Boston, a Christian Scientist, as a chaplain. Mr. Davis has been commissioned with the rank of lieutenant, junior grade, and has been assigned for duty, temporarily, at the Boston Navy Yard. He is said to be the first Christian Scientist to be appointed as a chaplain in the navy, although two have already been appointed in the army.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE CLASSIFYING MANIA IN PSYCHIATRY.

It is easy to sympathize with the pleasurable excitement of the bewhiskered professor who, after the successful pursuit of a specimen of the order *Lepidoptera* across a field, is able to identify it as a *Callicore clymena* Hübner; having once settled its status forever, whenever it occurs to him again he has a comfortable sense of completeness—he knows what it is, and there are no annoying loose ends in his mind about it. Just so the physician feels vaguely annoyed when a patient's disorder fails to fall into any exact class and he is obliged to think of the case as probably this, perhaps that, or possibly the other thing. Such a state of mind is exasperating to the man whose principles forbid him to leave anything in doubt, like the crumpet-man told of by Sam Weller.

The possessor of this type of mind should never make psychiatry his specialty, for each mental case is a law unto itself and while we have patients who are definitely precox, or manic, or paretic, we have also the "classes allied to dementia precox," the "manic-like reactions," the constitutional psychopaths, the syphilitic pseudoparetics, and the vast army of borderland cases. To be sure, labelling experts in all ages have had their fling at mental science, the chief modern exponents of this art being the French, of whom Ziehen may be taken as the type. Here mental disease is split up into groups, divided into sections, classified by course, prognosis, and symptoms and, in short, subdivided and re-divided and re-redivided until each patient becomes himself a class.

Kraepelin, with his wealth of experience and breadth of view, gave expression to a great truth when he said that the psychiatrist should be content if he is able to classify accurately approximately one-half of his cases. More important to his mind are the problems of prognosis and treatment. Certain aspects of the symptomatology and of the patient's individual psychology indicate that he will probably deteriorate rapidly, or that he will recover, although with a great probability of future attacks, or that he will recover permanently under favorable circumstances. All these things are extremely important in dealing with the patient and his relatives, while the mere inscribing of a case in a neat book

somewhere as "Psychosis associated with organic brain disease; cerebral arteriosclerosis; paranoid state," however gratifying to the systematic mind, is less important than knowing the patient's make-up, the depth of the reaction to the materials of his psychosis, etc.

Let the psychiatrist, then, spend less time in debating fine details of diagnosis, which after all may have little or no bearing on the patient's welfare, and more time to the histopathology, the psychology, the endocrinous glands, psychotherapy, ergotherapy, and other vital problems.

METHYLENE BLUE IN THE DIAGNOSIS OF ACUTE PERFORATING GASTRIC AND DUODENAL ULCERS.

IN cases where a good history cannot be obtained (and sometimes even in spite of it) it is often difficult to make a differential diagnosis between acute appendicitis and acute perforating gastric or duodenal ulcer. This is particularly true when cases are brought to the hospital with evident peritonitis and with marked tenderness in both the appendical and epigastric regions. Owing to the tendency for any fluid which escapes from a duodenal perforation to follow the path to the right iliac fossa, peritoneal irritation in the region of the appendix soon becomes a prominent feature and operation may be, and often is, based upon a preoperative diagnosis of appendicitis. The appendix may be found to be practically normal, or it may be found acutely congested, is removed and the wound closed with or without drainage under the impression that all the pathology has been taken care of; and still a perforation of stomach or duodenum may be present and require reoperation or is discovered only at autopsy.

In order to determine whether or not perforation of the stomach or duodenum is present, and to aid in the localization of the perforation if one be present, H. L. Baker (*Surgery, Gynecology and Obstetrics*, December, 1917) conceived the idea of administering a small amount of methylene blue by mouth, since with perforation of either the stomach or duodenum any fluids which leaked into the peritoneal cavity would be colored by the dye and could not be mistaken for ordinary peritoneal exudates and transudates. In one case in which the differentiation between acute appendicitis and gastric or duodenal perforation was difficult this resource was employed. About two hours before operation the patient swallowed 3 grains of methylene blue dissolved in 1 ounce of water. At operation the appendix was found to be normal and the incision was prolonged upward. The peritoneum was inflamed and discolored a bluish green hue. Traction was made on the greater curvature of the stomach, when a fine stream of bluish fluid was seen to spurt out through a small perforation on the anterior surface of the duodenum. This directed attention to the site of perforation. In this case convalescence proceeded

satisfactorily until the sixth day, when signs of pneumonia developed and the patient ultimately died, autopsy showing bronchopneumonia in the dependent portions of both lungs.

Baker states that he has been unable to find in the literature any reference to the use of bland coloring matter, such as methylene blue, as an aid in the diagnosis and localization of acute perforations of the stomach and bowel; also that the method is extremely simple, devoid of danger, and appears to possess several features of practical value. He considers that chief among these are the ease and rapidity with which the diagnosis and site of perforation can be determined, and with minimal amount of shock attendant on the handling of the viscera. He advises that the methylene blue be given 30 minutes to 1 hour before operation.

The method seems worthy of trial, in selected cases at least, for it is often difficult to locate the point of perforation without undue traumatism, loss of time, and danger of spreading infection, all of which add to the amount of shock and render the prognosis more grave; and it would hardly seem that the ounce of methylene blue solution which is introduced into the stomach could do any additional material damage.

THE VENEREAL DISEASE QUESTION.

It is a well-known fact that venereal diseases are very prevalent in the countries of Europe at war, and that they are the cause of a great deal of disability and inefficiency among the fighting forces. From the strictly military point of view, then, it is most essential that such diseases should be checked and controlled, for it is the most fit and efficient army that will win. From the civilian standpoint, the solution or partial solution of the venereal problem is even more important, and this aspect of the situation will present itself in a more menacing light after the war, when the soldiers return to their homes.

The gravity of the venereal problem is recognized by the medical profession, and Surgeon-General Blue of the Public Health Service has taken an important step looking to the control of these diseases. It is stated in Public Health Reports, January 4, 1918, that the surgeon-general considers that the control of venereal infections in connection with the prosecution of the war constitutes the most serious sanitary problem now confronting the public health authorities of the United States. It is pointed out that it is evident that the prevention of venereal infections in the military population is largely dependent on the degree with which these infections are prevented in the civil community, and that this imposes upon the civil health authorities the duty of forcefully attacking the venereal problem upon the basis of the control of communicable disease. With this end in view, an outline of the proposed plan of campaign has been forwarded to the health authorities of the various States.

Attention is drawn to the fact that the Public Health Service, in cooperation with the Red Cross and the Medical Department of the army, is establishing venereal clinics in cities in immediate contiguity to the army cantonments. Stress is laid on the thorough education of the general public to the end that the disease group will be considered in the same light as are the other communicable infections. The memorandum drawn up by Surgeon-General Blue and sent to Public Health officers contains some drastic recommendations. The greatest obstacle in the way of controlling venereal disease is the difficulty of tracing infected women. Public prostitution can be controlled, but when rigid prohibition is placed upon public prostitution clandestine prostitution generally flourishes, and it is the infected women who engage in this form of the traffic who are the chief means of spreading infection, and who, as the law stands now, are almost impossible to locate. In the memorandum referred to suggestions are made as to means whereby this difficulty can be overcome. Legalized quarantine of infected persons is recommended, and the best and most easily available methods for treating infected persons are outlined.

There is one preventive measure, however, of which no mention is made in the memorandum, and that is direct prophylaxis. In Egypt, where venereal diseases of the worst type are rife, and where for longer than three years thousands of British troops have been stationed, direct prophylactic methods have met with great success. During the first few months of the war no prophylactic measures were employed among the soldiers in Egypt, and the result was that many thousands of the best British troops were infected and rendered inefficient temporarily or permanently. Since the introduction there of Metchnikoff's mode of prophylaxis by an ointment containing 25 to 30 per cent. of calomel, applied as soon as possible after intercourse, and before, if desired, the incidence of venereal disease has shrunk to almost negligible proportions. It is stated on good authority that similar results have followed the employment of such measures in European cities, and especially in Italian cities. Direct prophylaxis has been practised in the U. S. Army for several years, but opinions appear to be divided as to its efficacy. Some hold that the method is of little or no avail, while others state that when the ointment has been employed in proper strength and sufficiently early, the outcome has been most satisfactory. Accounts from Europe and Canada are extremely laudatory regarding direct prophylaxis, and some of its advocates go so far as to say that venereal diseases are the easiest to stamp out, and that this object can be effected in a comparatively short space of time. In short, testimony from Europe and Canada seems to be fairly conclusive as to the efficacy of direct prophylaxis. The stumbling block to its general use in Great Britain is the opposition that has been aroused by those who think its general adoption would remove a check on immorality.

It is certain that means must be taken to control venereal diseases, and the move made by the Public Health Service, the Red Cross, and the Medical Department of the Army, not only affords evidence that the peril is recognized, but is an earnest that efforts will be directed to protect soldiers and civilians from the scourge.

RELATIONS OF TUBERCULOSIS TO SCLEROTIC PROCESSES IN THE LIVER AND KIDNEYS.

THAT the tubercle bacillus is able to produce a series of forms of cirrhosis of the liver has long been known as a result of the labors of the French school of pathology; and Schoenberg has recently declared in the *Correspondenz-Blatt fuer Schweizer Aertze* for December 15, that these finds have been confirmed by the pathologists of his country. Of greater interest at present are the relationships which subsist between tuberculosis and cirrhotic kidney. The writer recalls a case of sudden death from uremia in an advanced consumptive which at the time was almost unique in reference works. Only recently was he informed by an experienced pathologist that advanced cirrhosis of these organs was almost never encountered in autopsies on consumptives. Schoenberg mentions under this head amyloidosis and various degenerative changes, such as have long been known and attributed to the toxic element of the infection. He adds that in almost all kidneys in tuberculous subjects there is to be found a slight increase of interstitial tissue. These lesions may resemble healed infarcts and, when present in a high degree, they constitute a special form of contracted kidney. Schoenberg claims to have been the first to describe a second form of tuberculous contracted kidney. This bears a resemblance to scarlatinal nephritis and, like the latter, ends in destruction of the parenchyma and increase of the connective tissue with subsequent fibrosis. He describes a case of typical interstitial nephritis with uremic symptoms in a woman, the autopsy showing a combination of arteriosclerotic kidney with ordinary sclerosis. But in this case the kidneys were the seat of actual tuberculous lesions which were not present in any other organ of the body. Still other forms of tuberculous cirrhosis exist in the kidney the presence of which can be shown only through demonstration of the bacillus and by inoculation. Schoenberg believes that our knowledge of tuberculous cirrhosis of the liver can be made to apply throughout to the kidney of the tuberculous individual.

MALARIAL AMNESIA.

THIS phenomenon is said to be extremely common where malaria prevails, but it has received very little attention. It may be the sole nervous expression of the disease or be associated with headache, vertigo, tremor, etc. In the polyneuritic psychosis of malaria it is one of the most characteristic symptoms. In primary malarial fever it is apt to be lacunar, and at a later period retrograde and anterograde. De Brun considers this subject in *La Presse Médicale* for November 1. The severe initial crisis, with its high temperature, is often completely forgotten. This would not seem strange in cases with

delirium, but such cases are not included under paludic amnesia. The patients may or may not be mentally confused during the access, but amnesia persists in both classes. On the other hand, subjects who can vividly remember the first access may later develop memory troubles. When amnesia is present the memory may at once clear up or continue to give trouble. The retrograde type may be expressed by complete loss of memory for names and rank of comrades and officers. This forgetfulness is not due to military life, for it is seen in the same degree among civilians. Anterograde amnesia seems to have a different mechanism, and to depend largely on weakened attention as a result of the malarial infection.

News of the Week.

State Department of Health Urges Vaccination Against Smallpox.—A recent bulletin issued by the State Department of Health shows that since January 1, 1918, there have been reported to the State Department of Health 375 cases of smallpox, 100 of which occurred in one city. A recent outbreak of smallpox in one of the Indian reservations cost the taxpayers of the State \$8,000. In a number of instances the disease has been found among traveling salesmen and in hotels, barber shops, and stores. Dr. Biggs urges upon all unvaccinated persons, not only for their own sake but as an obligation on good citizenship, to be vaccinated at once, and on parents and guardians to see that children are vaccinated. It is pointed out that the importance of the appearance of smallpox at this time is greatly increased by the military situation and the vital necessity of protecting our camps from the introduction of contagious disease from the civil population.

The Marriage Law in New York State.—Health commissioner, Dr. Hermann M. Biggs, believing that it is important to disseminate through the State exact knowledge of what is required by the present marriage law, has sent a placard to all town and county clerks which he requests them to post in their offices. The letter states that Dr. Biggs believes the amendment to the marriage law, enacted at the last Legislature, should in time become an important factor in educating the people throughout the State to the importance of clean marriages, and of controlling venereal diseases. The placard calls attention to the fact that no marriage license will be issued until both parties swear to the following statement: "I have not to my knowledge been infected with any venereal disease, or if I have been so infected within five years I have had a laboratory test made within that period which shows that I am now free from infection from any such disease."

A Case of Anthrax at Bellevue.—A man from New Brighton, Staten Island, was taken to Bellevue Hospital, on January 28, suffering from anthrax. The infection is believed to have taken place through a scratch in the neck which occurred some three weeks ago and which apparently healed. The man is supposed to have been infected by handling hides. This is the fourth fatal case of anthrax occurring at Bellevue during the past thirteen months.

Hebrew Infants' Home Prospers.—The eighteenth annual meeting of the directors of the He-

brew Infants' Home was held on January 27. Addresses were made by Mayor Hylan and the Hon. Bird S. Coler, pledging the support of the city to the work of the institution. The annual report shows that 500 infants and children under five years of age were cared for during the past year and homes found for about one-half that number. Never in the history of the institution have there been so few serious ailments among the children as at the present time.

Colony Planned for Feeble-minded Women.—At a recent meeting of the Women's City Club of New York plans were proposed for the colony care of feeble-minded women. The plan suggested provides for the taking over of the small colony just outside of Westerleigh, Staten Island, by Randall's Island. The fund of \$200 needed to furnish the colony at Randall's Island has been raised by the Women's Club. Under the colony plan high grade mental defectives live at the colony and go out to work under supervision.

Health Department Examination of Employees.—The method adopted by the New York City Health Department of making periodical examinations of its employees has now been in effect since July, 1914, and 70.2 per cent. of the employees have availed themselves of this service. A comparison of the results for the years 1916 and 1917 shows that, in 1916, there were 3,233 employees on duty, while in 1917 there were 3,009. In 1916 the total number of working days was 1,112,842; in 1917, 1,057,292. The total number of days absent on sick leave was 19,879 in 1916 and 20,656 in 1917, or 1.8 per cent. of the time lost by sickness in 1916 and 1.9 in 1917.

Vital Statistics of New York City for 1917.—Statistics prepared by the Bureau of Records show that the death rate for 1917 was 13.78, which is the lowest rate ever recorded in this city. The rate for 1916 was 13.89 and for 1910, 16.00. This lowered death rate has been effected largely through the reduction in the mortality in the early year of life. Another factor in lowering the death rate has been the reduction in the prevalence of certain infectious diseases. This reduction has been most pronounced in the case of typhoid fever, which, despite the large increase in the city's population, has been reduced from 588 deaths in 1910 to 229 in 1917. The respiratory diseases continue to be responsible for a large number of deaths annually, the rate of pneumonia of all forms being 1.93 for 1917, which is exactly the same as in 1913. The death rate from tuberculosis shows an increase over that of last year, the rate being 1.55 in 1917 as against 1.50 in 1916. The common infectious diseases—measles, scarlet fever, whooping cough, and diphtheria—show a considerable decrease as compared with the rates ten to twenty years ago. In contrast to this certain diseases of adult life, as heart disease, Bright's disease, and cancer, fail to show any decrease and the death rate from cancer continues to increase, the rate being 0.77 in 1910 and 0.86 in 1917. There were last summer 539 deaths from heat stroke, the largest number from this cause in New York since 1901. The death rate from automobile accidents shows an increase from 5.64 per 100,000 in 1913 to 9.07 in 1917. The number of suicides in New York decreased from 836 in 1916

to 768 in 1917. The year just past shows an increase in the number of marriages from 9.68 in 1910, 9.78 in 1916, and 10.49 in 1917.

The Brooklyn Surgical Society held its annual open meeting at the building of the Kings County Medical Society on February 7. The program of the evening included an address by Col. Claude Kyd Morgan and a paper and motion picture demonstration of the "Carrel Method of Treatment of Infected Wounds" by Lieut. George Loewy of the French Army Medical Corps.

Epidemics in Petrograd.—Reports that typhus, smallpox, and other diseases are decimating the population of Petrograd have been confirmed. Spotted typhus is said to be raging with unprecedented severity, there being 428 cases in one barrack hospital alone, and from fifteen to twenty new patients are being received daily. Gastric typhus and smallpox are also said to be epidemic. The people have been warned to regard sanitary measures, but there is no longer a sanitary bureau; there is no sanitary commission; no registration of diseases; there are no great specialists, and few doctors.

Epidemic of Intestinal Disturbances in Montclair.—A break in the Little Falls Filter which is supposed to protect the water supply of Montclair, N. J., is believed to be responsible for an epidemic of intestinal disturbance which is prevalent in that city. Some 1,500 residents are on the sick list.

National Child Welfare Campaign.—The Children's Bureau of the United States Department of Labor, Washington, D. C., announces that it will inaugurate, on April 6, one year from the time the United States declared war, a nation-wide campaign, to be continued for one year, to save one hundred thousand of the nation's children. Each State will be assigned a definite quota of the one hundred thousand lives to save. To inaugurate the campaign there will be a nation-wide weighing and measuring of babies and children of pre-school age. The endeavor will be made to show each community what its children need if the rising generation is to be free from the physical defects which the draft has revealed. The methods of work will be those which have already proved efficient in saving children's lives in the United States and other countries. Dr. F. Truby King, who is the active head of the New Zealand Society for the Health of Women and Children, expects to be in the United States in about three weeks, and it is hoped that his presence will give added emphasis to the campaign.

Dr. Fred D. Jones of Springfield, Mass., has been appointed pathologist and bacteriologist to the Noble Hospital of Westfield, Mass.

Dr. Mark J. Schoenberg has been appointed attending surgeon to the Hermann Knapp Memorial Eye Hospital, New York City.

The New York Orthopedic Dispensary has received \$3,000, the proceeds of a benefit entertainment.

Newark Studies Problem of Drug Addicts.—The Citizens' Committee, appointed by the Mayor to investigate the subject of habit-forming drugs in that city and to make recommendations, has submitted a report recommending that a clinic be established in the City Dispensary for the study and

treatment of narcotic addicts. So far as the committee knows no such clinic is in existence anywhere. The tentative plans for making an exhaustive study of the subject have been submitted to the Health Officer with the suggestion that the clinic be opened immediately.

The Ossining Hospital has received an endowment of \$25,000 in Liberty Bonds from William Rockefeller to be known as "The Mr. and Mrs. William Rockefeller Fund."

Germany's Birth and Death Rate.—A dispatch from the *London Times* is authority for the statement that nothing is causing Germany more concern to-day than the decline in her birthrate. The falling off in the birthrate is said to be greatest in the large towns. As an example, in Dresden the excess of births over deaths fell from 6,853 in 1903, to 965 in 1915. Up to October, 1915, the number of births in Dresden was regularly in excess of the number of births, whereas since that time there has been an excess of births in only two months, namely, May and September, 1916. In the last two months of 1915 the deaths exceeded the births by 108. In 1916 there were 6,440 deaths compared to 5,817 births.

Medical Society Elections.—THE UPPER MISSISSIPPI MEDICAL SOCIETY, at its annual meeting at Brainerd, Minn., on January 8, elected the following officers: *President*, Dr. J. B. Holst of Little Falls; *First Vice-President*, Dr. Alexander Watson of Royalton; *Second Vice-President*, Dr. F. H. Allen of Staples; *Third Vice-President*, Dr. John C. Koch of Blackduck; *Secretary-Treasurer*, Dr. J. A. Evert of Brainerd.

THE DEER LODGE MEDICAL ASSOCIATION, which met in Anaconda, Mont., on January 8, elected the following officers: *President*, Dr. T. J. McKenzie; *Vice-President*, Dr. C. C. Albright; *Secretary-Treasurer*, Dr. John Noonan.

THE KENTUCKY MIDLAND MEDICAL SOCIETY, which met in Paris, Ky., on January 11, elected the following officers: *President*, Dr. C. A. Vance of Lexington; *Vice-President*, Dr. J. Toll of Lawrenceburg; *Secretary-Treasurer*, Dr. D. J. Maguire of Lexington.

THE ELKHORN VALLEY MEDICAL ASSOCIATION, at its annual meeting in Fremont, Neb., on January 10, elected the following officers: *President*, Dr. John Reid of Pilger; *Vice-Presidents*, Dr. H. N. Morrow of Fremont, and Dr. H. A. Skelton of Spencer; *Secretary*, Dr. A. P. Overgard of Omaha; *Treasurer*, Dr. S. A. Preston of Fremont.

Obituary Notes.—Dr. HEINRICH STERN died at his home in New York City on January 30, at the age of 50 years. He was born in Germany and came to this country when he was twenty years of age. He was a graduate of the College of Physicians and Surgeons, St. Louis, in 1899, a member of the American Urological and American Public Health Associations, the New York Academy of Medicine, and many other medical organizations. He was one of the organizers, and, at the time of his death, secretary of the American College of Physicians. He was visiting physician to St. Mark's Hospital and the Methodist Episcopal Home, consulting physician to the Seney Hospital at Central Islip, L. I., the United Hospital, Porchester, the Glens Falls Hospital, and the Union General

Hospital of Boston. Dr. Stern was the founder of the *Archives of Internal Medicine* and the author of a number of books.

Dr. FREDERICK A. DAVIS, a retired physician, died at his home in New York City, on January 14, at the age of 80 years.

Dr. CHARLES J. RUMRILL, of Barre, Vt., a graduate of Dartmouth Medical College, in 1900, died on January 7, aged 46 years.

Dr. HARRY A. SHELLHAUSEN, of Washington, D. C., a graduate of the University of Washington Medical School, in 1899, died at the residence of relatives in Brooklyn, on January 17, aged 43 years.

Dr. CHARLES W. BROUGHTON, a graduate of the Northwestern University School of Medicine, in 1901, died at his home in Youngstown, Ohio, on January 5, aged 44 years.

Dr. GLOVER D. MARTIN, for many years a practicing physician of Beaumont, Tex., died at his home in that city, on January 5.

Dr. WILLIAM R. POLK, a graduate of the Medical Department of the University of Pennsylvania, in 1881, died at his home in Minneapolis, on January 4, aged 64 years.

Dr. HENRY P. WOODWARD died at his home in Pembroke, Ga., after a long illness, on January 9, at the age of 84 years.

Dr. THEODORE COOKE, Sr., of Baltimore, died of injuries received in an automobile accident, on January 13, at the age of 80 years. He was graduated from the University of Maryland School of Medicine, in 1859, and was a member of the Medical and Chirurgical Faculty of Maryland.

Dr. CHARLES TAYLOR JEWETT, a graduate of the College of Physicians and Surgeons, New York, in 1868, died at his home in New York City, on January 18, aged 70 years.

Dr. SAMUEL BOYD LITTLE, a graduate of the Southern Medical College, Atlanta, in 1898, died of pneumonia at his home in Colbert, Ga., on January 9, aged 48 years.

Dr. WILLIAM E. HARWOOD of Joliet, Ill., is reported to have died of pneumonia "somewhere in France," about January 7, at the age of 59 years. He was a graduate of Rush Medical College, in 1880. Dr. Harwood was one of the first to respond to the need of surgeons in the war area.

Dr. ALLAN A. WYCHE, a graduate of the Leonard Medical School, in 1897, died at his home in Charlotte, N. C., on January 7.

Correspondence.

THE TREATMENT OF LOBAR PNEUMONIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—At the present time when lobar pneumonia prevails epidemically, claiming many victims daily, the following lines based upon an experience of many years may prove to be of value. There are among physicians a great number of so-called "drug-nihilists," especially in pneumonia, who use only some indifferent medication, leaving the whole therapeutic work to "fresh air." I would not deny or even minimize the great value of fresh air in the treatment of pneumonia; what I want to say is that the drug treatment is also of great, and may be equal, value and should not be neglected. These

lines will, therefore, serve as a warning to many and also as a hint regarding the drug treatment.

The use of expectorants in pneumonia, which is ignored by many physicians, has proven in my experience to be of very great importance. Not long ago a colleague in a conversation asked me whether or not I used expectorants in pneumonia, and when I answered emphatically "Yes" he seemed to be somewhat surprised. But here the physician has to show his skill in selecting the drug. The selection of the expectorant depends wholly upon the pathological conditions at the given moment; it is, therefore, important that the physician should recognize the exact condition of the patient and the stage of the disease. When we consider, for instance, that in the second stage (red hepatization) the affected part of the lung is consolidated, firm, and solid, it is clear that on *inspection* there will be a marked deficiency of respiratory movement, on *percussion* dullness, and on *auscultation* bronchial breathing. In this most important and decisive stage, it is clear that a powerful solvent is imperative. The "mistura solvens" (Ammon. chlor., Succ. liquirit., $\text{â}\text{â}$ 0.3; Aq. dest., ad 15.0 every 2 hours) has rendered me excellent services. Camphor internally, at the same time, gives very good results. I prescribe it in combination with benzoic acid and powdered digitalis, and I am always told that 10 to 15 minutes after the patient took the medicine he expectorated a "lot of big thick pieces" of sputum, after which he felt more comfortable and the breathing was more quiet—a condition not to be underestimated, as it is more liable to prevent "gray hepatization" and the formation of abscesses, and will sooner terminate in "resolution" and absorption. In this stage (resolution and absorption), it is clear an absorbent and an expectorant will be of great value. I give potassium iodide in combination with anisated solution of ammonia, and have always been satisfied with the results. Strychnine should be given through the whole second stage and part of the third stage. Some advise giving creosote as an antiseptic, but I prefer guaiacol carbonate in combination with strychnine. Alcohol is also very useful, especially in those accustomed to its use in excess. In congestion and delirium due to alcoholism or in affection of the upper lobes venesection has proved to me life saving, relieving the right ventricle.

In outlining here clearly the scientific treatment of lobar pneumonia, based wholly on the pathological conditions, which I have been using and with which I have been comparatively successful (I have omitted serum treatment, not having experience of my own), I am sure it will be of help to some practitioners, especially now when the number of cases is increasing daily. H. RABINOWITSCH, M.D.

432 WEST THIRTY-FOURTH STREET, NEW YORK.

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

THE Y. M. C. A. IN FRANCE—EXPLOSIVES—PARIS VITAL STATISTICS.

PARIS, January 2, 1918.

THOSE of us who remember the Y. M. C. A. in the United States have to rub our eyes to see whether the organization in France can really be the same

thing. Here it is emancipated, with full scope for enlarging its sphere. It is confronted with problems that arise from day to day, new, perplexing, absorbingly interesting. All obstacles have to be overcome, and right away. The Y. M. C. A. is now as necessary to the camp as the hospital and medical corps. It is part of the institution of the American army. It has its sphere. It has enough to keep it there. Its future is certain. It necessarily puts the organization at home in a sort of state of evolution. When the war is over and the members of the Y. M. C. A. return home they will take back with them their experiences of life, their experience in being at death grapples with the great problems of existence. What will be the effect of this experience when the Y. M. C. A. forces return home? Will it work out a sort of Reformation?

Not only in our big cities is this work apparent, but in the camps also. The same thing goes on in both, though the circumstances and environment are, of course, essentially different. The other day, I was looking about a town somewhere in France to get transportation to a military camp. Espying two strong, energetic-looking young men in khaki driving a big auto truck, I was soon invited to share the journey with them. "But, wait," said one of them, "until we have got our load on." The truck stopped before a store and the young men immediately without further parley commenced loading large cases of some heavy merchandise on the truck. They handled their loads like men accustomed to that sort of thing in their native land, but their faces showed them to be men of superior education and refinement. I believe we took on some forty of these cases, and then one of the young men climbed on top of the pile and the other courteously invited me to sit beside him. Then we bowled along to the camp.

One of these men was Mr. Heber R. Harper, acting divisional secretary of the Y. M. C. A., and the other was the Rev. Walter John Sherman, pastor of the Union Congregational Church, Winthrop, Mass. Mr. Harper is a Ph.D. and professor of New Testament Greek and of Hebrew in the Boston University School of Theology. In constant daily contact with these gentlemen and their colleagues, it was a pleasure to see how thoroughly they identify themselves with their work. Nothing is too hard for them to do. They clean automobiles, run them, build huts, go here, go there, go everywhere, and do good all the time by example, a kind word of encouragement. No humbug, no cant, just American Christian gentlemen, everywhere and all the time. It is this sort of thing that makes the "cafard," so terrible in some military camps, impossible in our American centers. American women are with them, helping, sharing all sorts of ups and downs which might be supposed to throw the feminine world into chaos at home, all done simply, philosophically, and courageously.

And what I saw in the camp referred to goes on unrecorded all over our American camp centers. Mr. Harper told me: "We commenced here in July last, with an enormous tent. We had about 1,000 men there every evening, and we had boxing, wrestling, and musical entertainments; regimental bands played inspiring music. We had lectures, theatrical evenings, and from time to time prominent people

gave us addresses. Once a week we would have an address on moral rather than religious subjects. Our tent was a feature. Men tore up their passes to go to adjoining villages and towns and passed the evening with us. That tent is being boarded up and will make a good winter building for entertainments. It is fitted with a stage and is well lit by electricity. The permanent equipment consists of three huts placed at the extremities of the camp, so that they intercept the men on their way to the adjoining town. Each of these huts consists of double barracks. The two main huts will do the work of our temporary equipment. One barrack in each hut will be used for a canteen, writing-room, and billiard-room at the end, and the other will serve as a concert hall, class-rooms and reading-rooms. We have space for storerooms, kitchens, mess-rooms, lavatories, offices, and sleeping quarters. Each hut has a large open fireplace for logs. There is a third hut in construction in the town itself, and you can see the building going up. When the boys get into town they will see this nice, comfortable, clean hut and go in and find hot drinks and all sorts of games.

What is noticeable is that a great deal of work of construction is done by the members of the Y. M. C. A. itself. These men are not experts, as most of them are college boys, professors in colleges, pastors, and students from all over America. They do not mince matters, however, but set to work in American spirit and get things done. The army officers realize that the men have to do something in their recreation hours, and everywhere throughout the American camps in France the Y. M. C. A. is recognized as a part of the system of the American army organization.

Dr. Villejean, inspector of the Explosives Department of the Seine Prefecture, who was a pupil of the great chemist Berthelot, appears to favor a very plausible theory; namely, that the stupendous forces bottled up, so to speak, in the receptacles made for them by modern hands exercise a mutual attraction, the vehicle of which is the "emanation from the substances employed." In the case of the Halifax disaster, there was another more deadly, more effective, and more dangerous medium, petrol. He says: "I do not believe in spontaneous explosion. During my scientific career I have never met one authenticated case; but I do believe in detonation or explosion brought about by influence."

Asked whether he had any theories regarding the many explosions occurring in munition factories, he said: "I believe the greatest care is taken in the development of these explosives. Every step is tried and tested before another is taken, as well as every precaution that certain ingredients are not brought into close proximity. But what does happen, I fear, is imprudence—a momentary imprudence, if you will, but one which is often attended with disastrous results.

"The destruction of the great German chemical factory at Griesheim could easily have been brought about by the imprudence of a member of the staff in bringing two substances into too close proximity, causing a local explosion which could be sufficiently intense to detonate all the other explosives in the place by 'influence.'

"There is also another hypothesis that is worthy of consideration and study by experts—that is, the

action of 'les ondes électriques,' or emanations from substances employed in the manufacture of explosives. Such action might or might not be the influencing cause of others of a more serious nature. That many of the explosions during the past two or three years were due to malevolence is certain. There have been others, however, in which malevolence had no part, but where imprudence was the contributory cause of detonation by sympathy—'detonation par influence.' To guard against this latest danger too much care cannot be exercised."

Paris vital statistics for the forty-ninth week of the year: 772 deaths (previous week, 640; season's average, 915). Typhoid fever caused 8 deaths, measles 1, whooping-cough 5, diphtheria 5, infantile diarrhea 10. There were 25 sudden deaths and 5 suicides. Marriages numbered 538 and births 592—263 boys, 329 girls.

146, AVENUE DES CHAMPS ELYSÉES.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 24, 1918.

1. Research Problems in Tuberculosis. Edward R. Baldwin.
2. The Carrel-Dakin Method of Treating Septic Wounds; Its Application to Civil Surgery. G. A. Moore.
3. Surgery of the Biliary Tract. J. Emmons Briggs.
4. Lipoids in 131 Diabetic Bloods. Horace Gray.

1. Research Problems in Tuberculosis.—Edward R. Baldwin, director of Trudeau Foundation, gives three main classes of problems that may be taken as applying to tuberculosis as well as to most diseases to a greater or less degree. (1) There are the fundamental causes of disease, their origin and the reasons for their existence. (2) The natural and acquired resistance to disease. (3) The best methods of prevention and treatment. In tuberculosis there is already known the nature and actual infective agent in its causation, but more light is needed on the origin of the germ. There are now recognized three main varieties of the tubercle bacillus—those of the human, bovine, and the fowl. There are evidences of intermediate varieties, and yet the main types do not change into one another. Pains-taking study has been made and is still in progress to recognize the nature of virulence, *i.e.*, the disease producing powers of tubercle bacilli. With this knowledge in our possession one can comprehend the advantage of estimating the seriousness or mildness of any individual case of disease. Also the body has to be adapted in some way to form a culture-ground for the germs. It is thus evident that the old inheritance idea may not be wholly cast out. A more fundamental study of heredity is necessary. This will involve especially a comparison between families who have had the disease with those who escape. There are broad problems of race, soil, climate, geographic position, diet, habits, as well as chemical and, possibly, physiological functions, that are closely connected with the development of this disease. Much importance was attributed to predisposition to tuberculosis in past years; but it is now known that infection is possible to all, and a predisposition is not necessary for it to take place. The result of the infection, however, is probably greatly dependent on still unknown factors of chemical or vital nature. It is now a pretty well established fact that a small percentage (from 6 to 12 per cent.) of tuberculous children become infected with bovine bacilli. The frequency of adult infection is an important question, as it appears to be relatively infrequent. In most cases of pulmonary tuberculosis it is possible to say that the infection might have occurred in early childhood and youth. On the other hand, such early infections frequently never spread, leaving a suspicion of a second infection as the cause of the ultimate disease. As to the manner of obtaining the infection, inhalation of the either dry bacilli in dust or moist bacilli in the form of spray causes most of the infection. Industrial

centers are notoriously the places where tuberculosis thrives. Hence the improvement of working conditions, such as has already been started in some sections, is necessary in order to cope with this disease. One reason that no harm follows infection in so many people is that they escape other dangers that tend to awaken or spread an innocent tuberculosis. Severe influenza, measles, whooping cough, and other acute respiratory diseases have much to do with breaking down the normal resistance. The treatment of tuberculosis in the individual patient should resemble the methods of Nature, nor should one interfere too much with Nature by administering depressing drugs. *Rest* is the first requisite in active or progressive disease. It is well supported by experience and experiment. *Food* in abundance and variety—there is no better medicine. *Fresh air and light* also in abundance. *Regulated exercise* during convalescence or quiescence of the disease. *Medication* for symptoms as they arise, and chiefly when complications cause severe pain or distress. *Lastly, a wise physician*, gifted with common sense and understanding. These are the great principles of treatment, and, doubtless, they will be required as adjuncts of the greatest specific that the world may yet find.

New York Medical Journal.

January 26, 1918.

1. The Complete Clinical Chart. Solomon Solis Cohen.
2. Further Contributions to the Treatment of Acute and Chronic Arthritis with Radioactive Wave Energy. Ernest Zueblin.
3. Henry VIII, a Most Liberal Patron of Medicine. Howard D. King.
4. Otosclerosis. M. W. Fredrick.
5. Ether Therapy in Surgical Infections and Its Effect on Immunity. John Saliba.
6. How to Avoid Tuberculosis. Otto R. Eichel.

4. **Otosclerosis.**—M. W. Fredrick points out the inability of cure for these patients, and considers that the causal connection between otosclerosis and syphilis seems very alluring in spite of the absence of other stigmata of hereditary syphilis, the negative findings of the Wassermann test, and the fact that anti-syphilitic medication is absolutely valueless. The bone changes are identical with the bone changes in syphilis. He further considers that the most important thing in otosclerosis to-day is the prophylactic side, and in this way we may be of real benefit to the otosclerotic. Whether this can be extended to treating all the members of the family in which otosclerosis has shown itself from infancy with antiluetic or phosphorus is a mooted question, but those who are under suspicion of having inherited the otosclerosis strain should be under constant care. As children their mothers should be warned against unduly exposing their bodies, as, for instance, by having them go about in bare legs and without hats in all kinds of weather. By hardening their bodies they at the same time are hardening their ears. Chilling of the surface whether through swimming, shower baths, wetting the head, or any other cause should be avoided, as should all so-called colds. Automobile riding is bad; also exposure to wind and weather, as shown by the large number of severe cases of otosclerosis among country people. The idea of heredity is well spread among the laity, and the authors state that it occurs in from 9 to 82 per cent. It should be borne in mind that the heredity need not be a direct one, but is more often a collateral one, and that a good deal of seeking is sometimes called for to discover the otosclerotic ancestor, due to the well-known indifference of most people in these matters. Hitherto it has been thought that these cases were due to local causes in the nasopharynx, and overzealousness in removing any and everything which might lead to local inflammations and their sequelæ was the result. School inspection might help, if one could tell the instructors how to recognize the early stages of otosclerosis, but this is, so far, an unknown art. The otosclerotic woman, like the tuberculous woman, should avoid pregnancy; while pregnant she, like the tuberculous woman, seems to improve very much generally, but after parturition her hearing grows decidedly worse. The outlook for the otosclerotic girl is anything but cheerful. To translate the epigram of a French author: for the girl, no marriage; for the wife, no child; for the mother, no nursing.

While the mother may be willing to sacrifice her hearing for the joys of motherhood, she should remember the hereditary taint she is conveying to her child. There is one feature of otosclerosis which should make us strive to find some relief for the sufferers from this trouble, and that is that, whereas the people who are deaf from old adhesive processes of the middle ear or degenerative nerve changes are, as a rule, old people whose life has been lived, and whose position in life has been secured; who have passed through the pleasures and disappointments of early and middle life, and can afford, as the saying is, to take a back seat, the otosclerotics belong to the younger class, who are just starting out to take their places in the world's work and pleasures. Small wonder that so many of them become victims to the numerous neuroses and insomnia, when it is realized how hard it is for them to make progress in the face of the prejudice against the deaf, how many pleasures they are being deprived of, and how hard it is to conceal their infirmity.

Journal of the American Medical Association.

January 26, 1918.

1. A Rare Type of Bladder Ulcer; Further Notes, with a Report of Eighteen Cases. Guy L. Hunner.
2. A Report of Vaccine Therapy in a Series of Prostatic Cases. H. C. Bumpus.
3. The Occurrence of a Positive Intracutaneous Reaction in Meningococcus Carriers. Frederick P. Gay and A. J. Minaker.
4. The Comparative Efficiency of Local Anesthetics. Torald Sollmann.
5. Fluid Substitutes for Transfusion after Hemorrhage: First Communication. Peyton Rous and George W. Wilson.
6. Fatal Result Following Injection of Hemorrhoids. H. J. Spencer.

2. **A Report of Vaccine Therapy in a Series of Prostatic Cases.**—H. C. Bumpus reports the results obtained from the use of vaccine therapy in the treatment of prostatic cases at the Mayo Clinic from May, 1917. In undertaking this study he says that it seemed advisable to give all the patients the vaccine for five months and then to compare the results with those obtained in the previous five months without the vaccine. Further to make the two series as synchronous as possible, all cases in which the two-stage operation was done (that is, suprapubic drainage followed by prostatectomy) have been considered separately. The vaccine was administered twice a week in doses beginning with 50 million, increasing by multiples of 50 to a maximum of 500 million, and continuing throughout convalescence. Following the technique of Cabot and Crabtree, mixed colon vaccine was used, prepared from various strains of colon bacillus isolated from different urines and prepared fresh once a week. The administration was subcutaneous and, with two exceptions, no untoward symptoms resulted. The majority of patients complained of malaise with slight nausea and a little rise of temperature during the first few inoculations. The reactions resembled those usually associated with the administration of typhoid vaccine. To determine results, a comparison of the patients treated with vaccine with those not receiving vaccine must be made relative to the incidence of complication manifestly due to infection, namely, pyelonephritis, epididymitis, phlebitis, cystitis and wound infection. The last two conditions it seems best to disregard, as both are almost universally present to a mild degree in such cases, and their relative severity is difficult to use as a matter of careful comparison. Pyelonephritis is naturally the best criterion. The characteristic symptoms of malaise, accompanied for several days by gradually increasing fever with chills and sweats and a subsequent decline, make it typical; and to one who has been long associated with patients who are having residual urine repeatedly removed, the so-called "reaction" can never be forgotten. Cabot and Crabtree have reported a series of cases in which the colon bacillus was obtained during such reactions, especially during the chills, in pure culture from the blood stream. Bumpus and his coworkers in repeating this experiment on six cases obtained only sterile blood cultures. He states that in the series in which vaccines were given there was 5 per cent. less of cases of pyelonephritis than the controls, and 1 per cent. more than all cases. However, it must not be concluded that the vaccine has produced this decrease;

for if the action of the vaccine were specific, a greater reduction than 5 per cent. should have occurred, and the incidence, as compared with all patients operated on, should have been less—not greater. This conclusion is further supported by the 10 per cent. increase in the cases of epididymitis among patients that were treated compared with the controls. A survey of the length of time the treatment was given is of interest in demonstrating that, although the convalescence of the patients not receiving vaccine is longer by five days, their entire time under treatment is shorter by ten days, showing that the greater the length of preoperative preparation the shorter the convalescence. This fact is further emphasized in the two-stage series, when a preparation of several hundred days is given to patients who are the poorest of surgical risks, and leads to a convalescence much shorter than the average. In the two-stage series no attempt was made to chart the incidence of infection, because much of the patients' preoperative time was spent at their homes, where accurate observation was, of course, impossible. Bumpus works out the following conclusions from this experimental work: (1) Immunity to pyelonephritis by means of mixed colon bacillus vaccine cannot be produced. (2) The administration of mixed colon vaccine does not markedly reduce the incidence of genitourinary infection, if it affects it at all. (3) Preoperative attacks of pyelonephritis are the natural means of producing an immunity to renal infection, and their occurrence makes operative risks less. (4) The length of convalescence is usually in inverse proportion to the length of preoperative treatment.

The Lancet.

December 29, 1917.

1. The Fitzpatrick Lectures on Medicine, Magic, and Religion. W. H. R. Rivers. Lecture II.
2. Observations with Antitetanus Serum in the Monkey. C. S. Sherrington.
3. An Analysis of Recent Tetanus Statistics. F. Golla.
4. A Case of Splanchnic Tetanus. H. Burrows.
5. Notes on Ten Cases of Tetanus. Redcliffe N. Salaman.

3. An Analysis of Recent Tetanus Statistics.—F. Golla, member of the War Office Committee for the Study of Tetanus, has obtained his conclusions from the tetanus statistics of the period from 1916 and early part of 1917. There were 640 cases occurring in British hospitals in England and France under consideration. The total mortality is 50.8 per cent., and compared with the average mortality of the wars of pre-serum days the results are extremely encouraging. This diminution is due beyond question to the prophylaxis administered, and a small part may possibly be due to better methods in dealing with wounds and the consequent improvement in the general condition of the patient. Golla considers further that it is a matter of much difficulty in the absence of controls to ascertain whether in addition to these agencies the specific treatment with serum plays any part in the reduction of tetanus mortality. He makes a comparison of the types of tetanus of pre-serum days and the types found in the present war. The types of tetanus found at the time of the War of Secession were based on the rapidity and completeness with which trismus developed. Rose distinguishes "vehementes," in which the jaws cannot be separated and the complete development of symptoms takes place within 24 hours; "complete lenti," in which there is complete closure of the jaws and the symptoms take more than 24 hours to reach their maximum; "incomplete lenti," cases in which the jaws can be opened a varying degree either by the patient or the observer and the symptoms develop slowly. A certain number of cases of what was called localized tetanus are recorded in the reports of the War of Secession, but the term was used to designate not tetanus localized to the segmental wound area, but tetanus confined to trismus without tendency to spread. In investigation of tetanus of the present day the cases may be divided into three types—those with initial trismus corresponding to the tetanus of pre-serum days, though modified by prophylaxis, and two new types, those with delayed trismus and those with local tetanus. These two latter types, certainly those of local trismus, constitute a new disease and must be

considered separately from cases of initial trismus if any conclusions as to the value of serum treatment by comparison with older statistics are to be reached. In 1870 only 5.7 per cent. of the cases appeared after 21 days, while there are now 30.4 per cent. with an incubation period of more than three weeks. During the first three weeks a lengthening of the average incubation period is also present, though less striking. The most probable explanation of this lengthening of the incubation period is that it is due to prophylactic treatment, and the statistics bear this out on the whole. A comparison of the relation between mortality and incubation in the 1870 campaign and the present one shows that there has been a slight decrease in mortality in the present war and that it is probably due to the prolonged incubation period. If, however, the first three week periods are compared it will be found that during the first two weeks the mortality in the 1916 cases is slightly below that of 1870—i.e., 75.5 per cent. and 70 per cent., as against 96.5 per cent. and 85.5 per cent.—whereas in the third week the 1916 mortality is slightly above that of 1870. This is precisely what could be expected on the hypothesis that the slight initial diminution of mortality is due to the improved methods of rendering first aid to the wounded and abstention from drastic operations. After the first two weeks when the cases of exhaustion and post-operative shock become fewer, the mortality from both statistics becomes practically the same in the third week. Golla considers that it must be conceded that if the slight initial decrease of mortality is all that can be claimed for serum treatment the result is not very encouraging. The statistics from nonprotected cases, though too small to be decisive, also strongly support the view that apart from prophylaxis serum treatment has no influence on mortality. The cases of late trismus show less favorable influences to serum treatment than that of the initial trismus group. Local trismus appears to have no mortality as far as statistics have shown. With reference to the curative action of serum Golla says that there appears no evidence of any appreciable diminution of the mortality of tetanus to be derived from an analysis of the statistics of incidence and mortality when allowance is made for the modification of the disease due to prophylaxis. Another infallible sign of a curative action of serum should be furnished by an examination of the time after the onset of symptoms at which treatment was begun in fatal and cured cases. His statistics show that the periods before beginning of treatment varied from three minutes to three days, and no relation between their duration and the result of the disease could be established. Again no definite results have been established between the amount of serum administered and the result of the case. The statistics were also worthless for any attempt to discover the influence of different methods of administration.

British Medical Journal.

December 22, 1917.

1. An Address on Some Points Arising in Nerve Injuries. H. S. Souttar.
 2. "Myalgia": Its Diagnosis in Forward Areas. Francis B. Chavasse.
 3. Treatment of Thrombosis. H. Fairley Marris.
 4. Lectures on the Anatomical and Physiological Principles Underlying the Treatment of Injuries to Muscles, Bones, and Joints. Arthur Keith. III. The Principles and Practice of Hugh Owen Thomas.
4. Treatment of Thrombosis.—H. Fairley Marris reports on his successful employment of the intravenous injection of sodium in venous thrombosis such as occurs in the typhoid group of fevers. During the past two years seventeen cases of venous thrombosis have been under his care, the majority having arisen during the course of an infection bacteriologically proven to be by a member of the enteric group, the remainder occurring during the course of other fevers of obscure origin. This complication has long been recognized as prolonging convalescence and leading to permanent mischief, such as troublesome swollen limb or the formation of intractable varix. The signs and symptoms as seen in this series were described: rigors in four of the cases. Fever was always present; pain invariably so, on two occasions being so severe that the

question of intestinal perforation arose. Swelling of the limb was always present, usually appearing on the third day from onset of the other symptoms. In most of the cases the thrombus could be felt. Among the enteric cases the distribution was as follows: Left femoral 9, right femoral 1, right and left femorals 1, left iliac 2, right and left iliacs 1. The remaining three cases occurring during the course of other fevers were: Left femoral 2, right and left popliteals 1. The earlier cases were treated on the usual lines—namely, locally with anodyne liniments, and internally by the liberal administration of citric acid and a milk-free diet. The following is the first case treated by the intravenous injection of sodium citrate: A soldier, aged 19, admitted to hospital on the twenty-third day of his illness, which was subsequently shown to be typhoid fever. The temperature was 101° F., and the pulse 106 per minute. By the thirty-second day the temperature had regained the normal by lysis; the pulse rate, however, was still about 100 per minute. On the thirty-fourth day the temperature rose to 100° F., and the patient complained of considerable pain in the lower part of the left abdomen. A thrombus was suspected, but nothing could be felt, and measurements round the two lower limbs at the calves gave the same result—namely, $10\frac{1}{2}$ in. By the thirty-fifth day the left leg was swollen, and on the thirty-seventh day edema was observed in the right ankle. The swelling in both legs increased rapidly, and by the thirty-ninth day the man was in such agony and the abdomen so rigid that the possibility of an intestinal perforation was considered. By the fortieth day the thighs resembled bolsters, and the superficial veins on the lower part of the abdomen became so conspicuous that the inferior vena cava appeared to be involved. A 0.5 per cent. solution of sodium citrate in normal saline was given. Half a pint of this solution warmed and sterilized was slowly run into the median basilic vein of the left arm. Twelve hours later the pain had almost gone. The following day a second injection of 8 oz. was given, and by the next morning the temperature had fallen, the patient was free from pain, and the abdomen was quite soft. A speedy recovery took place. Imperial drink was given before the first injection; thereafter this was suspended. This patient returned to duty 104 days from the onset of his illness—that is, 74 days from the beginning of the thrombosis. In the earlier cases the injections were followed by rigors occasionally, which occurred as early as half an hour and as late as three hours afterward; they were never severe, and were quickly relieved by half an ounce of brandy and hot bottles. With more careful preparation of the citrate solution, using recently distilled water and efficient sterilization, the rigors have not been observed. Rigors are not infrequently observed after intravenous injections of other substances, and this is not an important point. On two occasions an attempt was made to compare the coagulation time of the blood before and after the injections, and in one case the coagulation time of the blood had been changed from two to six minutes. There is a report of seventeen cases treated by this method, and Marris is so satisfied with the results that he has decided to treat all future cases of this type under his care by the oral and intravenous methods alternately.

British Medical Journal.

January 5, 1918.

1. Some Surgical Developments in Wound Treatment During the War. A. W. Mayo-Robson.
2. The Treatment of Gonococcal Arthritis by Sensitized Gonococcal Vaccine. H. D. Haworth.
3. A Note on Muscle Nerve Testing during Operation. W. Rowley-Bristow.
4. Eye Changes in Trench Nephritis. J. Kirk.
5. Sycosis and other Chronic Staphylococcal Infections of the Skin, and their Prevention. H. G. Adamson.
6. The Treatment of Psoriasis by X-Rays and Chlorine Ionization. Charles E. De Silva.
7. Acidosis as a Possible Cause of Certain Symptoms in Diphtheria. B. A. Peters.
8. A Simple Method of Mechanical Fixation for Fracture of Long Bones. Joseph E. Adams.
9. Lectures on the Anatomical and Physiological Principles Underlying the Treatment of Injuries to Muscles, Bones, and Joints. Arthur Keith. V. The Bearings of Marshall Hall's Discoveries on Orthopedic Practice.

7. Acidosis as a Possible Cause of Certain Symptoms

in Diphtheria.—B. A. Peters reports his treatment of this condition in the latter part of an attack of diphtheria. If severe cases of diphtheria do not receive antitoxin before the third or fourth day of disease death may occur on the fifth to seventh day from an overwhelming toxemia with signs of heart failure. In a large number of late cases temporary improvement follows rapidly on administration of serum, the throat cleans, the patient is able to take a fair amount of food, and appears to be convalescent. About the tenth to twelfth day the complexion assumes a slightly dusky pallor, food is refused, and vomiting occurs. The vomit at first consists of food, but later becomes like coffee grounds. The patient vomits five or six times a day whether food or drink is given by the mouth or not. The heart's action becomes weaker and the pulse more feeble by slow degrees, until by the third day of vomiting the pulse is imperceptible at the wrist, the extremities become pale and cold, the urine is greatly diminished in quantity, the face assumes an earthy pallor, the liver may be enlarged, sometimes severe epigastric pain is present, occasionally, in older patients, a fear of impending death is present; the consciousness is maintained to the end, which is preceded by a short convulsion. In nine years' experience in a large fever hospital he has seen but one case recover in which this condition was established, and that one was treated according to the treatment to be described. Every severe case coming under treatment late during the past eleven months has been treated at once with 10 to 15 grams of sodium bicarbonate a day for several days in divided doses by the mouth, in addition to full doses of antitoxin. The number of cases admitted was 290; 52 were severe late cases (third day or after), and of these 11 died from all causes, including 5 within 48 hours of admission, and 3 from bronchopneumonia following laryngeal diphtheria; this leaves only 3 deaths from heart failure. Not one of the whole 290 cases had any vomiting, and many unexpected complete recoveries have taken place. The mixture given is: Sodium bicarbonate 2 grams, potassium bicarbonate 0.3 gram, magnesium carbonate 0.5 gram, and water up to 30 c.cm. To be given every four hours. It appears to alter the toxic pallor to a more healthy tint, and increases the urinary secretion and diminishes the albuminuria.

Berliner klinische Wochenschrift.

November 12, 1917.

The Ultimate Result of a Restoration of the Ulna Nerve by Edinger's Method (Agar Tubes). with an Anatomical Examination.—O. Müller and W. Berblinger describe this procedure which, in the case reported, consisted in interposing a piece of a calf's artery filled with agar between the divided ends of the ulna nerve. The result was not favorable, as has been the case in all similar experiments resorted to during the war. The writers describe the results of their findings made nine months after the operation. Both ends of the arterial tube were invaded by the nerve endings but there was no evidence of regeneration. The process resulted simply in the formation of a double neuroma.

The Pathology and Treatment of Five-Day Fever.—C. Kayser considers that this affection is a modified form of malaria which is transmitted by lice and not by the anopheles. It is most susceptible to treatment with quinine.

Münchener medizinische Wochenschrift.

November 13, 1917.

Menstrual Epistaxis and Its Treatment by Organotherapy (Continued from the issue of Nov. 6).—Bab describes the clinical characters accompanying this process, namely, sexual infantilism, anomalies of the pilous system, diminished fertility, uterine displacements and frequent tuberculosis. On the other hand, nasal affections are relatively uncommon. Finally, the writer insists on the hysterical states present as well as dysmenorrhea, and endeavors to explain them by an intoxication due to the retained menstrual flux. Considering the treatment of menstrual epistaxis, Bab proposes in the first place to overcome the amenorrhea, and this is accomplished by the exhibition of an opo-

therapeutic medication, namely, ovarine, thyroidine, etc., or by the administration of hypereminating and aphrodisiac agents. All styptic agents, even in local application, are contraindicated; the medication of choice should be physiological; that is to say, the secretions of the corpus luteum. Bab employs hypodermic injections of this substance and this treatment has generally been found sufficient for controlling even the most severe types of menstrual epistaxis.

Treatment of Gonorrhea.—A. Menzer considers that the end to be obtained in the treatment of gonorrhea is not the disappearance of the symptoms but the disappearance of the gonococcus. The ordinary treatment (silver salts, etc.) effects only the disappearance of the symptoms and offers the great danger of exposing the patient to recurrences of the infection and of communicating the disease to others. It is preferable, according to Menzer, to provoke the gonorrheal discharge by baths and hot injections, diathermy and anti-gonococcic vaccines until sterilization of the vaginal or urethral discharge has been attained. All treatment directed against the discharge itself offers the danger of favoring the retention of the gonococcus.

Treatment of Gonorrhea.—J. Lewinski admits that in principle the ideas of Gauss and Menzer are correct. But in practice they are quite unrealizable because the patients leave the hospital just as soon as the symptoms have subsided. On the other hand, a prolonged treatment of gonorrhea keeps patients from coming to hospitals for care and instead they apply to physicians who treat them with all possible rapidity.

Deutsche medizinische Wochenschrift.

November 17, 1917.

The Comparative Value of Radiotherapy and the Operative Treatment of Uterine Myomata.—W. Nagel is decidedly opposed to the modern tendency, represented (in Germany) by Bumm and Doederlein, which regards the operative treatment of uterine myomata as an anachronism and in its place treats all cases by radiotherapy. A tendency quite the same as this in 1890 resulted in the general application of Apostoli's galvanocautic procedure, now fallen into complete oblivion. Nagel reports a series of 160 cases of uterine myomata operated on by the vaginal route with a mortality of 0. In each case he was able to leave one or both ovaries, therefore assuring the continuation of their normal endocrine functions. This is unquestionably of great importance, particularly in young women, and is a favorable point for hysterectomy. After giving his technique, which in no way differs from that resorted to in the last 25 years, likewise the operative results observed by him, the writer concludes that hysterectomy is by all means superior to the blind and destructive procedures of the radiotherapeutists.

Researches on the Agglutinins in Syphilitic Subjects.—A. Kissmeyer explains the negative results obtained by certain writers on this subject by the use of the microscopic method. The writer makes suspensions of washed, dead spirochetes in salt solution; agglutination takes place at 1/200 to 1/500 and is made evident by a flocculation quite analogous to that of the typhoid bacillus. The results arrived at are summed up by the writer in the following table:

	Aggl.+ Wasser.	Aggl.+ Wasser.	Aggl.— Wasser.	Aggl.— Wasser.
Indurated chancre...	5	3	3	7
Secondary syphilis...	19	1	18	5
Tertiary syphilis...	2	2	4	1
Latent syphilis...	10	7	10	17
Congenital syphilis...	8	0	2	2
Controls	0	*3	0	108

*To these cases, two cases of scarlet fever agglutinating at 1/100 should be added.

Wiener medizinische Wochenschrift.

November 17, 1917.

Medullary Commotion (Continued from the issue of Nov. 10).—J. Bauer concludes that there is a possibility of purely inhibitory functional disturbances taking place, these being quite independent of any psychogenous mechanism. The anatomical proof of this fact being of a negative kind is impossible to realize. There

is good reason to extend this notion to other organs besides the cord and brain, such as the heart, kidneys, liver, stomach, bone marrow, etc., in order to explain the commotional effects of projectiles which have ricocheted.

The Indications of Removal of the Tonsils Derived from the Nervous System in Children.—J. Zappert terminates this paper referred to in the previous number of this journal by the following conclusions: The only positive indication is nasal aprosexia, which is itself uncommon and which is not to be mistaken for neurasthenic manifestations or with a low intellectual development resulting from partial deafness or persistent frontal headache. The other nervous affections, such as nocturnal fright or enuresis, vomiting, asthma, epilepsy, tardy intellectual development, laryngeal spasm, chorea and stuttering are under no circumstances to be treated by removal of the tonsils. Finally, the writer considers the relations existing between the pharyngeal tonsil and the hypophysis as purely hypothetical.

Percussion of the Pulmonary Apices.—N. von Jagić describes his personal technique in determining the upper limits of both lungs and offers clinical deductions derived from the difference in the level of the lungs. The procedure consists in tracing a line on each side, starting at a point situated three fingers' breadth from the middle line between the first and second dorsal apophyses and carried to a median point corresponding to the limit of the hair. Light percussion made over these lines gives the relative level of both apices.

Annales de Dermatologie et de Syphiligraphie.

July, 1917.

Black Tongue and Keratochromoglossitis.—Lebar has made numerous histological studies of this affection with a special technique. It is an easy matter to snip off the papillary filaments and tease them out in water, clear them with immersion in potassium hydrate, etc. Viewed at low power they present no black granulations of pigment such as one would expect to see. In fact the epithelium, hypertrophied and keratinized, does not differ essentially from that of the ordinary sabunal tongue, the habitually loaded or coated tongue. Blegvad, a Swedish investigator, arrived at the same conclusion. Under the microscope the only distinguishing mark is the greater length of the papillæ in black tongue, while the keratinization which is so well developed in the latter does not at first sight account for the black color. The use of solvents of all kinds fail to extract any coloring matter, and the blackness cannot be due to blood pigment, iron or other familiar substance. The author studied especially a patch of black tongue on a pneumonia patient, the death of whom allowed him to obtain an autopsy specimen. The histological study was made by Professor Darier. A second specimen from a dead tuberculous patient was studied under a different technic. Inoculation tests remained negative throughout and generally speaking the parasitic theory, like the pigmentation theory, is without support. The affection consists of two essential features, viz.: Elongation of the filiform papillæ with abnormal coloration of their extremities. Prolonged study appears to show that the latter is not histologically essential or in other words black is only the extreme shade, other papillæ showing all nuances of color from black to brown, coffee and milk, pale, etc., as in ordinary hairs the shade of color is not apparent under the microscope. The changes in the mucosa indicate the presence of a glossitis and this with the tendency to form keratin causes the author to coin the term keratochromoglossitis of which black tongue and habitually coated tongue form two clinical varieties. Among the causes of this condition are local processes in the mouth pharynx and nasopharynx, gastric and pulmonary affections, etc. Irritating chemicals used as buccal antiseptics, such as menthol and potassium chloride are also able to determine these conditions. Smoking can hardly be regarded as an important factor, for out of Blegvad's 73 patients only 16 were smokers, and the author found but 5 smokers among 19 patients. In the individual case of black tongue there may have been staining of some sort involved but any attempt to generalize from these isolated cases must be given up. Keratin has a

faint yellow hue, even under the microscope, and since black tongue doubtless represents the extreme phase of keratinization this coloration must be due to certain optical properties belonging to this substance.

La Presse Médicale.

November 19, 1917.

Alopecia in Hereditary Syphilis.—Sabouraud has recently written papers on the syphilitic nature of certain alopecias and on a new dental dystrophy seen, like the preceding, in hereditary cases. He has been criticized because of neglect to take a seroreaction, and for other reasons—the dentists, for example, state that his dental dystrophy is only "Carabelli's tubercle," which is not a specific. Sabouraud has replied that to be a stigma of syphilis the tubercle must be present in a certain degree. In the present article he takes these points up in case histories as follows: (1) A youth of 16 years began to lose his hair without cause. In two and one-half months he had become totally bald, including his eyebrows. The lashes were retained. There were no signs of a beard beyond the down of adolescence. One year later his hair had grown in on the scalp. The usual treatment was given without the patient's knowledge of its nature, and improvement resulted in certain respects, but the author is somewhat vague on the point. He merely states that the "hair on the body" slowly reappeared, although the loss of this was not mentioned among the symptoms. No seroreaction was obtained. The family history was tuberculous rather than syphilitic. One Carabelli's tubercle was well developed. (2) Alopecia areata in a man whose parents were syphilitic. Syphilophobia; a seroreaction was positive. Some dental dystrophy, but no Carabelli's tubercle. (3) Male, 22. First seen when 9 years of age, for alopecia areata. In the interim he had been totally bald, and while most of his hair had slowly grown in, the disease was still active. Wassermann positive. All four molars (two upper posterior on each side) showed the Carabelli tubercle. Of thirteen similar cases a few more may be selected. (7) An overgrown girl of 16½ years, very masculine, mother living, and a woman of noted beauty, showed a small spot of alopecia on one temple. Her mere appearance was suggestive of inherited syphilis. The teeth showed remarkable multiple dystrophies. No Carabelli. Wassermann not taken. (10) A woman of 30, with a relapse of alopecia areata. Father died of aneurism of the aorta. Multiple dental dystrophies. (14) Man of 44. Severe alopecia areata for two years, involving eyebrows, eyelashes, and beard. One very large Carabelli tubercle. Of thirteen children in family but four grew up. Sabouraud claims that alopecia areata must be ranked among the stigmatic diseases of hereditary syphilis.

Acute Hepatic Congestion in the Nursling.—Raimondi describes this condition as extremely common in nurslings. In some cases it appears to be due to prolonged overfeeding, in others to some congenital insufficiency of the organ. In the latter type there is fat intolerance, and in general the infant cannot eat for its age. The condition, common in the first few years of life, is by no means rare in older children. When due to overeating, it is noticeable after trips to the seashore, mountains, etc., as a result of increased appetite. Upon its return to the city the digestion is no longer able to support the appetite. As a rule the stomach is not upset. Diarrhea in particular is absent. The stools show an absence of bile, being pale and fetid. The urine is dark and the only change which is more or less constant is slight glycosuria. The liver is always enlarged and tender, and there is always some rise in temperature, often marked. The condition is described in great detail, but without reference to any constitutional peculiarities. There are nearly enough symptoms present to place these cases under the exudative diathesis of Czerny as far as certain organs are concerned. There is, however, no reference to cutaneous or respiratory phenomena.

Correspondenz-Blatt für Schweizer Aerzte.

December 1, 1917.

Allergy in Cutaneous Diseases.—Lutz refers to the introduction of the term allergy into clinical medicine

in 1906 by von Pirquet to indicate an altered capacity for reaction toward a given irritant. As allergy is preeminently a cutaneous phenomenon it should play a rôle in cutaneous medicine, and, as a matter of fact, is well demonstrated in the ringworm group of dermatoses. This is readily shown in animal experiment. If a pure culture of fungi is rubbed into the smoothly shaven skin of a guinea pig a lesion is visible on the fourth day, reaching its acme on the twelfth day. An area of skin is inflamed and surmounted by a scab which, when removed, exposes an ulcer. After the twelfth day rapid involution occurs, the hair reappears and by the end of the sixth week there is no trace of the lesion. If now the same culture is rubbed into a new shaved area a reaction is seen to occur in twenty-four to forty-eight hours; but, despite this brevity of the incubation period, the inflammation is much less pronounced and quite atypical. It may be decidedly abortive, lasting but three days, and at most does not exceed two weeks. A crusted ulcer never forms—only scaling or pustule formation. The allergy consists of a great diminution in the severity of the reaction, and must not be confounded with anaphylaxis. In allergy the toxins produced by the fungi are absorbed and engender antibodies which bring the inflammatory process to a sharp arrest. After the second inoculation the antibodies which still circulate in the blood inhibit the development of the fungi, and generally speaking, the phenomenon of allergy is a simple one. In the clinic the phenomenon of allergy is not markedly evident in the trichophyton group, otherwise an affection like tinea sycosis might be self-limited, but it is otherwise with so-called tuberculides which occur in great variety, although having common traits. While these dermatoses are benign, and cannot be brought into direct relationship either with tubercle bacilli or toxins, they are in some way related to foci in the body of actual tuberculosis. While direct proof cannot be furnished, animal experiment illuminates the problem. If a culture of tubercle bacilli is rubbed into the shaven skin of a guinea pig a small, firm nodule forms, and ulcerates. It does not heal, and the lymphnodes and entire organism become fatally infected. If now an animal thus inoculated is reinoculated the incubation period, instead of being eight days, as in the first case, is but one day. At first intense, the inflammation soon aborts, and the necrotic hemorrhagic center cicatrizes. In other words, the antibodies in the blood, although powerless to defend the organism at large, are able to inhibit the action of the newly inoculated bacilli, as in the trichophyton case. We must infer that the same analogy holds good for tuberculides in the human clinic, i.e. these are made possible because of antibodies generated as the result of a focus of true tuberculosis in the body. The human subject, by reason of the presence of these same antibodies, has not succumbed to the disease like the much more susceptible guinea pig. Should the protection fall short of a certain degree we see develop not a lichen scrofulosus, or other tuberculide, but actual cutaneous tuberculosis—some form of lupus vulgaris. Between the true and allergic forms we may see transitions. In so-called serum allergy, which corresponds to anaphylaxis, we see a behavior quite analogous to so-called idiosyncrasy (toward shell fish, in particular), due to the presence in the blood of foreign protein. Drug idiosyncrasy and anaphylaxis, on the contrary, are not due to protein antigens, but to chemical reaction bodies of specific character. Second injections of quinine or salvarsan may cause anaphylactic reactions quite analogous to the phenomena of serum anaphylaxis.

Colic Reaction and Pancreatic Organotherapy.—Savini has used pancreatic alone or in combination with bile in mucous colitis and has noted improvement in the painful crises and character of the stools. He was therefore encouraged to use the remedy in all cases of colic reaction and has invariably succeeded in suppressing the latter. He employs pills of dry pancreatic extract and sodium bicarbonate (two parts of the former to one of the latter) with in some cases bile as an excipient.—*Archives des maladies de l'appareil digestif et de la nutrition.*

Book Reviews.

WHITE AND MARTIN'S GENITO-URINARY SURGERY AND VENEREAL DISEASES. By EDWARD MARTIN, A.M., M.D., F.A.C.S.; JOHN RHEA BARTON, Professor of Surgery, University of Pennsylvania; BENJAMIN A. THOMAS, A.M., M.D., F.A.C.S., Professor of Genito-Urinary Surgery in the Polyclinic Hospital and College for Graduates in Medicine; Instructor in Surgery, University of Pennsylvania; and STIRLING W. MOORHEAD, M.D., F.A.C.S., Assistant Surgeon to the Howard Hospital, Philadelphia, Pennsylvania. Illustrated with 422 engravings and 21 colored plates. Tenth edition. Price, \$7.00. Philadelphia and London: J. B. Lippincott Company, 1917.

To the already well filled field of urologic literature comes this tenth edition of a book, which in its twenty years of age has attained popularity through its merit and excellence. In the interval of seven years between the ninth and tenth editions urology has so progressed that the present volume practically is rewritten. The death of Dr. J. William White, to whom this edition is dedicated, removes one of the pillars of strength from the original structure, but Dr. Martin has endeavored to compensate our scientific loss by calling to his aid the three co-authors mentioned on the title page.

Thirty-two chapters covering nearly seven hundred pages are given to the consideration of genitourinary diseases in every phase and from every angle. New chapters and sections are added on such important topics as the examination of the patient, urinary examination and determination of renal function, choice, care, and sterilization of instruments, and extensive amplification of the treatment of acute and chronic gonorrhea. The new text on high-frequency desiccation, the treatment of prostatic hypertrophy, and determination of renal permeability are in harmony with the opinions of other urologic authorities. New sections on renal tumors and parasites, renal tuberculosis, renal operations, nephrolithiasis, and kidney physiology express the latest views and most approved methods concerning this organ.

The last twelve chapters include as extensive consideration of syphilis as is necessary for any but strict syphilographers. An entirely new chapter appears on the laboratory diagnosis of syphilis as well as ample additions in discussion of the arsenicals. The various methods of syphilitic treatment are outlined, but no personal preference is mentioned. Their technique for the inunction method is so different from the standard accepted, that of Aix-la-Chapelle, that their results must be at variance. The authors' gloomy views on the uselessness of intraspinal treatment robs the tabetic or paretic of that faint hope science has offered him.

From first to last each page shows painstaking re-writing, revision, and rearrangement. In the main the views, opinions and teachings are those accepted worldwide, and such discriminating care has been used in giving prominence to the essentials that the work is perfectly balanced. Publications of other writers have been liberally used, but proper credit is given. The authors' literary style is that of teachers, clear and concise. New and excellent illustrations abound and are inserted with good judgment. The colored plates are especially good.

IMPOTENCE AND STERILITY WITH ABERRATIONS OF THE SEXUAL FUNCTION AND SEX-GLAND IMPLANTATION. By G. FRANK LYDSTON, M.D., D.C.L. Price, \$4.00. Chicago: The Riverton Press, 1917.

THE author states in the foreword that the object of this monograph has been to put in more permanent form his theory regarding sexual abnormalities and sex gland implantation. This theory the author terms the sex hormone aberration theory and is, as we see it, based essentially on deficiency in the internal glandular secretion of the testis and ovary. The sex hormone resides in the sperm and germ cells, and depletion in the quantity and quality of this hormone is accountable for both psychic and physical aberrations of sex differentiation. According to this conception sexual perversion and inversion are considered purely biochemic in origin. The first part of the book covers the subjects of hermaphroditism, diseases of the sexual function and

instinct, sexual perversion and inversion, impotence and sterility, masturbation, sexual excess, etc., with their respective treatments. Much of what the author writes is found in some of the old standard books, such as Kraft-Ebing's *Psychopathia Sexualis*. The treatment of impotence, sterility, and sexual dyscrasias generally contains nothing new, with possibly the exception of sex gland implantation, which according to the author is of value in selected cases. He makes a strong plea for this form of therapy, and we cannot but admire his courage in carrying out an implantation experiment on himself. The author claims not only beneficial effects on the sexual function but also secondary improvement in bodily functions as a whole, due to the stimulation of absorbed hormone from the implanted sex gland. This part of the monograph we find most interesting and original in some of its conceptions.

THE MEDICAL CLINICS OF NORTH AMERICA. Volume I, Number II (The Philadelphia Number, July, 1917). Octavo of 269 Pages, 28 Illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published Bi-monthly. Price per year, \$10. Philadelphia and London: W. B. Saunders Company.

THIS number of "The Medical Clinics" contains much excellent material, set forth in a scholarly and orderly manner. Following is a list of the contributions with their contributors: aortitis, Dr. Thomas McCrae; the classification of chronic nephritis and the relation of infection to kidney disease, Dr. Alfred Stengel; cardiac disease and digitalis, Dr. H. A. Hare; aortic aneurysm: leukemia, Dr. Joseph Sailer; progressive myocarditis; treatment of cardiac decompensation, Dr. David Riesman; the diagnosis of pulmonary tuberculosis by the roentgen ray, Dr. H. K. Pancoast; angina pectoris and allied conditions, Dr. A. A. Stevens; mechanical disorders and irregularities of the cardiac contraction, Dr. R. V. Patterson; gastric infection, Dr. Martin E. Rehfuess; ulcerative endocarditis, secondary to dental caries, treated by autogenous vaccine, Dr. Judson Daland; the diagnostic value of examinations of cerebrospinal fluid, Dr. John A. Kolmer; a case of auricular fibrillation of long duration, Dr. John A. Musser, Jr.; poliomyelitis, Dr. T. H. Weisenburg; essentials and limitations of an average diet, Dr. O. H. Perry Pepper; the causes of reaction under salvarsan, Dr. Jay Frank Schamberg; osteitis deformans, Dr. Elmer H. Funk. The selection of topics as above detailed is sufficiently varied and noteworthy to make the number of more than usual interest.

MEDICAL RESEARCH AND HUMAN WELFARE. A Record of Personal Experiences and Observations during a Professional Life of Fifty-seven Years. By W. W. KEEN, M.D., LL.D. (Brown); Emeritus Professor of Surgery, Jefferson Medical College, Philadelphia. Price, \$1.25. Boston and New York: Houghton Mifflin Company, 1917.

THIS delightful little book embodies the Culver lectures for 1917, given by Dr. Keen at Brown University. A professional life of fifty-seven years affords a rare opportunity at this period in the history of medicine to review an unusual list of discoveries and achievements which have contributed not a little to the welfare of mankind. Dr. Keen describes in a most readable and forceful style the epoch-making work of that giant among scientists—Pasteur, always a predominant figure in writings of this kind. As an instance of the value of medical research along lines of animal experimentation, the author states that during the seven years from 1903, when Metchnikoff succeeded in infecting an ape with syphilis, down to 1910, more was learned as to the cause and cure of this terrible scourge than in *four centuries* of observation. The researches into smallpox, cholera, bubonic plague, yellow fever, etc., the essayist discusses and shows how much the world is indebted to the medical profession for the great decrease in morbidity and mortality of these diseases. We cannot refrain from the thought that such a book as this should be read by our iconoclastic brethren of the Christian Science persuasion, and also by that misguided and fanatical aggregation of sometimes otherwise intelligent people—the antivivisectionists. Dr. Keen has certainly conferred a graceful favor on his profession in putting these excellent lectures into book form.

Society Reports.

SOUTHERN SURGICAL ASSOCIATION.

*Thirtieth Annual Session, Held at St. Augustine, Fla.,
December 18, 19, and 20, 1917.*

THE PRESIDENT, DR. WILLIAM D. HAGGARD, NASHVILLE,
TENN., IN THE CHAIR.

(Concluded from page 216.)

President's Address: The Medical Profession and the Great War.—Dr. WILLIAM D. HAGGARD of Nashville stated that during the three years of the present war the British with millions of men engaged had lost only 292 men from typhoid fever. Typhus fever had been denied access to the battleground of the far-flung Western Front. We would see to it that it would never gain a foothold in our army camps. The Medical Reserve Corps now numbered nearly 15,000 physicians who had volunteered and been commissioned. The re-education of the crippled, the maimed, the sightless, and the salvaged after the war was a voyage across uncharted seas into another world. No longer would we attempt to save the wounds of heroism with alms, or allow a mutilated patriot to eke out a pitiful existence as best he might; rather would it be our splendid aim so to reeducate that unfortunate as to give him a trade or a profession more lucrative, more independent, and more ennobling than he had had before. In all of the war work the representatives of the healing art had had their share. For the Southern Surgical Association, to its lasting honor, as President he wished to record that out of 200 members, more than 50 of whom were disqualified by age or obvious disability, 70 had given their services to their country.

Some Recent Literature on Shock.—Dr. F. W. PARHAM of New Orleans said that the cardiac factor was not primary in shock, nor was the vasomotor factor. The experiments of W. T. Porter, of Seelig and Lyon, of Seelig and Joseph, of Frank Mann, of Morrison and Hooker, of Yandell Henderson, and many others showed this center to be not paralyzed, but in a state of increased activity, and Pike, Guthrie, and Stewart had shown it more capable than any other center of withstanding the influences of anemia. Low pressure did not prove its exhaustion, for this followed hemorrhage also. Cannon concluded that "we must respect the vasomotor center as an agent whose capacities for continued action are its most outstanding feature." Frank Mann had published some experiments to show that a large amount of blood was retained in the splanchnic area in shock. He set the problem to determine the actual loss to the circulation. He ascertained first the total amount of blood to body weight. This he estimated at 7.7 per cent., or 1/13 of the body weight. He thus established the normal standard. He then bled the animal from a large vessel; this represented the measure of efficient blood. He then drew the blood from the venous side (the right auricle), which, added to the arterial blood, made up the mobile blood. The sum of these two subtracted from the calculated total blood represented the immobile, or useless blood. In unshocked animals 24 per cent. could not be drawn and was considered immobile blood. He found that in shock produced by opening the abdomen and manipulating the intestine, 61 per cent. remained immobile. Compare this with complete destruction of the vasomotor center, which immobilized only 42 per cent. In shock the amount of circulating blood was less than in section of the spinal cord. A series of experiments confirmed these statements. This immobilization of blood took place beyond vasomotor control. Captain Marshall had made some observations in France on the hemoglobin content of blood, which seemed to support the view that oligemia was an important factor. Experiments were also reported by Dale and Macintosh with organisms of the gas gangrene group isolated from human material. The evidence available indicated a striking similarity of origin underlying the similarity of symptoms between the toxemia of gas gangrene and other shock-like conditions. Effects of the same kind were produced by other products of protein digestion,

bacterial products, etc. Mann contended that shock and hemorrhage were identical in all essential particulars. In some respects, however, most important for the purpose of the surgeon, the two conditions differed materially, as had been clearly pointed out by the British Research Committee. In hemorrhage even of sufficient severity to diminish the output of the heart and lower the blood pressure, if the case was not allowed to go too far, normal reaction might yet take place, fluid be drawn back into the vessels, and restoration be established, and this we knew might be enormously assisted by transfusion of blood, or by saline infusion. In shock oligemia was pronounced, the outgo of plasma into the tissues continuing in spite of the introduction of fluids into the blood, and only the most temporary benefit was accomplished. So long as a man was alive there was hope in hemorrhage if fluids could be introduced. So bad, however, was the picture in shock that Rendle Short declared in 1914 that it was hopeless to do anything for the shocked victim. In hemorrhage, too, cardiac stimulants had a place, but in shock they were worse than useless, until reaction could be otherwise established. Another important difference was the effect of local anesthesia in preventing shock by blocking the centripetal impulses. The treatment of shock resolved itself into measures intended to raise the blood pressure and restore the animal heat. W. T. Porter found a remarkable absence of nervous shock in the midst of the most horrible carnage, so that the psychic factor seemed to play a very small role. In the badly wounded he found the blood pressure a most valuable guide, especially the diastolic. When the diastolic pressure fell below 50 mm. the condition was very grave and resuscitation was doubtful, but when reaction could be brought about recovery was often rapid. Elevation of the lower limbs and head lowered just below the level of the abdomen was the best position. A special table was devised, which enabled him to keep the patient warm in the proper position. Saline infusion was given for temporary effect and sometimes adrenalin given in weak solution continuously was advantageous, but the saline infusion was temporary in its effect unless the blood pressure could be raised. Porter spoke highly of respiratory suction or the thoracic pump. By introducing carbon dioxide into the air breathed the chest was expanded and a powerful traction force exerted on the blood in the liver, drawing it through and establishing reaction in some very bad cases. The suggestion of Porter was simple and worthy of trial, because so easy to apply. Finally, as the alkali reserve was probably reduced in all these cases, the administration of bicarbonate of soda might be tried with advantage. Dawbarn's suggestion of bandaging the limbs employed in conjunction with the respiratory suction was valuable. This would have the effect of drawing the blood to the right heart not only from the vena cava but also from the portal capillaries. There was one danger suggested by Simonds: the section might in fat embolism draw the fatty globules from the lung to the left auricle and be then sent with fatal effect to the brain.

Injuries to the Spine.—Dr. JOSEPH RANSOHOFF of Cincinnati stated that his paper was based on the number of cases handled at the Cincinnati General Hospital within a little less than two years. There were altogether 16 cases of injury to the cervical spine, which large number indicated the frequency of lesions in this region. Six of the cases died within from 12 hours to 2 weeks. In none of these cases was a laminectomy performed. Three of these fatal cases were attended with considerable shock, and it was found that they were complicated with fractures of the skull, a complication which was far more frequent than was ordinarily supposed. In all of the cases, with one exception, the paraplegia was synchronous with the receipt of the injury. In only one case, a stab wound, causing fracture of the spinous process and body of the vertebra, did the paraplegia come on several hours after the injury, as a result of hemorrhage. There had been no displacement of the segment. In the remaining cases there were for the most part no symptoms whatever on the part of the cord or cord nerve roots of pressure on the nerves and their branches through the intervertebral foramina. Limitation of motion and some pain thereon, with a fixed de-

formity, were the only evidences of fracture which were displayed by the x-ray. He could not emphasize too strongly the value of taking the picture through the mouth. There was only one case of what seemed to be a pure dislocation, but even in this the x-ray showed a slight fracture of the body. The discrepancy between the fatal outcome and the x-ray picture was shown in many instances, because in these the x-ray showed a nearly normal spine, evidently proving the contention that the spontaneous reduction, the result of the handling of the patient, often occurred. An interesting case was one of a shot wound, which, without producing any fracture of the spine, caused contraction of the cord, particularly of the pyramidal tract, and of the gray matter in the region of the seventh cervical and first dorsal vertebrae. The ilio-spinal center was contused and followed by the typical contraction of the pupil, exophthalmos, and slight ptosis on the side of the injury. At the operation the sympathetic nerve cord was found uninjured, thereby accounting for the absence in this case of the unilateral sweating and flushing of the face, which usually attended wounds of the cervical sympathetic nerve cord itself.

The Cancer Problem.—Dr. CHARLES H. MAYO of Rochester, Minn., stated that cancer continued to be one of the greatest scourges of the human race. It was apparently on the increase among the more highly civilized people, yet might be worse than suspected among lower types of the human race through lack of examination and investigation, as was shown to be the case in cancer of animals and lower types of life. In this connection, the work of Erwin Smith was one of the utmost interest in showing cancer in plant-life. Discussion, investigation, and discovery had given control of other great life-destroying diseases, and had been most helpful in aiding in the control of cancer. The educational propaganda of Dr. Bloodgood had been of incalculable value in the prevention and early treatment of cancer in this country. The greatest advance in our knowledge of cancer had come from a study of the individual cancer cells. MacCarty believed the disease to begin in the waiting or repair cells. We thus saw how the stimulation of continued traumatism might stimulate to activity such repair cells when lack of control, differentiation, and migratory hyperplasia would place them within the cancer classification. Many writers believed there was a true fertilizing agent of the nucleated cells which gained entrance to local areas and cell intelligence for growth carried on progressive activity. Some believed this fertilizing agent was water borne. All these theories should be subject to investigation, as, after all, the essential facts concerning the cause of cancer were lacking, and yet all causes might be associated and harmonious. Nearly one-third of the cancers that affected man were found in the stomach where acidity was constant and high. The duodenum which, by right of continuity of tissue, close association with and opportunity for grafting, and apparently far more commonly affected by ulceration than the stomach, was almost never affected with cancer, which, however, spread into all other tissues around it when developed from gastric cancer. Ulcers occurred in the stomach one-third as frequently as in the first portion of the duodenum. Sixty to seventy per cent. of gastric cancers gave a history of preceding ulcer. Ulcer then was more common in the naturally alkaline duodenum. Ulcer or cancer was rarely seen in the duodenum below the first two inches. Cancer occasionally occurred by penetrating through a duct, although in the whole length of the small intestine it occurred but twice, to ninety-eight times in the large bowel. The colon was frequently affected with cancer because here again we had acidity, and seventy-five per cent. of the tumors were located in the fixed and tissue-surrounded portion of the colon, which retained the dry and harder contents as a traumatic agent. The essential of cancer was uncontrolled hyperplasia developed in repair types of nucleated cells which grew most favorably in acid fields.

Cure of Hernia in the Male.—Dr. HENRY O. MARCY of Boston said that owing to the very careful study of an exceptional case of congenital hydrocele, he was led to make, when an assistant to Dr. J. B. S. Jackson, Professor of Pathology in the Harvard Medical School, careful anatomical and pathological dissections of the

inguinal canal, and early arrived at the conclusion that the reason all men were not subjects of hernia was because of the normal obliquity of the inguinal canal which caused the intraabdominal pressure to be exerted at right angles to its long axis. He was the first American pupil of Lord Lister in Edinburgh, before his teachings had received any recognition except in criticism. Lord Lister at this time had never used buried animal sutures, but had ligated arteries in continuity, closing an aseptic wound, followed by primary union. It seemed to him a logical deduction that it would be equally safe and wise to reconstruct the various injured tissues of the body and, when well vitalized, restore their normal function. His careful studies in the lower animals demonstrated the safety and wisdom of such procedures. This led him to believe that the inguinal canal could be safely reconstructed to its normal obliquity, and as a consequence inguinal hernia in the male was safely and permanently cured. Little by little he was led to the aseptic application of aseptic sutures made and maintained aseptic for the reconstruction of a great portion of the body. His first operations for the cure of hernia were in 1870. Since 1882, when he first obtained a supply of tendon from the tail of the kangaroo, he had used no other suture material. In aseptic well vitalized structures, thus coated and protected by a seal of iodoform collodion, primary union was the rule. Usually the only dressing applied before the patient left the surgery was the iodoform collodion, reinforced with a few fibers of absorbent cotton. In the different conditions and necessary modifications which might be called the operative technique, the one essential instrument necessary was a full curved needle, with an eye near the point, which permitted the use of a double continuous suture. Briefly the advantages were: minimizing the amount of suture material buried, the even coaptation without the constriction of the parts involved, and the use of a single knot in permanently holding the parts in apposition. The carrying of the thread by the needle with the eye near the point was the first primary necessity in the invention of the Howe sewing machine, which gave a continuous double suture, not unlike that used from time immemorial by the shoemaker. For years the Howe family was under his supervision professionally and he familiarized himself with this basic principle of mechanical sewing. He made repeated efforts to invent a needle carrier that would apply the Howe lock-stitch for surgical uses, but in this he did not succeed. After having been instructed by a shoemaker, in his method of sewing leather, he devised the needle known by his name.

Subparietal Rupture of the Intestines.—Dr. RANDOLPH WINSLOW of Baltimore said that subparietal rupture of the intestines was a comparatively rare injury. The small intestine was much more frequently ruptured than the large, and the ileum was the usual seat of the laceration, though the jejunum and duodenum were also injured in a progressively diminished ratio. The causes of the rupture might be either direct blows on the abdomen, whereby the bowel was compressed against the bony structures, or a force which caused bursting of the distended viscera by a sudden displacement of their gaseous or liquid contents. While direct violence was the common cause of the injury, it was known that indirect violence might also cause this lesion, such as a fall upon the feet or the buttocks. The symptoms of a subparietal rupture were very similar to those of a penetrating wound or a perforating ulcer of the stomach or intestines. There was a history of a blow or other traumatism on the abdomen, followed usually by severe pain, rigidity of the abdominal walls, tenderness on pressure, vomiting, increased frequency of the pulse, with soon an elevation of temperature and a high leucocyte count. There might be marked tympanites and obliteration of the liver dullness, but these signs were by no means constant, nor was shock a constant or a reliable symptom. The patient, however, had received a mortal injury and he generally showed it in his facies. The symptoms would depend somewhat upon the extent of the injury, a small opening might give exit to the intestinal contents slowly, and the inevitable peritonitis might not develop as rapidly as when the laceration was more extensive. As a subparietal laceration of the small intestine was always fatal, as far as known, when un-

operated on, it was of the utmost importance that a diagnosis should be made at the earliest possible moment. Contusions of the abdominal wall might present somewhat similar symptoms, but they were not usually so pronounced and tended to subside, while those of a rupture became progressively more accentuated. In any case of doubt it would be safer to open the abdomen and ascertain the extent of the lesions than to wait in the hope that no serious injury had occurred. While the general subject of subparietal injuries of the intestines was of great interest, his attention had been especially directed to the rôle of a hernia in the production of intestinal lacerations, since two such cases had come under his care in the past two years. In these cases blows upon reducible inguinal herniæ were followed by rupture of the intestines.

A New Operation for Colon Stasis Modified from Rovsing's, with a Report of Twenty-eight Operated Cases.—Dr. GASTON TORRANCE of Birmingham, Ala., stated that the only step in this operation which exactly duplicated Rovsing was the three rows of sutures put in the anterior surface of the stomach for elevation and fixation of the stomach, and his claims for a new operation were based on (1) the preservation of the omentum intact; (2) the actual suture of the colonic bands to the stomach; (3) the lowering of the flexures, and (4) the elevation of the liver by pulling the suspensory ligament up through the fascia and suturing it as if done in the Gilliam operation. The first thing to be done was to examine the cecum and if it was much dilated to narrow it by suturing two bands together up to the hepatic flexure. The appendix should be removed. The stomach was then brought up and three rows of strong linen sutures were put in across the anterior surface, care being taken not to go too deep and to avoid wounding any blood vessels. When the x-ray showed a very high attachment of the flexures, and especially the splenic, this should be pulled down and incised and dissected down far enough to prevent any angulation after the colon is raised. A point was selected on the ascending colon, and sutured to the stomach a few inches below the cardia. The band on the lower border of the colon was found and a mid point was selected and the omentum was held up and by transmitted light this point on the colon was sutured to the stomach through the omentum midway between the two sutures mentioned above (heavy linen is used)—a midpoint was again selected on the two halves of the colon and stomach and points were again selected between these sutures until all of the slack was taken up in the colon (which contracted down so that it fit snugly to the lower border of the stomach) and until the sutures were within at least half an inch of each other. As the mesentery extended down almost to this band, he found it narrowed the colon somewhat by suturing it to the stomach and formed an apron which held the colon up in place and gave a smooth surface beneath the mesentery. The omentum had not been injured in the least and fell down in its normal place and prevented any adhesions. The three stomach sutures which were left long were now threaded on a Riverden needle and brought out through the abdominal wall near the border at the ribs on the left side and a little nearer the midline and at a lower level on the other side. These sutures were drawn up tightly and clamped close to the skin and the abdomen was then closed, and the sutures were then tied over a tin box about 3 inches square wrapped in gauze. The patients were kept in bed four weeks and the sutures removed in from three to four weeks. He operated in 28 cases by this method, with 21 cures, 2 improved, one not heard from. Four patients died, none of them in consequence of the operation. One patient died of pneumonia two weeks after operation, one died of acute dilatation of the heart one week after operation, one died four weeks after operation, probably from an acute exacerbation of pellagra, and the other case of inanition two weeks after operation. Two cases had been operated upon four years, four cases three years, thirteen cases two years, three cases one year and two cases six months. Twenty-six cases were in women and two cases in men. In eight cases the ligament operation was done on the liver and the left lobe of the liver was sutured to the diaphragm in one case. The cecum was plicated in eight cases.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 6, 1917.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

The General Diagnostic Study by the Internist.—Dr. LEWELLYS BARKER of Johns Hopkins Hospital, Baltimore, made this address, which he illustrated with lantern slides. He said that when he had been honored with an invitation to address the New York Academy of Medicine he thought over subjects that might be of interest and it occurred to him that he had heard the statement made that if a man could be interesting about anything at all it was about the work that he was doing every day. The work they were doing was very interesting to those who were doing it and it seemed that it might also be interesting to others to know just how they were working. He had therefore decided to show by means of lantern slides the method he was using in making a diagnosis. This method consisted in the application of reflective thinking to medicine and to the solution of diagnostic problems. It was the province of the internist to survey the body as a whole; the field of the specialist was limited to a single part of the body. The internist must know enough about each specialty to judge of the significance of the reports that came from the specialist. He considered the surgeon a specialist, a specialist in therapy. The internist was to study the patient as a whole, and when a tentative diagnosis had been made experts in special domains of medicine or surgery might be called in. In the application of the process of reflective thinking to the making of a diagnosis five steps were involved. *First step*—Each patient should be regarded as a special problem requiring scientific study for its solution. No "snap diagnosis" should be made. There should be a registration of symptoms with a suspension of judgment until sufficient facts were obtained upon which to base a diagnosis, though, of course, pain should be relieved or a surgical emergency attended to. There should be a realization that a situation that was apparently simple might be complicated. There should also be a realization at this stage that the diagnosis was vague and a complete history of the case should be recorded. The *second step* consisted of a localization and definition of the diagnostic problem. This included: (a) collecting the facts in the case, (b) summarizing them, and (c) correlating them. Collecting the facts included anamnesis, general physical examination, and the application of all the laboratory tests, x-ray examinations, etc. The laboratory tests included examination of the cerebrospinal fluid, tests for tuberculosis, including excision of a gland or small nodule, blood chemistry, and a bacteriological culture, tests for renal function, metabolic studies, protein sensitization tests, pharmacodynamic tests, electrocardiograms, sphygmographic tests, exploratory punctures, animal inoculation, etc. The examination should include the eyes, ears, nose, throat, and teeth as well as the esophagus and the genitourinary tract and an examination of the nervous system. *Third step.* The speaker in sending a patient to a specialist for an examination sent the following note: "Dear Doctor:—Be kind enough to examine in your domain and send me the report and oblige." He did this because the specialist was likely to think the patient's trouble was in his domain. Dr. Barker cited an instance in which he had sent a patient to some four or five specialists and each one located the trouble in his special domain, and he said this was no unusual occurrence. He did not wish the specialist to make the diagnosis or express his opinion to the patient until all the evidence was collected. The examination should include an x-ray examination. In this opinion a good teleoroentgenological examination gave more information than palpation. While it was important to have these various examinations made by the specialist it was important for the internist who was making the general survey to have sufficient general information to enable him to choose the right one. The *fourth step* consisted in applying the deductive process of reasoning and making a systematic inference from the facts, a rational elaboration of the data that had been obtained. The *fifth step* was corroborative. It consisted of a further observation for the purpose of testing the suggestions

and inferences leading to the conclusions as to whether the internist believed or disbelieved in the correctness of the diagnosis at which he had arrived. In making the physical examination, Dr. Barker said he always considered weight an important factor to be taken into account. He allowed 110 pounds for five feet in height and five and one-half pounds additional for every additional inch in height. This would be found to be a good guide as to whether the patient was under or over weight. Knowing whether a patient was under or over weight gave a clue to the disease or diseases that one might expect to find. It sometimes happened that two plausible ideas in regard to the diagnosis might be unified and absorbed into one. In arriving at a diagnosis by this, or in fact any method, there was no doubt that experience helped greatly. The finished diagnosis was thus a combination of observation, inference, and reasoning. The trained diagnostician knew how far it was advisable to carry each step in each case. It might not be necessary to carry out all of the examinations in every case. To carry an examination too far in some cases might be foolish, in others an omission might be disastrous. Dr. Barker completed his exposition by taking several cases up in detail and applying the method outlined to illustrate how in an individual case a correct diagnosis was arrived at.

Dr. CHARLES L. DANA expressed his appreciation of Dr. Barker's address and said he thought it furnished an admirable and stimulating ideal of the way in which one should work out a diagnosis. As a neurologist he rather objected to being classed with those who took a narrow view of their specialty; in fact he had frequently taken the same position with reference to the internist and the surgeon that Dr. Barker had taken in reference to the neurologist. The neurologists quite agreed with Dr. Barker as to what should be done in order to arrive at a diagnosis and the presentation of what should be done was so complete that he could find no point to criticize. But it had occurred to him, and he supposed to all those who had had long experience in dispensary work, to wonder how a physician in an out-patient department of a dispensary could apply such a thorough diagnostic system when he was called upon to treat sixty patients in two hours. It seemed to him that Dr. Barker's presentation drove home to them the fact that such examinations as he had described should be more frequent and cheaper. The problem of collaborating the results of physical examination, laboratory data, and roentgenological examination was one they would have to solve. It was perhaps the part of social workers and of those interested in social progress to devise a method of securing more group work by which this complete and admirable system of diagnosis could be carried out.

Dr. SAMUEL J. MELTZER said that he could not claim to be an internist since for many years the laboratory had been his working place. It happened, nevertheless, that even now he saw a patient occasionally. He found that it took him more than an hour to come to a definite conclusion in a single case and even that without employing the scientific and complex method advocated by Dr. Barker. The majority of the large audience present consisted of practitioners who were now in the same position that the speaker was thirty years ago when he often saw thirty and more patients a day. Were they to employ the methods recommended by Dr. Barker? An illustration would best convey what he wished to say. In 1888, he took his assistant, a well-informed man, to see a patient with him; he desired to see him making the examination and arrive at a diagnosis. The examination was made in as thorough a manner as the methods of those times permitted. The patient had a temperature of 104° F. and a pulse of over 130; but his predominating complaint was excruciating backache. In their consultation his assistant stated that he could not localize the cause of the disease, but it occurred to him that severe backache was a symptom present in smallpox. Dr. Meltzer said he was dumbfounded; he went back to the patient and put his finger on the region of the right submaxillary gland to which the patient responded with evidences of pain. By looking into the throat it was found that the right tonsil was swollen and dotted with spots. The diagnosis was, of course, tonsillitis. His assistant wished to know what made him go directly for the sub-

maxillary gland. His answer was that soon after looking at the patient he noticed that he feared to swallow and that when he had to do so it was followed by contortions of the right side of his face, that it was the beginning of winter and that there were many cases of tonsillitis in this vicinity. On the other hand, the idea of smallpox did not even occur to him although he was well aware that many adults who suffered from this disease complained severely of backache. Why had he not thought of the possibility of this disease and tried to exclude it? Because the mental process which he employed in making a diagnosis was very simple. He thought first of those diseases which at a certain season and in certain localities occurred eighty-nine times in a hundred, and he went straight for their manifestations. Only when he failed did he begin to pay attention to the remaining one or two percentage of possibilities. This method might appear as very unscientific, and he would confess that his main interests always had been and still were in scientific methods and investigations. But at the bedside he was still a practitioner; he did not look for the exceptional and he was carefully on his guard against notions which, although they might possess a scientific nimbus, were only of an ephemeral instructive character which did not possess a permanent practical value. The history of medicine was full of such phenomena. In brief, for the vast majority of cases a correct diagnosis was more likely to be made by a trained physician possessing a critical mind who went straight for the most probable point than by one who attempted in all cases to reach that point by the process of exclusion of all other possibilities—which rapidly became more and more numerous.

Dr. M. ALLEN STARR said he shared Dr. Dana's indignation in being relegated to the lowest level of the diagnostic ladder. But, speaking more seriously, he thought such coordinated work as Dr. Barker had described was possible only in a well organized hospital or dispensary. All virtue in this respect did not lie in Baltimore; there were three hospitals in New York where combined work of this character was being carried out. As the consultant in neurology he knew that work of this character had been carried out for 20 years at the Presbyterian Hospital. At the present time at the Vanderbilt Clinic there was an attempt to correlate the work of different specialists by a system of cards by which the patient was transferred from one department to another and in this way a very complete record of the case was obtained. The method that Dr. Barker had described and displayed was really the plan studied in Germany, and was perhaps one of the few good things that had come from Germany. Nothnagel in Vienna employed this careful method of making examinations and taught it. Dr. Starr said he thought all had been impressed with the necessity of *not* making a snap diagnosis and *not* omitting to make a very careful examination.

Dr. EMANUEL LIBMAN said it was to be understood, he believed, that Dr. Barker, in presenting his scheme, did not mean that it was intended for simple cases in which the diagnosis could be cleared up rapidly; he was, no doubt, referring to cases difficult of diagnosis and particularly to those which came to the internists from a distance, and which must be studied in great detail. Frequently some of the special examinations that were not absolutely essential were demanded by the patient or his physician. At times when cases came to one from out of town, he must have unnecessary x-ray examinations made, because the physicians studying the case would not regard the report complete without such an examination, and would then send the case elsewhere to have the x-ray examination made. Often a complete study of a case in such a fashion as Dr. Barker had described would be found of great value in discovering conditions existing in the patient apart from the symptoms from which the patient was suffering when he came for examination. In order to investigate thoroughly cases coming to our hospitals and dispensaries for study, it would be necessary in the future to have our institutions reorganized on the plan of the Mayo Clinic, having a chief under whom a large group of men worked and examined the cases. This was not easy to introduce in many of our institutions at the present time because not all men connected with the hospitals

could fit into a diagnostic group or groups. Until the trustees of hospitals grasped the situation and had the courage to reestablish their staffs on a proper basis, such diagnostic groups would have to be privately organized. Dr. William J. Mayo had stated to him that he believed that the head in all general hospitals should be an internist with a staff of men working under him, and that the patients should be presented to the surgeon for his opinion and action after the preliminary investigations had been carried out. Dr. Barker would be glad, he was sure, to hear that Dr. Mayo agreed with him in considering surgery a branch of therapeutics.

Dr. RUFUS I. COLE said that one of Dr. Dana's remarks had made an impression on him, and that was that it was a far cry from the conditions under which a man worked in a dispensary and the method Dr. Barker employed, and with this was associated the thought that the economic advantage lay with Dr. Barker's method. The quick way of making a diagnosis was, after all, the expensive way, for when one saw a hundred patients in a couple of hours he was unable to do them justice and they returned again and again and went from one dispensary to another; if the same amount of money spent in this way were expended in actual diagnosis a saving would result in the long run. This plan of making a thorough diagnosis would require organization, but in the end would be cheapest.

Dr. VIRGIL P. GIBNEY said that while listening to Dr. Barker describe this method of making examinations the thought had come to him and probably to others, "How much would this cost?" Very often one had a patient and spent a great deal of time over an examination, only to find that he wanted a little special advice or he wanted an x-ray. The question came up how much the patient could stand financially. The roentgenologist was not satisfied until he had taken x-ray plates of the greater part of his anatomy and the patient began to wonder how expensive a doctor he had consulted. A negative report led one to order a bismuth meal and another x-ray was necessary in order to determine whether the patient had intestinal stasis, the expense of which would range from sixty to eighty dollars or more. The doctor-in-chief found that these extraordinary charges so dwarfed his own that his bill had not made much impression on the patient, and when he wanted advice again he would go somewhere else. Dr. Gibney said that he, specialist that he was, appreciated the need of a thorough examination in his line of work such as Dr. Barker had described. He thought it a good plan for a young man starting out in the practice of medicine to spend some of his time, while waiting for patients, studying at the clinics of different specialists and making of himself a universal specialist. He should take a course at a neurological clinic, at an ophthalmological clinic, etc., and in this way he would get a grasp of the situation as a whole and would not need quite so much help from the different men specializing in other branches. Dr. Gibney then related an instance showing the position in which one often found one's self. A gentleman had come to him a few years ago from a neighboring State with arthritis of the elbow and he had treated the case by immobilization. After a time the patient said to him that he had had an episode in his early life that might throw some light on the situation; he gave a history of gonorrhea and the speaker then sent him to a genito-urinary specialist, to the x-ray laboratory, and to a gastrointestinal specialist (an internist). After a time he had the patient practically cured of his arthritis so that he was able to beat his doctor at golf. This very day he had returned and said his elbow was not as well as it had been, and he had sought advice in New Haven, being "put through the mill." Not getting a satisfactory result, he sought advice in Boston, where he met a distinguished member of his own (Dr. Gibney's) specialty. The advice was to remain in Boston for observation and subsequent treatment. This patient really came to the speaker to get advice as to whether he should go to Boston for his cure or come to New York. Naturally the advice was to come back to his "first love," and he told the patient a story heard from the late Dr. Knapp: A doctor from Boston came to him for advice about a serious lesion of the eye. Dr. Knapp made the diagnosis and told the patient to go

down to his private hospital for an operation. This was too much for the Boston doctor-patient and he said: "I like that; haven't we as good surgeons in Boston as you have in New York?" "No," said Dr. Knapp, "and you never will have, for medicine and surgery are like commerce, they seek the best market." Needless to add, the patient resumed treatment in New York.

Dr. WILLY MEYER said that everyone must have been impressed with the value of this method of diagnosis and especially with the system whereby everything was written down in black and white and followed in every particular. The surgeon was frequently called upon to assist in the diagnosis of borderline cases. Taking the three cavities, the cranial, the thoracic, and the abdominal, the neurologist usually made the diagnosis of a cranial condition, but the surgeon was called upon to assist in the diagnosis of thoracic and abdominal conditions. They would certainly all agree that during the last ten years the x-ray had brought them much assistance in diagnosing these conditions, so that he need not dwell upon that point. But there was another point that he would like to mention, and that was that they had made great progress in the diagnosis of gall-bladder and duodenal conditions by means of the Einhorn duodenal bucket, which enabled one to obtain the secretions of the liver and pancreas. With all the means now available as aids to diagnosis it was a pleasure to have a borderline case gone over by all the specialists before an attack was made by the surgeon. The written-down system was being used here in New York and the same lines were followed that had been described by Dr. Barker. The patient in the ward and the private patient were getting the benefit of this system. The patient who was not getting it was the semi-private patient who was unable to pay the specialists and objected to going into the ward as a charity patient. It had been his experience that, when a patient was unable to pay the full price asked by the specialists, the specialists had been willing to reduce their prices. The problem we had to solve was that of the semi-private patient. The diagnostic clinics that had been started here with a great deal of opposition would have to solve the problem, and it seemed probable that they would have to establish separate buildings for the care of semi-private patients and that a combined group of men would have to unite to care for them.

Dr. BARKER, in closing, said that Dr. Meltzer had spoken of finding the most important thing in each case and going directly at that. It should be remembered that what seemed to be the most important thing was not always the actual cause at the basis of the trouble. He spoke of the impossibility of giving thirty patients a day such a thorough examination. Such an examination might not be necessary in all of the thirty patients, but among that number there might be two or three who should be studied in this way. The general practitioner should sift out these few who needed this special study from the larger number who were suffering from minor ailments and did not require it. With reference to Dr. Dana's remarks, they all knew that many neurologists were also internists and that Dr. Dana had a wide reputation as an internist, but the point he wished to make was that the survey of the body as a whole was the work of the internist. Dr. Starr had spoken of this work as being possible only in hospitals and dispensaries. These cases that were discussed this evening were simply office cases. Such cases came before the internist in his office and the question was how he was to do this work. Certainly the work in hospital helped to develop the method and it was impossible to develop it without hospital experience, but it was still possible to apply the system in office work. Dr. Cole's point that the expensive way of diagnosing a case was the cheapest in the long run was well taken; in obscure cases it would save a great deal of money if a proper diagnosis were made in the beginning. Dr. Libman spoke of the fact that a thorough diagnosis brought out the little things that might be overlooked; that was certainly true. Dr. Gibney spoke of the cost of many special examinations, but that was a problem which must be worked out. He knew of a case now that was diagnosed as a neuritis and was being treated as such when in reality the

patient had an arthritis. The failure to make a proper diagnosis and treat this patient properly had resulted in a loss of time and money. Dr. Starr spoke of the young man getting a little training in each of the specialties. It was impossible for any one man to keep up with the advances that were being made in all of the specialties; the general practitioner had to remain dependent upon the specialists to help him out. Dr. Meyer spoke of the borderline cases and of the cooperation between physician and surgeon in diagnosing such cases. There was no such thing as a surgical diagnosis or a medical diagnosis; it was a question of diagnosis as a whole, and it made no difference who captained the procedure, whether the neurologist, the surgeon, or the medical man, so long as he possessed the general knowledge, the work was well done, and the correct diagnosis arrived at.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, January 9, 1918.

DR. MOSES BEHREND IN THE CHAIR.

The Problem of Neurotics in Military Service.—Dr. ALFRED GORDON called especial attention to a class of men, very little understood, whose manifestations were regarded as spurious, imaginary, and consequently of too slight importance to be considered. He used the general term "neurotics" to cover the vast field of individuals whose mental makeup was such that at any time during life, under the influence of the least emotion, mental and physical disabilities might develop, rendering them useless in the community. (See page 234.)

Report of the Tuberculosis Examining Board at Al-lentown Camp.—Lieutenant RAE S. DORSETT read this report. He said the personnel of the Board consisted of Drs. John J. Robrecht, William S. Wray, Robert G. Torrey, Louis Jurist, Albert E. Blackburn, and Rae S. Dorsett. Work was begun on July 25, 1917, and finished during the first week of September. Two hundred and twenty officers had been examined, of whom five were found to have active tuberculosis. Of the 5,293 men examined 18 had active tuberculosis. At the time of its work the Board could simply recommend to the Disability Board at the camp. The Disability Board, with the hope of improvement in the condition of the men, had retained in service some recommended by the Examining Board as physically unfit. In four instances, however, such improvement was not realized and the men were discharged. The Examining Board could not but feel that had its recommendations been promptly accepted some expense to the Government would have been saved.

Examination of Men at Fort Niagara and Gettysburg.—Lieutenant AUGUSTUS A. ESHNER related his experience as a member of a tuberculosis and cardiovascular board in the examination of men at Fort Niagara and Gettysburg. In the First Reserve Officers' Training Camp at the former place 2,000 men were examined, and in the Second Camp approximately 2,200, including, in addition to candidates, a certain number of National Guardsmen, artillerymen, quartermasters' men, men on detached service, and others. Only a few cases of active tuberculosis were found, and but a small number of disqualifying cardiovascular diseases. At Gettysburg more than 10,000 enlisted men were examined, including 29 cases of active tuberculosis and 62 cases of disqualifying cardiovascular disease. Dr. Eshner called special attention to the large number of cases in which a murmur was audible in the third left intercostal space near the sternum, often transmitted obliquely upward to the left, and which he was disposed to attribute to physical changes of an undetermined character induced in structures at the base of the heart in consequence of the great physical activity to which the men were subjected in the course of their training. Also he expressed the view that a third sound or even a well-developed presystolic murmur could be generated as a result of temporary or permanent derangement in the relations between the left auricle and ventricle and the mitral orifice, whether in consequence of actual antecedent disease or from abnormal functional demands.

Report of the Examination of the Sixth Infantry National Guards of Pennsylvania in Philadelphia in August, 1917.—Dr. HERMAN B. ALLYN reported that the examination was part of a general examination of all the National Guard stationed in Philadelphia. It was in charge of a Tuberculosis Board, of which Captain, now Major Siner, was president. The writer and Dr. John A. O'Connell were assigned to the examination of that portion of the Sixth Infantry stationed in Philadelphia. Every one in authority had been ready to help in the work and had received the board most cordially. Instructions to the board were explicit; they were to recommend the rejection of cases of active tuberculosis, as determined by the presence of râles, but were to retain in the service the men having old or quiescent lesions. The feeling was expressed that perhaps a wider latitude allowed the examiner would have resulted in weeding out some who were not likely to render good service in the army. Osler's experience with the British army, it was observed, had been that those with long, narrow chests, the mouth breathers, and the neurasthenics filled the hospitals. Fortunately, in Dr. Allyn's opinion, the Examining Board had its own Disability Board so that those recommended for discharge by the Board were, so far as known, all dismissed from the service. Dr. O'Connell and Dr. Allyn examined 766 men, among whom they found 11 cases of tuberculosis and 25 cases of heart disease. Some of these were recommended for discharge and others were referred to the regimental surgeon. The belief was expressed that it would be better in any subsequent examination to keep a record in duplicate on filing cards of every man in whom anything abnormal was found.

Report of Examinations in Camps and Armories in Philadelphia, Gettysburg, Washington, and Texas.—Captain A. C. MORGAN reported that a Board of Examiners for tuberculosis and cardiovascular disease had examined 6,308 men in Philadelphia and vicinity during August and September, 1917. Thirty-two cases of tuberculosis were found in this number, only 9 of whom were discharged from the army, the remainder showing small arrested lesions with otherwise good physical condition, and being considered to be of military normality, were therefore recommended for retention in the service. Fourteen cases of valvular heart disease, two cases of adherent pericardium, and one case of chronic nephritis, with marked arterial hypertension, were discharged from the service. A statistical report of other conditions found by the writer, in association with Dr. T. Mellor Tyson, in a further study of the First Pennsylvania Regiment Infantry, was read. The work done by Captain Morgan at Gettysburg was in the nature of a study of recalled cases and also of a review of recruits that had been sent down from Harrisburg and other recruiting stations. On one occasion over 50 per cent. of the recruits sent down were rejected for various military reasons. The writer emphasized the point that herein lay a great weakness of the army. If skilled and highly trained medical men were to pass on applicants at recruiting stations it would decrease in large measure the urgency of need for specialists in the army. Reference was made to the work of inspection and observation of men who were ordered to the Walter Reed Memorial Hospital. Explanation was given in detail of the technique insisted upon by Colonel G. E. Bushnell to determine the presence of moist râles in the earlier state of activity of the lungs. When persistent moist râles were present negative sputum examinations and x-ray findings are not to be given preference, this sign being deemed to be of sufficient importance to clinch the diagnosis of active pulmonary tuberculosis and the dismissal of the subject from the army. The work done at Waco, Tex., was then reported. Nearly 12,000 men were examined, coming from Wisconsin and Michigan. A remarkable finding was the thousands of cases of hyperthyroidism, some of them being of very large size. Many of them showed cardiac murmurs, a few had tremors and tachycardia, while but very few presented scars from operative interferences. Five hundred and ninety cases were referred to the cardiovascular board. While no classified table was made, it was noted that there seemed to be an unusually large proportion of cases of aortic regurgitation. Nearly all of them presented a history

of having suffered from acute articular rheumatism. Twenty-seven cases were referred to the psychopathic department, 25 to the orthopedic, and 45 to the nose and throat departments. Five cases of asthma were discovered and a positive opinion expressed that subjects suffering from this affliction should be absolutely excluded or discharged. It was pointed out that in army circles when one was expecting orders or information he should be content with the apparent slowness of various procedures and to use the army phrase, "Sit tight" until orders came through.

PHILADELPHIA NEUROLOGICAL SOCIETY.

At a stated meeting held December 21 Dr. FRÉDÉRIC H. LEAVITT presented "A Patient Showing Dwarfism with Congenital Speech-Defect." The patient was a girl, five years and two months old, born at term, with healthy parents and brothers and sisters. She weighed two and a half pounds at birth, and now only 22½ pounds, while her height was 33 inches. Apparently she heard, and she obeyed instructions of varying grades of complexity. She spoke only a few words as a rule, although it was said that she spoke more freely in the presence of her nurse and of children with whom she played.

Dr. FRANCIS X. DERCUM presented "A Case of Myositis Ossificans Progressiva." The patient was a girl, nine years old, in whom some stiffness of the back had been noted for several months. A swelling appeared in the left scapular region, and this was incised, but without any discharge. Gradually, firm deposits took place in muscles in various parts of the body, and x-ray examination confirmed the conclusion that these were bony in character. The thumbs and the great toes were all diminutive.

Dr. DERCUM presented also "A Case of Brain-Tumor," occurring in a man, perhaps 32 years old, who had had an injury (fracture and dislocation) of the right forearm early in life, and who suffered several nervous breakdowns. Over a period of about six months he had presented headache, somnolence, vomiting, relaxation of the features, impairment of memory and imperfect speech. Neither the blood nor the cerebrospinal fluid exhibited evidence of syphilis. There was no astereognosis. Under observation improvement ensued, but there was persistent complaint of pain over the left frontal region, with some weakness of the right lower extremity, while the left palpebral fissure was the narrower. Hearing, smell, and taste were normal. The tongue was protruded slightly toward the right. Increased knee-jerk, ankle-clonus and Babinski reflex were at times noted on the right. Ophthalmoscopic examination disclosed marked optic neuritis on the left with a lesser degree of disorder on the right.

Dr. JAMES HENDRIE LLOYD presented "A Preliminary Note on a Case of Word-Deafness, with Word-Blindness, Agraphia, Hemianopsia, and Astereognosis." The patient was a man 60 years old, who was run down by a motor truck, and who could tell little about himself. He could hear, but apparently he did not comprehend what was said to him. There seemed to be loss of vision in the right visual fields. In the left fields the man could see, but seemed not to be able to read. There was inability to write with the right hand and an attempt at mirror-writing with the left hand. There was no motor aphasia, as the patient could speak plainly, although he did not always speak logically. X-ray examination disclosed a fracture of the orbital plate of the left frontal bone. There was a coarse jerky tremor of the right hand. The knee-jerk was increased and the Babinski reflex was present on the right. The conclusion was reached that there had been a lesion of the left temporosphenoidal lobe, a hemorrhage or a contusion perhaps with softening.

Dr. ALFRED GORDON presented "A Case with Persistent Contracture of the Toes and Fingers on the Same Side of the Body." The patient was a woman, 51 years old, who for three and a half years had plantar contracture of the last three toes of the left foot and for a somewhat shorter period a similar flexor contracture of the three last fingers of the left hand. The left knee-jerk was exaggerated. There were no other motor phenomena, no sensory disorder, no psychic manifestations, no emotional disturbance. The conclusion was

reached that the condition was either hysterical or a lenticular condition causing extrapyramidal tract disorder. Dr. Gordon was disposed toward the latter view. He proposed to apply corrective splints to the affected parts in the hope of overcoming the deformity and disability.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

PRACTICE OF MEDICINE. By THOMAS KIRKPATRICK MONRO, M.A., M.D. 1045 pages. Illustrated. Price, \$6.00. Published by C. V. Mosby Company, St. Louis.

THE ROAD TO A HEALTHY OLD AGE. By T. BODLEY SCOTT. 190 pages. Price, 4s. 6d. Published by T. Fisher Unwin, Ltd., Adelphi Terrace, London.

HANDICAPS OF CHILDHOOD. By H. ADDINGTON BRUCE. 310 pages. Price, \$1.50. Published by Dodd, Mead & Company, New York.

A COMPEND ON BACTERIOLOGY. By ROBERT L. PITFIELD, M.D. Third edition. 279 pages. Illustrated. Price, \$1.25. Published by P. Blakiston's Son & Co, Philadelphia.

MEDICAL WAR MANUAL, No. 3, MILITARY OPHTHALMIC SURGERY. By ALLEN GREENWOOD, M.D., G. E. DESCHWEINITZ, M.D., and WALTER R. PARKER, M.D. 115 pages. Illustrated. Price, \$1.50. Published by Lea & Febiger, Philadelphia and New York.

TRAINING AND REWARDS OF THE PHYSICIAN. By RICHARD C. CABOT, M.D. 153 pages. Illustrated. Price, \$1.25. Published by J. P. Lippincott Company, Philadelphia and London. 1918.

STATE BOARD EXAMINATION QUESTIONS AND ANSWERS OF THE U. S. AND CANADA, fifth edition. 973 pages. Price, \$2.50. Published by William Wood and Company, New York City.

A TREATISE ON REGIONAL SURGERY, edited by JOHN FAIRBAIRN BINNIE, A.M., C.M., F.A.C.S. Volume III. 830 pages. Illustrated. Price, \$7.00. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia.

PROCEEDINGS OF THE ELEVENTH ANNUAL MEETING OF THE ASSOCIATION OF LIFE INSURANCE PRESIDENTS, held in the Hotel Astor, December 6 and 7, 1917, New York, N. Y. 181 pages.

MEDICAL WAR MANUAL, No. 4. MILITARY ORTHOPÆDIC SURGERY. Prepared by the Orthopædic Council. 240 pages. Illustrated. Price \$1.50. Published by Lea & Febiger, Philadelphia and New York.

AN ACCOUNT OF THE PRINCIPAL WORKS OF THE ATREYA SCHOOL OF MEDICINE, WITH THEIR CHRONOLOGY. By KAVIRAJ BIRAJA CHARAN GUPTA KALVIBHUSHANA. 66 pages. Published by P. S. Gupta, 44 Beadon Street, Calcutta.

AN INTERNATIONAL SYSTEM OF OPHTHALMIC PRACTICE. Edited by WALTER L. PYLE, A.M., M.D., Philadelphia. MEDICAL OPHTHALMOLOGY. By ARNOLD KNAPP, M.D. 509 pages. Illustrated. Price, \$4.00. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

DISEASES OF THE DIGESTIVE ORGANS, WITH SPECIAL REFERENCE TO THEIR DIAGNOSIS AND TREATMENT. By CHARLES D. AARON, Sc.D., M.D. Second edition, thoroughly revised. 818 pages. Illustrated. Price, \$7.00. Published by Lea & Febiger, Philadelphia and New York.

A COMPLETE SYSTEM OF NURSING. By A. MILLICENT ASHDOWN. 746 pages. Illustrated. Price, \$5.00 net. Published by J. M. Dent & Sons, Ltd., London and Toronto; New York; E. P. Dutton & Co.

DÉCOUVERTE DES VAISSEAUX PROFONDS, VOIES D'ACCESS LARGES. Par J. FIOLE et J. DEIMAS. 119 pages, Illustrated. Price, 5 francs. Published by Masson & Cie., Paris.

LES LÉSIONS DU CORPS THYROÏDE, DANS LA MALADIE DE BASEDOW. Par GUSTAVE ROUSSY. 133 pages. Illustrated. Price, 3 francs. Published by Masson & Cie., Paris.

Miscellany.

Bread Poisoning.—In past times wheat flour often reached the consumer admixed with poisonous grains which grew as weeds in the wheat field; with worms; with fungi, and finally with chemicals used to "doctor" spoiled wheat. Today such admixture is rare. These adulterations were not suspected until the development of toxic symptoms in the consumer, although the bad look and taste of the bread sometimes gave warning. Of grains which were mixed with wheat may be mentioned a form of darnel which gives rise to so-called temulentism, literally drunkenness. Those who ate of bread containing much darnel suffered from vertigo, diplopia, speech disturbances, somnolence, etc. Plicque in the *Journal de médecine et de chirurgie pratiques* for September 10 ascribes this intoxication to an essential oil which should be driven off by baking. This may account for the fact that in this country darnel is no longer regarded as toxic. The black grains of the melampyrum, known as cow wheat (although not a grass), sometimes are found in wheat and cause a general intoxication if present to the extent of 10 per cent. The bread is unsightly, bitter, and nauseating. A form of smut, responsible for so-called smutty wheat, contains definite toxic substances, which give rise to enteritis and hemorrhages from the bowels. The bread is blue-blackish with an acrid taste. Mildewed wheat (brown rust) has an odor like that of spoiled fish and the bread baked from it is of a dirty gray color and fetid, while red rust gives rise to reddish, sour, and irritating bread. Worms in wheat (*anguilula*) rob the grain of its starch and cause intestinal irritation. Wheat which has been heated or become mouldy or which has germinated too early gives to the bread a close, mouse-like smell and a sharp taste and a greenish hue in spots. Such wheat in bulk does not slip cleanly through the fingers, nor can the hand and forearm be forced through it. Bread baked from it is difficult of digestion and causes flatulence. Spoiled wheat is poor in gluten and no amount of treatment or preparation or admixture with other grains can redeem the lost food value. Further fermentation may also result in the production of butyric or propionic acids. The custom of adding alum and copper to bread made from spoiled wheat to improve its appearance is well known. Alum bread resembles well-raised bread and hence is a dangerous fraud. Copper sulphate and also borax are used in bleaching, and while white bread may be innutritious and dangerous to health it may also happen that ill-looking bread is harmless and nutritious. Rye bread is not only irritating in itself, but rye is much less resistant than wheat to the activities of vegetable parasites. Black mildew is often found on the stalks and ears and the glumes may be covered with rust. In wet years rye is mouldy. All these affections, however, are insignificant in comparison with the ergot of rye. When there is a shortage of labor the ergot is not carefully separated from the rye, but the contamination is readily apparent in the flour and bread. During the present war ergotism has occurred to some extent in the Eastern battle zone.

Therapeutic Hints.

Hepatic Colic.—As the first measure for relief of the agonizing pain in this condition Whitla gives a hypodermic injection of morphine, $\frac{1}{4}$ to $\frac{1}{3}$ grain, combined with atropine. Chloroform affords complete relief and allows the passage of the stone through the orifice of Vater, due to the relaxation of the muscles. In mild attacks a large hot poultice or hot pack or stupe may be placed over the liver, but a bath in hot water is even better—105° to 110° F.—together with copious draughts of hot water in which bicarbonate of sodium, 60 grains, and sodium salicylate, 20 grains, have been added to each pint.

When attacks are to be expected the following mixture may be kept on hand and administered as soon as the attack begins:

R	Liquor. morphinæ hyd.....	5iv
	Tinct. cannab. ind.....	5ij
	Olei. menthæ pip.....	5ij
	Spt. æther. sulph.....	5iv
	Spt. chloroformi	5vj
	Spt. æther. nit.....ad.	5iij

M. Ft. Mist. Sig.—A teaspoonful with a tablespoonful of whiskey in a wineglassful of water when the pain comes on. To be repeated in 30 minutes if the pain continues and every 2 hours thereafter until relief is obtained.

Whitla also suggests olive oil as a measure for relief during the attack. It may be given in doses of 5 or 6 ounces, combined with a tablespoonful of whiskey or brandy, and 5 drops of oil of peppermint. Fifteen ounces of the warm oil may also be injected into the rectum. In the after-treatment olive oil may be given in 4 to 8-ounce doses on an empty stomach.—*Dictionary of Treatment.*

For Relief of Anorectal Varices in Pregnancy.—F. M. Suarez advises the following prophylactic and curative measures: For prophylaxis, the taking of olive oil before each meal, and the use of medicated toilet paper following defecation and gentle washing of the parts with warm water and absorbent cotton. If prolapse of the hemorrhoidal masses occurs after defecation boric acid or carbolic acid solution should be employed in the after-washing and the masses reduced with the aid of sterile gauze, then the patient should assume the left lateral position on the bed for twenty minutes. Masses which are not reducible must be treated by rest in bed and the application of very hot fomentations of thymol, one in 1,000 boric acid 2 per cent., or formol one in 1,000, followed by the following ointment if pain persists:

R	Zinci oxidi	2.0
	Adrenalin, 1 in 1,000.....	1.0
	Orthoform	1.0
	Stovaine	1.0
	Petrolati	30.0

Injection of four or five minims of a 1 per cent. solution of phenol in glycerin into the varices will produce an astringent effect, while severe cases may require dilatation of the sphincter to relieve strangulation. The patient should not indulge in long walks, and when sitting the weight of the body should be placed alternately on each buttock rather than on both at the same time.—*Revista de Medicina y Cirugia Practicas.*

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Original Articles.

WOUNDS OF THE THORAX IN WAR

By JOSEPH RILUS EASTMAN, M.D.,
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IN non-penetrating wounds of the chest wall we have to consider: (a) Wounds involving skin only; (b) Wounds involving deeper soft structures of chest wall.

(a) Wounds involving the superficial chest coverings must not be regarded as trivial unless it can be proven that there is no associated injury of deep structures. Large blunt vulnerating objects such as boulders may so strike the chest wall as to cause little external damage and yet cause fracture of bones or rupture of great vessels or injury of the heart itself.

Treatment.—Skin wounds are to be cleansed and covered with dry or moist antiseptic dressings, antiseptis, as distinguished from asepsis, being practised in every instance in which there is the slightest possibility of infection having entered the wound. If error is made it should be made upon the side of safety. Simple contusions of the chest wall require no active treatment unless shock is present which is dealt with promptly by recumbent posture, external heat, brandy or whiskey internally, saline-proctoclysis and salt solution subcutaneously or intravenously or, when indicated and possible, blood transfusion.

(b) Wounds involving the deeper structures of the chest wall are not often fatal but are nearly always infected and may be serious, for example, when there is injury of the internal mammary artery. Wounds of this vessel have often caused fatal hemorrhage, whereas wounds of the intercostal vessels are only rarely serious. The internal mammary artery accompanied by the vein passes downward from the third intercostal space one cm. lateralwards from the edge of the sternum. It lies upon the inner surface of the chest wall behind the costal cartilages and in front of the pleura and the triangularis sterni muscle.

Symptomatology of injury of the internal mammary artery in non-penetrating chest wounds.—(1) General signs and symptoms of hemorrhage; (2) Severe hemorrhage from wound traversing course of artery; (3) Difficulty and pain in swallowing; (4) Extra pleural hematoma evidenced by flat percussion note; (5) Hematemesis absent.

Treatment.—Enlarge the wound by an incision parallel to the costal cartilages and ligate both ends of the vessel or vessels. If the ends can not be found after thorough search in the enlarged wound, make other transverse incisions in the intercostal

spaces above and below to ligate both ends. Such extra transverse incisions should not be made unless quite necessary. If incision in the course of the internal mammary artery is made the large infracostal branches may be divided if care is not used. In injuries of the infracostals (these are the branches of the intercostal which course along the lower border of each rib) it is usually necessary to make a partial subperiosteal resection of the cartilage or rib to reach the vessels as they lie behind the lower costal border. To reach the infracostals the periosteum of the lower border of the rib may be freed by an incision along the lower posterior border with an elevator or rasparatorium and the vessel ligated as it lies in the freed periosteum.

In hemorrhage from an intercostal the bleeding in most cases can be controlled by Desault's method in which the center of a square of gauze is pressed into the wound with the finger. After withdrawal of the finger the pocket formed by the square of gauze is packed with a gauze wick.

Deep non-penetrating wounds of the chest are usually infected and heal slowly because of the respiratory movements.

Treatment is that of simple gunshot wounds, consisting in removal of foreign bodies and antiseptis, as with Dakin's solution, to which is added strapping of the chest with adhesive plaster to provide immobilization.

The treatment is conservative except in grenade or shrapnel wounds with extensive laceration, when careful excision of all crushed tissue should be made simultaneously with the removal of the metal fragments. Open treatment of the wound is preferable here as elsewhere. Foreign body reaction caused by gauze and dressings should be kept at the irreducible minimum. The wound may be protected from painful contact with clothing by strapping a wire cage or cardboard frame over it with adhesive plaster.

Penetrating wounds of the chest wall:—(a) Associated with fracture of bone; (b) Involving the pleural cavity; (c) Involving the lung; (d) Involving other organs of the chest.

(a) Wounds with fracture. Symptoms.—There may be no abnormal mobility, no pain, and no crepitus, therefore one must use care not to overlook the fracture. Usually there are present: (1) Sharply localized tenderness, (2) Pain with respiratory movements, (3) Emphysema of skin, (4) Crepitation, (5) Abnormal mobility.

The prognosis is good, four weeks sufficing usually for consolidation. False joint rarely results.

Treatment.—Partial fractures of the rib receive ambulant treatment unless associated, as indeed they often are in war, with hemothorax or pneumo-

thorax. Complete fractures should be treated in the recumbent posture. Morphine may be given for painful coughing. Loose spicula of bone should be removed. Splinting is best accomplished by adhesive plaster, applied as weather boards are laid on. Heavier and more complex splints and casts are as a rule ill advised in rib fracture. If the emphysema is extensive it may be reduced by introducing one or more aspirating needles into the emphysematous area and allowing them to remain for several hours. In threatening cases of emphysema an incision down to the fractured rib should be made under local anesthesia to allow escape of the air. A gauze wick is inserted to keep the wound open. Gunshot fracture of the sternum may be followed by mediastinal phlegmon.

In penetrating injuries of the chest involving the pleura to the exclusion of the lung the principal symptoms are those of hemothorax or pneumothorax, or both, with dyspnea but without hemoptysis.

The common complications are pleuritis and empyema.

The symptoms in chest injuries involving the lung are those of shock, hemothorax and pneumothorax with cutaneous emphysema, hemoptysis, pain, cough, and dyspnea.

Lejars says of the patient with serious hemorrhage of the pleura and lung, "He is pale, in great anxiety, the extremities are cold, the pulse scarcely perceptible, the breathing rapid and labored, the involved side of the chest promptly shows increase in size, the percussion dullness ascends, respiration sounds disappear, the heart is displaced, and often the threatening symptoms of syncope present themselves. Usually the patient coughs up blood, and with inspiration as well as with expiration blood mixed with air bubbles from the wound."

Shock is present especially in cases associated with pronounced injury to the chest wall. Pain is marked in cases complicated by fracture of the ribs and laceration of the pleura.

Hemoptysis is present in about 75 per cent of cases (Stevenson quoted by LaGarde). As a rule it ceases in a few days and rarely requires treatment. The cough is in some instances slight and of short duration. Many cases of penetrating gunshot injury of the chest die soon after the trauma from the loss of blood and the blocking of respiration. If the large vessels of the lung hilus are injured great hemorrhage into the pleural space results. Death on the field from this cause is often observed. Death sometimes occurs several hours after the receipt of injury as the result of hemorrhage from vessels of medium calibre or from large vessels bleeding intermittently. Others die later as the result of high tension pneumothorax combined with hemothorax, or, in a still later stage, from infection of the clot.

The air which enters the pleural space except in open pneumothorax is as a rule absorbed within a few days. Occasionally the wound acts like a valve permitting ingress but little or no egress of air. This leads to high tension pneumothorax. The subcutaneous emphysema is likewise of short duration and without significance in most instances.

Treatment of penetrating chest wounds.—The primary treatment consists of control of external bleeding, cleansing of the external wound, application of a sterile or antiseptic dressing, rest with

the chest elevated, heat, and morphine. In cases manifesting shock proctoclysis and subcutaneous or intravenous injections of physiological saline solution are to be used promptly.

Primary operative intervention for control of bleeding of the pulmonary vessels has in the main given way to conservative or expectant treatment, although Delorme, Robert, Michaux and others have made thoracotomies, turning back large flaps of chest wall to reach bleeding vessels of the lung, transfixing the parenchyma, and ligating the vessels with silk and in one instance packing the region of the lung hilus with gauze.

Landois (Brun's War Volume II, No. 9), while admitting the important role of conservatism in clean-cut bullet wounds of the chest, relying in such cases on primary expectant treatment with subsequent puncture for removal of blood or rib resection for drainage of empyema, if present, advocates active primary interference in cases of open pneumothorax with large wounds as caused, for example, by close range grenade explosions. He reports two cases of the latter kind successfully treated by primary operations in which he closed extensive bleeding lacerations of the lung with silk suture. In several instances the injured lung was drawn into the chest wall wound and sutured to the chest wall muscles with button sutures providing air tight closure of the lung wound.

Landois, Burkhardt, and Sauerbruch (Brun, *loc. cit.*) believes that in chest wounds with open pneumothorax and lung laceration the conservative standpoint should be abandoned and primary operation undertaken, provided that, in the field, time and other circumstances permit. They class such operations along with trephining and amputating as life saving.

They call attention to the small danger of infection of the lung at the site of suture and indeed all war surgeons have been impressed by the remarkable resistance of lung tissue against infection. In a large material the writer observed no instances of infection of a bullet canal in the lung parenchyma. Results, however, in the main have not justified aggressive primary interference. In the war, even more than in peace, the preponderance of opinion favors conservatism. Nearly all gunshot injuries of the lung with narrow canals recover after a few weeks with no more serious complication than a moderate hemothorax. Naturally, conservative treatment does not exclude aspiration of the fluid in hemothorax nor the air in high tension pneumothorax, the removal of fluid and air nearly always being followed by prompt relief.

It is well known the fresh cases of penetrating chest wound do not bear long transport journeys favorably. The danger of recurring hemorrhages, for example, justifies deliberation in sending them back and when sent they should be transported under the best possible conditions, the morphine syringe always being at hand.

Common complications of penetrating chest wounds are: (1) Hemothorax, (2) Pneumothorax, (3) Empyema, (4) Lung hernia, (5) Pleuritis, (6) Pneumonia, (7) Bronchitis, (8) Lung abscess and gangrene, (9) Fracture of ribs clavicle or scapula.

Hemothorax is a common complication of pene-

trating chest wounds and may be serious and persistent. It may be sterile or septic.

Symptomatology of sterile hemothorax:—(1) Decreased respiratory movement on involved side. (2) Diaphragm in a state of atonic relaxation, therefore the area of stomach resonance is high on the involved side. (3) Percussion note is dull over involved area. (4) Heart is displaced by effusion on left side. (5) Skoda's resonance above area of effusion. (6) Tactile fremitus is reduced over involved area. (7) Respiratory sounds are weak in the emphysematous area above effusion and tubular over the dull area. (8) Buzzing vocal resonance over the emphysematous area above the effusion; diminished vocal resonance over the effusion. (9) Dyspnea marked from the beginning. (10) Hemoptysis. (11) Fear. Usually not high, occasionally showing accessions due to fresh hemorrhages. (12) Slight icterus from absorption of blood.

According to Wullstein and Wilms, the blood in hemothorax for the most part remains fluid, clotting only where the epithelial covering of the pleura has been destroyed. Therefore, in their experience, the blood removed by the exploring needle from the pleural space in hemothorax, even weeks past trauma, is usually fluid. Bradford and Elliott, however, believe that clotting always takes place and very early through the action of the ferment liberated at the surface of the wounded tissues. Clotting, however, may be interfered with by the churning movement of respiration so that the fibrin is whipped out in layers over the pleural surfaces while the serum retains most of the corpuscles in suspension. The resorption of the blood progresses much more slowly than resorption of air, six to ten weeks being required for the former.

Differential diagnosis of hemothorax.—(1) Pneumonia: Fever high, leucocytosis, crepitations are present and there is no displacement of the heart as in hemothorax. The x-ray shows the shadow of the clot in the latter. (2) Pyothorax: General symptoms of infection are present. The exploring needle is decisive. (3) Pneumothorax: The x-ray and exploring needle are decisive. (4) Massive collapse of lung associated with abdominal injuries. The deciding criterion here according to Bradford and Elliott (*British Journal of Surgery*, October, 1915) is that in the massive collapse there is no displacement of the heart.

Treatment of sterile hemothorax.—The first step in treatment in the field consists in the application of a sterile dressing to the wound, strapping of the chest and administration of morphine. The patient should be kept in the recumbent position and propped up on a back rest for comfort. "Quies non movere" is a trusted maxim for observance in the first period after receipt of the injury. Transport should be delayed until the danger of fresh hemorrhage has passed. Later the principal indication of treatment consists in rest in bed. In the Austrian hospitals rest, as emphasized by von Eiselsberg, has been the watchword in the treatment of sterile hemothorax. Fortunately, in most cases the hemothorax is slight. It is a good rule to delay aspiration or other surgical operations long enough to permit healing of the wounded blood vessels, the removal of the blood being apt to dislodge coagula and cause recurrence of hemorrhage. If the accu-

mulation of blood is extensive, for example, rising half way up the scapula or higher, embarrassing the heart or respiratory movements, then aspiration may be performed. Aspiration prevents permanent contraction of the lung. Aspiration of a part promotes resorption of the remaining blood. It also enables one to make bacteriological examinations to the end that infection may be detected early. A good plan, therefore, is to remove only a part of the blood by aspiration at any one operation, repeating a second or third time, if necessary. Before aspirating, morphine should be administered to control the cough.

In sensitive patients a local anesthetic, preferably novocain, may be required. This, however, is rarely necessary. Removal of the blood by aspiration tends to minimize fibrin deposition and retraction of the lung. The great importance of rest and conservatism in hemothorax is generally admitted, but in this war the prompt removal of blood which resists absorption has been established as conservative practice.

After the danger of bleeding has passed hemothorax patients should be gotten out of bed and into the fresh air and sunshine. Absorption may be promoted by electric light baths and breathing exercises. Artificial pneumothorax produced by nitrogen injections into the pleural cavity are recommended in obstinate cases to loosen adhesions and promote absorption.

Septic Hemothorax.—H. Henry, who studied bacteriologically the cases of Bradford and Elliott (*vide supra*) found the pneumococcus, micrococcus, and tetragenus, the *B. influenzae*, the staphylococcus, streptococcus, and anaërobic bacilli of fecal origin in infected hemothorax. Some of these are denizens of the lung, others were introduced with the missile. They found that jagged shell wounds are more likely to be septic than are bullet wounds.

The clinical features indicating infection of hemothorax are: (1) Rise of temperature, (2) Increase in pulse rate, (3) Pain and tenderness, (4) Insomnia and delirium.

The physical signs do not differ materially from those of sterile hemothorax. The infection is first recognized by the rise of temperature. In uninfected bullet wounds of the chest the temperature curve rises slightly for one or two days and returns to normal. After six or seven days in sterile cases comes the resorption fever with an elevation of one or two degrees above normal. If it does return to normal there may be a circumscribed pneumonic process present in the neighborhood of the bullet canal, but much more probably an infection of the hemothorax of pulmonary origin has begun. Infection should be suspected in all cases which are not progressing favorably after the fourth day.

Treatment of septic hemothorax consists chiefly in thoracotomy with removal of the infected fluid and subsequent irrigation.

Empyema.—The diagnosis of empyema following chest injury, either as a result of primary infection in the depth of the wound or in the form of supuration of a hemothorax weeks after injury, is usually easily made. The blood count, temperature curve, and physical signs will give sufficient criteria for diagnosis in frank cases. It should be noted, however, that empyema developing in an encap-

sulated hemothorax, for example, in the upper chest masked by fractured ribs or hidden behind the scapula, may elude diagnosis and lead to general pyemic infection.

Symptoms: (1) Flat percussion note (usually in lower posterior chest area, not changing as patients move about). (2) Decreased fremitus. (3) Sharply outlined shadow on x-ray examination. (4) Patient lies on involved side. (5) Intercostal spaces obliterated. (6) Increased semicircumference. (7) Higher temperature than is present in serous exudates. (8) Hematologic signs of suppuration.

Since it is not easy to determine by physical examination the character of fluid in the chest it is obviously essential in any suspicious case to make an exploratory needle puncture and bacteriologic examination.

When empyema is present thoractomy with rib resection is required for drainage. If the original wound is on the dorsum and low, it may be used in making the wide opening of the pleura, which is required. It should, however, not be used for the rib resection unless its position is favorable for drainage.

Lung Hernia.—Lung tissue lying loosely in the wound is of normal color, smooth, and crepitating. When strangulated, it rapidly becomes dark blue or black in color and the crepitation disappears.

Treatment.—If the hernia is fresh it should be reduced by pressure after disinfection of the external wound. In the early stages pressure empties the extruded lung of air, its bulk becomes smaller, and reposition is easy. Adhesions which form at the periphery of the wound between the lung and the chest wall are to be broken up by gentle manipulation. If one or more ribs offer resistance to reposition they should be resected. The sudden entrance of air into the pleural space during reposition should be prevented by the use of gauze compresses, the gauze compresses serving later to retain the lung in normal position during closure of the wound in the chest wall. If the lung hernia is several hours old and the extruded lung tissue is collapsed or gangrenous it may be abscised by ligating it en masse with silk, then dividing distal to the ligature with the actual cautery.

Concerning *pleuritis, pneumonia, and bronchitis*, it should be noted that they appear frequently after deep chest injury. The pneumonia may appear in the injured lung tissue or quite remote therefrom. Not rarely the sound side is the seat of bronchitis, and pleuritis is a quite common accompaniment or sequel of hemothorax.

Lung abscess and gangrene are rare in gunshot chest wounds. The former is usually associated with the presence of an infected foreign body as a fragment of uniform. Lodged bullets may be coughed up as the result of the communication of an abscess with one of the large air passages.

Injuries of the Heart.—Extensive lacerations of the heart may occur as the result of the explosive effect of a missile striking the liquid cardiac contents. The heart may also be injured by bullets which drive the pericardium against the heart without perforation of either. Immediate death in heart wounds occurs from hemorrhage or from reflex paralysis due to injury to the bundles of His.

Death may occur later from slow but continuous bleeding, usually into the pleural space. The extravenous pressure of the clot itself may fatally embarrass the heart's action.

Symptoms: (1) Pallor. (2) Small irregular pulse. (3) Dyspnea. (4) Cold perspiration. (5) Subnormal temperature. (6) Pain in the region of heart, extending to left shoulder and upper abdomen. (7) Dilatation of veins of neck. (8) Increased area of cardiac dullness. (9) Increased heart shadow on x-ray examination. (10) Subdued heart sounds and rustling sound of air entering pericardium.

The position and direction of the wound canal is obviously of importance in diagnosis.

Treatment.—Exposure of the heart is best accomplished by enlarging the gunshot or stab wound of the chest wall by incision forward and backward in an intercostal space. Forceful separation of the ribs may allow of convenient access, if not a rib or ribs should be resected. The pericardium is then incised, the heart drawn forward, and the wound closed with deep sutures of fine silk. A blunt round needle should be used. Rehn advises compression of the veins entering the right auricle to control hemorrhage during operation.

Prognosis of Immediate Operation in Heart Wounds.—Hesse (quoted in Wilms' Textbook of Surgery, Vol. I, p. 516) reviewing this subject reports 70 recoveries in 160 operations for stab wound of the heart and 12 recoveries in 27 gunshot wounds treated by immediate operation. He believes that one can count on about 45 per cent. of recoveries in heart wounds. The shorter the time between injury and operation the better the prognosis. Hesse says that in operations made during the first four hours the mortality should be no higher than 25 per cent.

Injuries of the Pericardium.—Wounds of the pericardium cause hemorrhage with accumulation of blood in the pericardial sac, causing pressure upon the heart and symptoms very like those of injury of the heart itself. Treatment consists in removal of the blood and ligation of the bleeding vessels. In cases seen several days after injury the blood may be removed by paracentesis. Pus in the pericardial sac demands ample drainage.

Wounds of the Large Vessels and Thoracic Duct.—Injuries of the large vessels of the chest are practically always immediately fatal. Occasionally the formation of a traumatic aneurism at the site of injury to the vessel may postpone the fatal termination. The comparative infrequency of injury of the large trunks has been explained by the assumption that the loose tissue of the mediastinum allows the great vessels to be pushed aside by bullets of low velocity. Injury of the thoracic duct often leads to fistula with chyloorrhea or chylothorax. The chylous fistula usually heals.

Wounds of the Diaphragm.—These are principally of interest in connection with associated injuries of other organs. Hernia diaphragmatica in which abdominal viscera, as the stomach, are extruded from the abdomen upward through a wound of the diaphragm is rare. In some instances the abdominal organs have been replaced through a chest incision with rib resection and the wound of the diaphragm closed by suture. Wounds of the diaphragm are reached more easily from above.

Concussion, Compression, and Contusion of the Chest.—A blow upon the epigastrium may produce a reflex arrest of the heart's action. Such arrest with symptoms of shock may be caused by suddenly increased air pressure due to the bursting of a grenade at some distance from the trunk.

Violent compression of the thorax may produce hemorrhages or petechiæ from the small veins of the head and neck with ecchymoses into the conjunctiva and the ear drum. Rupture of the lung may occur without demonstrable injury of the chest wall. Reflex closure of the glottis locking the air in the lung during the compression of the elastic chest is the determining factor in some instances. The heart and pericardium may also be injured by contusion of the chest without injury of the chest wall. Contusion of the chest is not uncommon on the mountainous frontiers, such as the Italian, where boulder warfare is practised.

Lodged Bullets in the Chest.—Grenade fragments, shrapnel balls, and rifle projectiles of low velocity frequently find lodgment in the chest. They may be retained in the chest wall, the pleural space, and the lung, or may lodge in the spinal column. No operative attempt should be made to remove foreign bodies in the chest excepting superficial ones unless it can be proven that untoward symptoms are caused by their presence. This is unusual. The ability of the lung tissue to tolerate foreign bodies and to resist infection should be borne in mind. Operation for removing bullets in the pleural cavity may be undertaken if pain and other symptoms persist. Careful *x-ray* examination is, of course, an indispensable preliminary step. Plates should be made in at least two directions and the operation should be done on the *x-ray* table. An assistant wearing the *x-ray* or fluoroscopic spectacles of Holz knecht or the monocle fluoroscope may, by pointing with a heavy probe, guide the operator to the foreign body. The cryptoscope of Bettman, a small fluoroscope which can be opened by a spring to permit operative movements under direct ocular guidance and closed at will to permit *x-ray* inspection, is of great value here as in the removal of all foreign bodies. It is strapped to the head of the operator or an assistant. Such a device is superior in usefulness to plates because with it one may follow all movements of the foreign body due to change of muscle, tone, respiration, etc. An old-fashioned small fluoroscope with a handle may be used by an assistant who points with a heavy probe to guide the movements of the operator.

331 NORTH DELAWARE STREET.

REPORT ON 10,000 CASES FROM THE CLEARING HOUSE FOR MENTAL DEFECTIVES.

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I.—Few problems of such grave importance to humanity are understood so little, not only by the lay public but by the medical profession, as that of the mentally defective. Though it is

fundamentally a medical problem, it is only within recent years that physicians have seriously considered it, and even at the present time the subject attracts comparatively little attention in the medical school.

The increasing public interest in the care of the mentally defective seems to be a culmination of the growing feeling among social workers of all types, as well as among physicians who have become interested in the field, that some underlying cause must be found for the failure of so many, both adult and juvenile, to hold the place which should be normally theirs among their companions.

There have recently been proposals from various sources that cities, states or private institutions establish clearing houses for mental defectives, and the proposals have met with varied response. How great the need for such institutions has been proved beyond a doubt by the success and usefulness of the original Clearing House for Mental Defectives, which was established by Dr. Schlapp, in 1911, at the Post-Graduate Hospital in New York City, and which is still carrying on its work there. So far as is known to its sponsors, this was the first institution of its kind ever proposed and actually established.

In the course of his work at the Presbyterian Hospital, some years ago, Dr. Schlapp was greatly impressed with the need for more adequate methods of dealing with the numerous defectives brought to the hospital clinics for treatment of various conditions, and it was then that he conceived the plan which he later put into practice.

The institution founded in 1911, formulated as its aim the detention, scientific diagnosis, registration and research into mental deficiency, and recommended that all persons found to be socially unfit, actually or potentially, possibly as a result of mental defect, should be referred to the Clearing House by the agent of the department or society which discovers them, and that at the Clearing House they should be subject to the following procedure: (1) Complete registration and identification of the person by means of photographs and by mental and physical measurements, combined with a complete history of the case and all relative facts obtainable; (2) diagnosis; (3) recommendations for care, treatment, and training proper to each case; (4) follow-up work.

In the beginning the Clearing House received its patients from chance applicants at the hospital and from miscellaneous social workers who knew of its existence.

Previous to this time there had been no definite systematic examination of applicants before admission to the Randall's Island Schools for the Feeble-minded. The statement of any private practitioner, whether he was known to be a competent neurologist or not, had been accepted as sufficient authority for the condemnation of a patient to institutional life indefinitely, or for as long a period as his guardians might choose.

Also, the judges of the Children's Court had long felt that many persons came before them who were charged with offenses which seemed to be due to mental or moral defects rather than to causes correctible by the penalties usually imposed. The Society for the Prevention of Cruelty to Children

first instigated the examination of these children by Dr. Schlapp.

In 1913, Commissioner Drummond of the Department of Public Charities recognized the Clearing House as the official examining place for admission to Randall's Island. The sum of \$34,000 was requested; \$3,400 was apportioned by the Board of Estimate to be applied to the work.

The Clearing House, on its new basis, now examined every case brought to it by the Department of Public Charities, and as many as possible of defectives who applied for admission to or care by city institutions. It examined all children sent to it by the Children's Court or the Society for the Prevention of Cruelty to Children. Besides these, it was open to all settlements, schools, churches, missions, hospitals, private and public charities, physicians, social workers of various kinds, and in fact to any one who in any way came into contact with a suitable case for which expert attention was desired, and not obtainable elsewhere.

Since the summer of 1915 the official relationship between the Department of Public Charities and the Clearing House has been severed.

After a fight of three years the State Legislature of 1913 passed a bill which Mr. Jonah Goldstein and Dr. Schlapp had had introduced, providing for proper examination of children passing through the courts, and in January, 1917, the courts, basing their authority on this law, established a separate clinic for their own cases. The original Clearing House, however, continues its work just as it always did, receiving patients from any agency which may find occasion to use it. On the average, about 1,500 new cases are seen every year. In the last year 5,471 patients, both new and old, have visited the clinic for help.

The patients are admitted through the dispensary, as is done with all hospital clinics, this particular one being known by its original name, "The Clearing House for Mental Defectives." How greatly the work has been facilitated by this intimate connection with a thoroughly equipped hospital is beyond estimation, and the debt which the Clearing House owes to the Post-Graduate Hospital cannot be readily determined.

Through this close connection patients can readily be transferred, for instance, to the eye or ear clinic for treatment of defects of the special senses; Wassermann and other tests may be given, x-ray examinations may be made, and any physical disability may be properly treated in conjunction with the examination given at the Clearing House. There are even certain hospital beds at the disposal of the director should he desire to keep cases under care and observation at the hospital.

The Clearing House has now examined over 10,000 cases. In subsequent pages will be found a general survey of the work, with tables and charts showing the results of a review of its first 10,000 records. An analysis of the following data will be attempted in subsequent papers.

II.—Outline of History Found in Clearing House Records.

1. Case number
2. Date of application
3. Name of applicant
4. Address of applicant

5. By whom was the applicant referred to the Clearing House, and why?
6. What is the applicant's religion?
7. Sex of applicant?
8. Civil status of applicant?
 - (a) Citizen
 - (b) Non-citizen
 - (c) Non-resident
9. School, if any, which the applicant attends. What grade?
10. Occupation of the patient
11. (a) Actual age. (b) Mental age as shown by tests.
12. Birthplace of

(a) Father	}	If foreign, how long in the U. S.?
(b) Mother		
(c) Patient		
13. To what race does the patient belong?
14. Family history
 - (a) Hereditary factors. Is there any history of psychopathic or neuropathic conditions, disturbances of the endocrine system, or any other deviations from the normal.
 - (1) Amentia
 - (2) Syphilis
 - (3) Insanity
 - (4) Tuberculosis
 - (5) Alcoholism
 - (6) Criminality
 - (7) Toxins
 - (8) Epilepsy
 - (b) Occupation of
 - (1) Father, before and after marriage
 - (2) Mother, before and after marriage
 - (c) Complete list of children in the family, including the patient; age of each.
 - (1) What is the stated mental condition of each?
 - (2) What was the mother's condition during gestation?
 - (3) If of foreign parentage, how long were the parents in the U. S. at the time of gestation of the patient?
 - (4) What conditions attended parturition, was it normal or abnormal?
 - (5) How long did lactation continue? Condition of the mother?
 - (6) If artificially fed, how?
15. Personal history
 - (a) Condition of mother during pregnancy, conditions attending parturition and lactation (obtained from section 14 c).
 - (b) Has the child ever sustained any trauma or injury?
 - (c) What diseases has the child had?
 - (d) Describe the child's environment and erudition. Habits.
16. Status Præsens
 - (a) General physical condition. Neurological examination
 - (b) Note any physical defects or abnormalities
17. Additional data, and various mental tests
18. Diagnosis.
19. Recommendations
20. Remarks

III.—Tables and Charts Presenting Data Obtained from an Examination of the First 10,000 Histories.

TABLE I.

Diagnosis	Cases 3,000 to 10,000										Total for Cases 3,000-10,000	Total for Cases 1-10,000
	Total for Cases 1-2,999*	Anglo-Saxon	Celtic	Teutonic	Latin	Semitic	Slavic	Mongolian	Negro	Doubtful		
Idiot.....	231	13	22	20	68	127	8	0	4	55	317	548
Imbecile.....	503	49	148	132	178	403	48	1	27	245	1231	1734
Moron.....	187	46	127	81	117	207	28	0	10	228	845	1032
Defective (indefinite degree).....	288	17	40	27	55	131	18	0	6	93	387	675
Moral imbecile.....	182	12	31	26	19	63	5	0	7	36	199	381
Retarded.....	190	32	80	68	118	201	37	0	15	176	727	910
Speech defects.....	26	12	35	23	39	88	10	0	2	69	278	304
Neuropathic states.....	310	54	97	97	116	350	37	0	21	173	945	1255
Psychopathic states.....	121	38	49	41	46	161	21	0	8	101	466	587
Instability.....	59	36	83	65	82	201	22	0	18	133	641	700
Normal.....	85	18	38	23	22	60	8	0	3	85	257	342
Diagnosis doubtful.....	808	85	213	146	93	579	73	0	41	437	1667	2475
History absent or incomplete.....	221	19	47	26	79	135	24	0	9	232	568	789
No diagnosis made.....	193	2	7	16	13	50	1	0	2	283	384	577
Miscellaneous moral defects.....	286	114	269	207	321	602	73	1	59	521	2167	2543
Hydrocephalic.....	53	8	15	11	17	68	6	0	2	26	153	206
Microcephalic.....	35	1	3	5	17	43	2	0	1	13	85	120
Physical defects.....	2089	241	600	456	710	1630	188	1	85	1076	4987	7076
Cretinism.....	24	2	4	3	6	13	0	0	0	2	30	54
Mongolism.....	50	5	14	6	15	53	1	0	0	17	112	171
Hypothyroidism (indefinite degree).....	0	3	1	1	2	12	0	0	0	6	25	25
Hyperthyroidism (indefinite degree).....	28	8	7	10	11	39	5	0	3	29	112	140
Acromegalic.....	6	2	1	0	0	2	0	0	0	1	6	12
Myxedema (in the adult).....	0	0	0	0	0	1	0	0	0	0	1	1
Infantilism.....	9	1	2	0	3	5	0	0	0	4	15	24
Little's disease.....	77	5	4	4	25	30	3	0	0	24	95	172
Epilepsy.....	303	47	117	76	110	209	18	0	10	150	737	1010
Chorea.....	78	11	18	17	11	59	7	0	2	45	160	238
Dementia praecox.....	39	3	22	7	10	39	6	0	0	18	115	154
Paresis.....	6	3	2	2	1	4	0	0	0	1	14	20
Syphilis.....	66	8	19	5	16	42	4	0	6	43	143	209
Alcoholism.....	33	8	23	11	7	3	0	0	1	16	69	102
Drug addiction.....	2	0	5	3	0	1	0	0	0	5	14	16
Sex instability, including homosexuality.....	293	68	122	93	80	239	31	0	15	217	865	1158
Diseases not neurological.....	244	9	25	11	31	75	7	0	2	66	226	470

*Cases 1-2,999 were not counted according to race.

NOTE.—Diagnoses overlap and records vary in their completeness. There are also cases of duplicate records and of two different records bearing the same number. This results in some slight discrepancies in totals, which however are not sufficient to discredit them or to warrant further research.

TABLE II.

Miscellaneous Factors	Cases 3,000-10,000										Total for Cases 3,000-10,000	Total for Cases 1-10,000
	Total for Cases 1-2,999	Anglo-Saxon	Celtic	Teutonic	Latin	Semitic	Slavic	Mongolian	Negro	Doubtful		
Possible hereditary influences noted.....	737	162	363	265	296	628	87	0	50	734	2568	3323
Idiopathic cases.....	1963	251	611	450	671	1756	185	1	90	1125	5140	7108
Etiological factors noted.....	402	78	174	107	176	348	36	0	28	271	1218	1680
History of trauma.....	315	46	137	76	121	347	35	0	11	209	952	1267
Some disturbance of mother during gestation.....	172	52	91	77	103	316	35	0	5	170	850	1022

TABLE III—A, DISTRIBUTION BY SEX. B, DISTRIBUTION BY BIRTH

A	Cases 3,000-10,000										Total for Cases 3,000-10,000	Total for Cases 1-10,000
	Total for Cases 1-2,999	Anglo-Saxon	Celtic	Teutonic	Latin	Semitic	Slavic	Mongolian	Negro	Doubtful		
Male.....	1787	199	472	374	617	1381	137	0	67	1123	4369	6156
Female.....	1252	126	317	226	298	815	100	1	51	622	2656	3908
B												
American born.....	1965	267	682	509	620	1379	149	1	108	1329	5044	7009
(a) Foreign parentage.....	1278	186	559	430	607	1278	147	0	19	161	3330	4658
(b) American parentage.....	9	61	85	39	4	0	1	0	77	675	964	973
(c) Doubtful parentage.....	678	17	38	30	9	101	1	1	12	490	701	1377
Foreign born.....	717	52	83	62	271	709	83	0	6	71	1337	2054
Place of birth doubtful.....	325	7	21	26	27	77	5	0	4	462	629	954

*See notes to Table I.

TABLE IV—SOURCE OF CASES (1-10,000).

Court.....	1345	U. H. C.....	231
Truant and probation officers.....	146	Miscellaneous social workers.....	828
S. P. C. C.....	238	Big Bros. & Sisters Assn.....	170
C. O. S.....	441	Other patients.....	220
C. A. S.....	198	Physicians.....	663
Schools.....	1119	Parents and friends.....	840
Churches.....	173	Source unknown.....	1172
Various institutions.....	1570	D. P. C.....	757

TABLE V—*DISPOSITION OF CASES AFTER EXAMINATION (CASES 1-10,000).

Given clinical care.....	3268
Sent to other departments.....	704
Institutional care recommended.....	3027
Diagnosis only made.....	1413
Miscellaneous advice given.....	609

*Doubtful cases not counted.

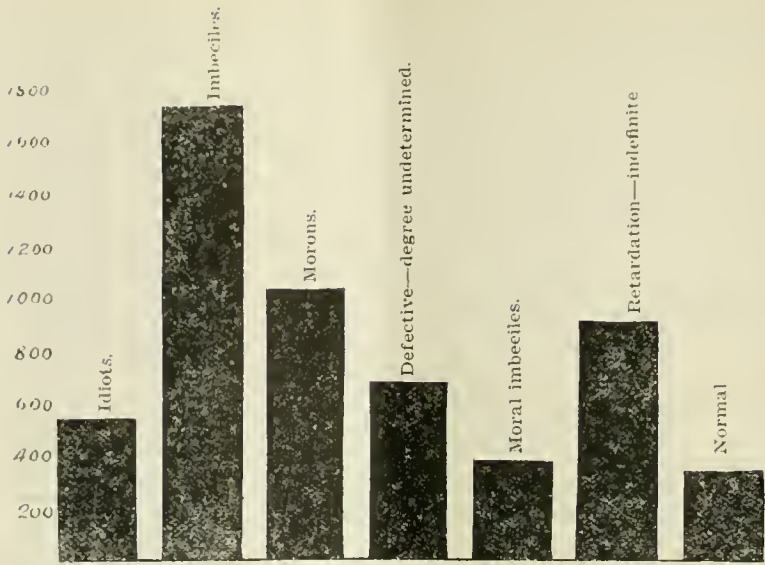


CHART 1.—Comparison of various degrees of mentality found among patients, cases 1 to 10,000.

TABLE VI.—DISTRIBUTION OF AGES (CASES 1-999). (See Chart 6.)

Age.	Number of Cases.	Age.	Number of Cases.
1	12	35	6
2	5	36	11
3	10	37	6
4	23	38	8
5	18	39	9
6	35	40	7
7	40	41	9
8	51	42	5
9	43	43	6
10	58	44	3
11	69	45	5
12	76	46	4
13	62	47	9
14	64	48	6
15	58	49	2
16	36	50	8
17	16	51	2
18	22	52	4
19	13	53	2
20	11	54	7
21	18	55	3
22	20	56	2
23	20	57	1
24	15	58	3
25	8	59	2
26	4	60	2
27	8	61	1
28	7	62	2
29	8	63	3
30	14	64	0
31	6	65	0
32	10	66	1
33	5	67	0
34	6	68	1

ment of those who, after careful investigation, are found to be mentally normal. Such negative findings are surely contributions as valuable both to the individual and to the society concerned with them, as is the other function of the Clearing House—that of detecting those who actually are feeble-minded.

It is also of primary importance that all cases, not placed in institutions, should be studied care-

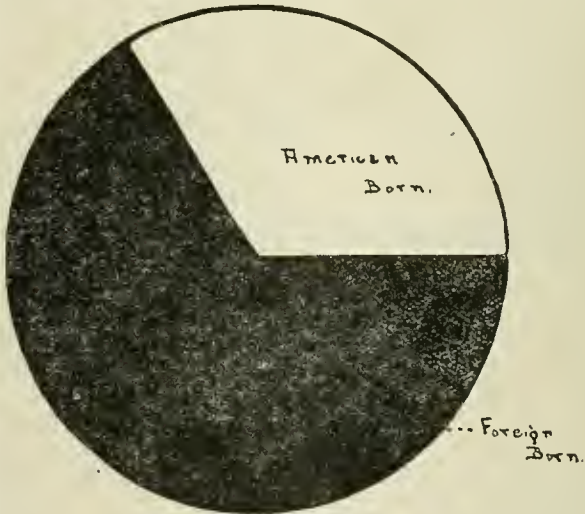


CHART 2.—Ratio of American to foreign born parents having American born offspring in the clinic.

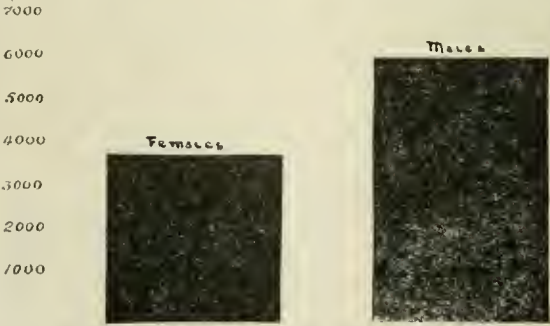


CHART 3.—Comparative number of males and females.

IV.—The Clearing House for Mental Defectives has initiated an important work. The intention of the director has been to have the Clearing House serve as an experiment for the city and the State. The care of the feeble-minded is not properly a local and assuredly not a private philanthropic matter. It is regarded as conservative to estimate the total number of aments in the State as 35,000, about one-half of them residents of Greater New York. The dangers to the community are great and manifold. Of course, it is impossible to even consider institutional care for all as a present remedy. Because of the inadequate accommodations, it is the more important that careful scientific diagnosis be made in all cases, precedent to commitment, in order that those who because of utter deficiency or malicious delinquency are a menace to society, may be given preference in our institutions, and also in order to avoid the still greater crime of commit-

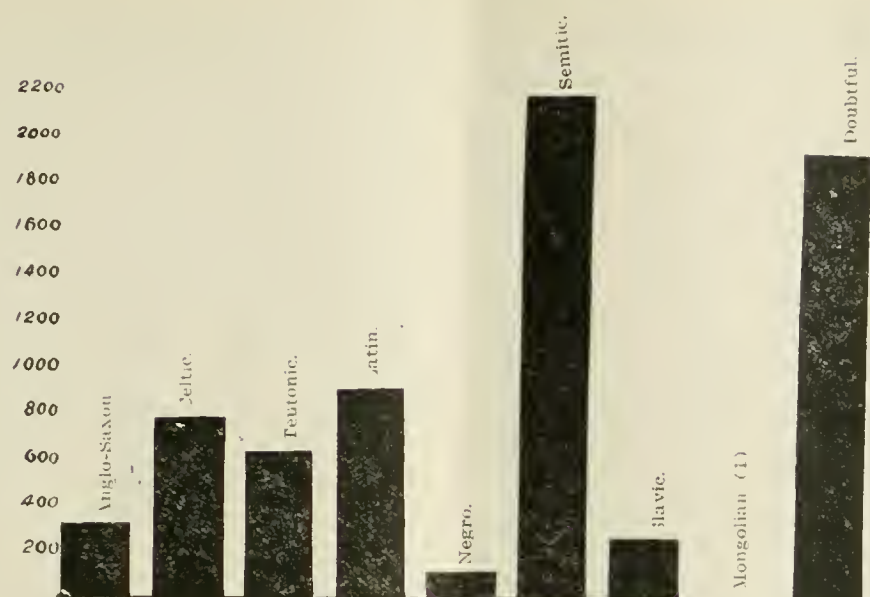


CHART 4.—Numerical comparison of races represented by the Clearing House patients, cases 3,000 to 10,000: Anglo-Saxon, 325; Celtic, 789; Teutonic, 647; Latin, 915; Semitic, 2,198; Slavic, 237; Mongolian, 1; Negro, 118; doubtful, 1,880.

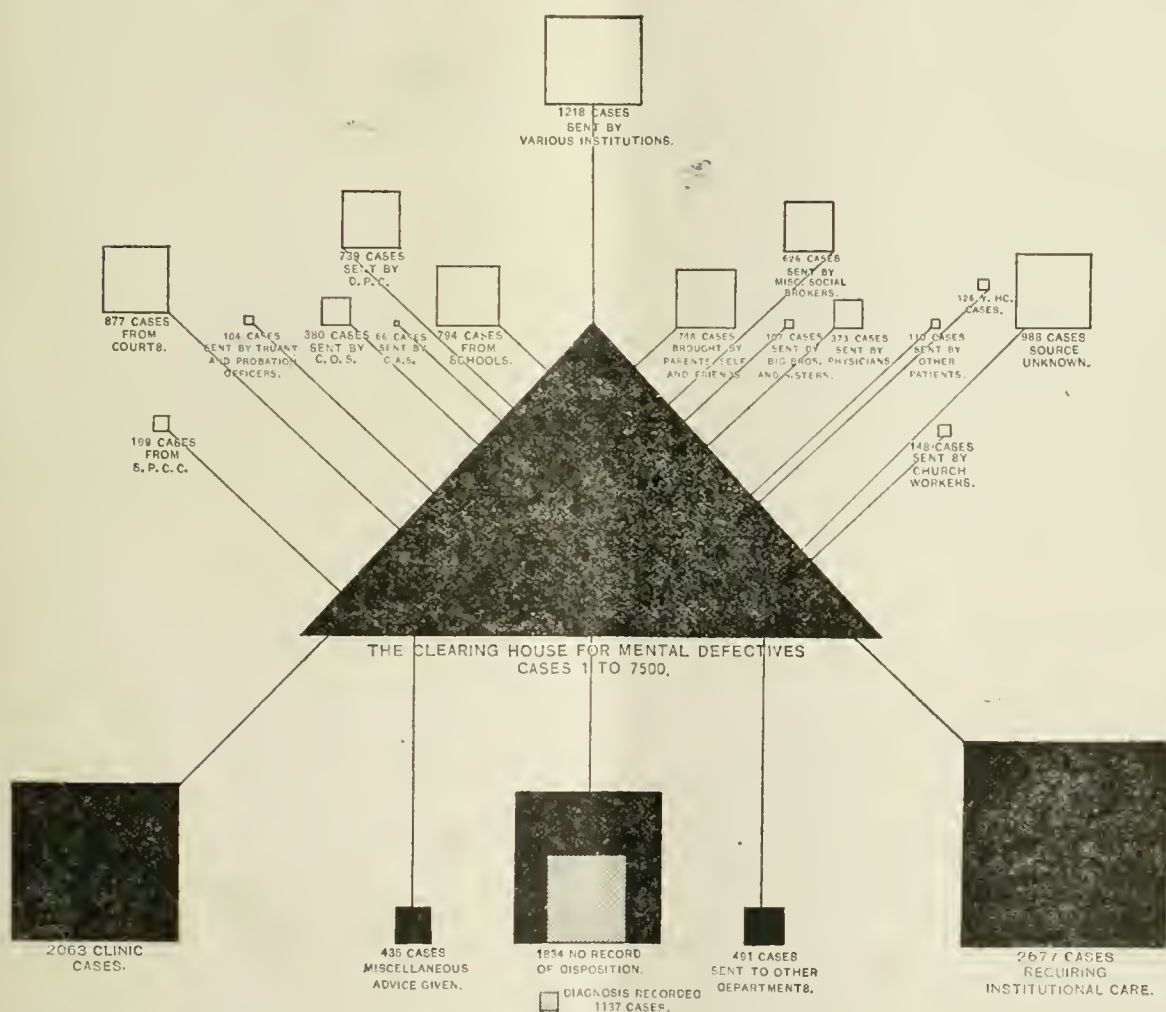


CHART 5—Sources and Disposition of Cases 1-7500

fully and, if possible, treated so as to fit them to adapt themselves to their environment, or that an available environment which is most suited to their

limited capacity for self-respect and self-support should be recommended for them.

In other words, where it is not feasible to segregate all who are feeble-minded, it is necessary to have such an agency as the Clearing House to select for institutional care those who form the greatest source of peril to the community, and to help the others to maintain as normal a social life as is within their capacity, adapting the form of such help to the particular needs of each individual and determining these by careful educational, psychological, medical, and psychiatric research.

At present the Clearing House, while unable to fulfill its ideals satisfactorily to itself, nevertheless is serving the community at large by doing as many things as its limited equipment will allow. In all essential points it is doing as well as is humanly possible under the existing circumstances.

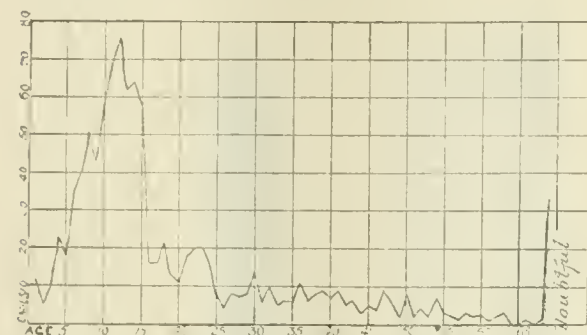


CHART 6.—Curve showing distribution by ages for 100 cases. Note rise of curve, about adolescence, when instability is at its height. (See Table VI.)

TABLE VII.—REPORT OF WORK OF CLINIC, JANUARY-DECEMBER, 1916.

	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Total
Number of new cases	119	123	120	112	165	159	74	68	77	127	112	100	1356
Number of old cases	388	373	388	398	454	439	308	224	245	308	309	281	4115
Total	507	496	508	510	619	598	382	292	322	435	421	381	5471
NEW CASES:													
Male	77	87	86	84	106	103	50	48	53	79	76	68	911
Female	42	36	40	28	59	56	24	20	24	48	36	32	445
Total	119	123	120	112	165	159	74	68	77	127	112	100	1356
NATIVITY:													
United States	88	92	97	94	122	127	55	55	52	106	93	78	1061
Russia	11	9	3	7	22	14	15	2	10	7	7	13	120
England	2	1	2				1	2		1	1	1	11
Austria	4	4	2	3	4	1	1	1	3	4	4	3	34
Italy	6		1	5	4	2		3	7	3	3	2	43
Germany	1			1	3	1		2	1	1		1	11
Poland			1						1				2
Hungary									1			1	2
West Indies			1				1	1		1			4
Ireland	2						1			1			4
Turkey			1										1
Norway								1					1
Roumania										2			2
Miscellaneous					2	10					1		13
Unknown	5	10	12	2	8	4		1	2	1	3	1	47
Total	119	123	120	112	165	159	74	68	77	127	112	100	1356
RACE:													
Touton	13	9	11	6	8	13	3	4	6	4	7	3	87
Latin	14	18	11	10	5	14	2	14	9	13	12	13	134
Semitic	45	41	43	43	64	61	39	24	33	43	40	53	531
Anglo-Saxon	5	7	7	2	6	7	3			1	2	6	46
Celtic	13	16	15	3	7	10	1			6	11	2	85
Slav	3	2	2	1	1	1	1		1	1	1	1	14
Negro	1	2	3		2	1			1	2	2	1	16
Unknown	25	25	28	17	72	52	25	26	26	58	37	21	443
Total	119	123	120	112	165	159	74	68	77	127	112	100	1356
RELIGION:													
Catholic	41	47	35	24	33	48	17	32	20	45	45	25	412
Protestant	22	29	31	24	39	40	14	11	18	28	21	19	296
Hebrew	50	39	46	42	63	61	40	24	33	43	41	55	537
Unknown	6	8	8	22	30	10	3	1	6	11	5	1	111
Total	119	123	120	112	163	159	74	68	77	127	112	100	1356
REFERRED BY:													
S. P. C. C.	1	1	2	2	7	2		3	3	3	3		27
Children's Court	29	33	37	21	26	46	8		30	30	27	22	347
S. P. C. C. & C. C.	2	5	1										8
A. I. C. P.	4	4	1	3	1					1			14
Doctors	9	10	11	27	25	13	16	7	14	11	10	14	167
Public schools	21	18	16	14	11	10	6	2	2	19	13	12	144
Friends' C.	15	7	16		10	13	16	7		3	2	4	93
Churches	1	4	2	2		1	1		2	1	1		15
Hospitals	15	12	17	3	21	11	13	6	9	23	20	19	179
C. A. S.	3	2	1	14	24	14	2	1	2	3	3	4	73
U. H. C.		4	3	1	5	4	6	1	1	6	7	4	42
Dept. of Health		3	1	1					1	2	1	1	10
Five Points House of In.					2					6			8
Big Brothers							2		3	2	5	3	16
Hebrew Orphan Asylum								1		1	1		2
Inst. for Deaf Mutes										2	1	3	6
Rockefeller Institute									1		1		2
Newspapers											2	3	5
Big Sisters									1				1
Child Welfare													1
Manhattan Trade School					1	2	2						5
Miscellaneous	7	10	8	10	22	36	2		4	13	14	9	66
Unknown	12	10	4	14	10	7		2	3	1	1	2	125
Total	119	123	120	112	165	159	74	68	77	127	112	100	1356

To cover the needs of New York City, such an institution should be equipped with a competent paid staff, consisting of at least ten physicians, four psychologists, one chief examiner, ten stenographers, one filing clerk, one statistician, three trained nurses and social investigators. Only by enlarging the staff in this way can New York City properly cope with the insistent problem of the mentally defective. Only in this generous way can the many departments of government, and the auxiliary social agencies concerned, be assisted in their efforts to provide for those who, because of mental defect, have become a burden and a menace to society at large.

As has been stated, the care of the feeble-minded is not a local nor a private philanthropic matter. All efforts should and must be made a separate part of a coordinated, unified attack on the whole problem by the State authorities.

A chain of public psychopathic clinics should be established in the various populated centers of New York State and maintained as part of a State-wide program for detection, detention, examination, and study of the mental defectives in the community. In order to make the work more uniform and the results of greater social value, these clinics should be organized and directed by a State board, appointed by the Governor.

The members of this board, serving voluntarily and representing all the various professions interested in this problem, could do much, aside from their supervision of these clinics, to advance the cause of social prophylaxis in mental defect. The greatest barrier to the furtherance of this program has been the lack of cooperation on the part of the experts in the various fields of social effort, who come into most intimate contact with the feeble-minded, and should, therefore, work in the greatest harmony for their betterment.

Any spirit of jealousy, personal ambition, and petty partisanship must give way to the large and more truly social spirit of co-operative effort toward the one purpose that is common to all—the public provision for the feeble-minded, and the public prevention of feeble-mindedness.

FLAT FEET AND TWO OPINIONS.

BY DOUGLAS H. STEWART, M.D., F.A.C.S.

NEW YORK.

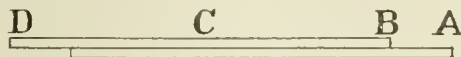
THIS may seem to be a paper dealing with a matter of little or no importance. It seemed so to the author; but men who are interested in the government services may have a very different estimate of it, may even have a contrary idea, and their opinions may turn rather toward a view that the simple expedients here mentioned may make available much man-power that is now "scrapped," even though money expenditure may not be lessened. For it must be well understood by this time that very many men, who are both willing and anxious to perform the necessary duties that are required in naval or military forces, are handicapped solely by flat feet and must be discarded, even though otherwise they are physically perfect. Therefore when one thinks it over it may be worth while to consider a method of treating those flat feet that may be employed by nurse or doctor and may be utilized when

no instrument at all is obtainable, not so much as a brace, or a pair of scissors, or even a pocket knife.

"Acquired flat foot" is the variety to which the present remarks apply, and this, roughly speaking, presents the symptoms of too much pronation and too little supination. The osseous process that prevents supination is the sustentaculum tali; why not attempt to roll the os calcis outward in an endeavor to obtain too much supination and too little pronation? As to the question of power, why not use the whole weight of the patient's body as the upsetting force? As for the employment of the principle of the wedge, a rock may be rent, a locomotive lifted, or the reinforced chilled steel doors of a bank vault may be burst asunder by such an instrument.

Attempts have been made, with more or less success, to accomplish the aforesaid results by building up the inner side of the heel of the shoe; but there is too much lost motion, or slip and slide, between foot and shoe, even if so much as the discussion of any special shoe were not here prohibited by the very proviso already made: that *no* instrument whatever is to be considered available. It may be said, however, that many such special shoes have been turned from previous failures to successes by the use of the means shortly to be described when those means have been employed in addition to the shoe.

Let anyone take an ordinary blotter and fold it end to end and crease it firmly in order that it may stay in position. Let him take a second piece of blotting paper, treat it the same way and lay one folded paper upon the other so that the upper folded edge shall not approach the lower closer than one-quarter of an inch in distance. Let the figure thus represented stand for a block or wedge that shall make the os calcis fall down stairs sideways, or rotate outward, whenever the patient is upon his feet. As a matter of fact the nurses adopt a much simpler plan and make the staircase with a single flip of the hand. Since the principle is the important matter, the description here given will work for clearness of understanding. Thickness of material or height of stair does make a difference in clinical result, but that will be easily adjusted to produce the effect desired and the possibility of getting the shoe on will put an impassable barrier to any excessive height. The idea is to produce something like this:



Then if *B A* represented one-quarter of an inch and *A* were placed $\frac{1}{8}$ inch inside of the middle line of the plantar surface of the os calcis, *C* and *D* could be turned over to cover the inner surface of the astragalus, os calcis, scaphoid, etc.

If one had a vaseline bottle and imagined that to be an os calcis of the right foot, and if one put a narrow strip of adhesive plaster across the bottom of the bottle to represent the posterior view of a perpendicular to the bearing surface of the right os calcis, surely he could put the step or block that has been described under that bottle, in such a way as to understand how the weight of the body will make the os calcis fall or rotate outward.

A regular triangular wedge has been tried, but the pressure of the foot itself bites, as it were, upon

this stair, and slipping is not a factor to be considered. In fact, a series of stairs could be constructed to cross the whole foot and then any lateral pressure would be negligible.

In short, one is to make the stair-wedge of two gauze wipes and bandage them in position with an ordinary roller. If such a roller is carried forward upon the phalanges of the toes, not only will the good influences of the expedient be brought to naught, but a pointed foot or some degree of hallux valgus may be brought about.

Two Opinions.—The first opinion is set forth in the following letter from Dr. C. A. Frink of New York:

Mr. Dear Dr. Stewart:—Thanks for your very interesting notes. I think this is just the time and place for you to write up your care of painful feet with whys and wherefors. I have put down a few points that you might use with your own, as the result of our trying it on our station. Surgeon T. A. Lynch, U. S. N., in charge of the Federal Rendezvous Training Station, has given his assistants permission to try the gauze pad treatment of Stewart for flat or painful feet.

Observations of Assistant Surgeon C. A. Frink on over 100 cases:

1. Men coming from private life find that the drills and work cause many of them to have painful feet. If they are taken at once, taught foot exercises, together with the use of pads, we find they can continue with their work and in about two weeks they are well.

2. These men are kept useful and are not given medical discharge, therefore a saving of manpower.

3. Saving of adhesive plaster, which is scarce and expensive.

4. No abrasions of the skin as in the use of the plaster.

5. Men can remove them every day to bathe the feet.

6. Most men can quickly learn to apply them on their own feet.

7. Very simple method to teach hospital corps men, showing them the skeleton bones of the foot; in a few minutes they grasp the reason why.

8. The pads turn the foot just enough without the pain of other methods.

9. The men do not depend upon them as on plates, for as they grow stronger they leave them off, continuing to use the foot exercises. We find from two to three weeks is enough, at times three to four days.

C. A. FRINK.

The second opinion is that of a well-known pathologist, but he refuses to allow the publication of his letter. "However, its statements may be incorporated if the present writer assumes all responsibility." He does. "Your idea that the ultimate analysis of the mechanics of the ground—os calcis-contact—will show but a line rather than a surface, so that it may be compared with the contact of a bottle with the top of your desk, or with a carwheel with its rail, is new to me; but that is not at all to be considered a proof of its novelty to others. It is reasoned out upon an anatomical basis and with due regard for the pathology of pes planus. After all, anatomy and pathology are the only worth while sciences that are comprised in the total which we

know by the name of medicine, consequently your gauze pads have a value. Since the procedure has been successfully tried upon many patients and by various doctors and nurses, I would recommend its further trial both upon anatomical and pathological grounds."

In conclusion, the patient may massage his own feet to great advantage, as he may also place the inner borders of the feet in contact and learn to practise standing upon the outer edges of the feet many times a day. Other expedients have been incorporated into standard text books and would be but "padding" here.

128 WEST EIGHTY-SIXTH STREET.

SYMPTOMATIC ATELECTASIS.

BY ALBERT ABRAMS, A.M., M.D., LL.D.,

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PHYSICIANS unskilled in percussion associate impaired lung resonance with gross changes in the physical structure of the lungs, and fail to recognize changes in pitch before alterations in the quality of the percussion sound.

The writer's experience with physicians and students constrains him to conclude that errors are most frequent owing to the non-recognition of differences in the percussion note rather than inability to elicit them.

Instrumental is easier than finger percussion, although less reliable. In finger-finger percussion one can appreciate the resistance of tissues percussed (plessesthesia) and adapt the finger to irregularities of the superficies.

To thoroughly appreciate changes in resonance, light percussion is indicated, inasmuch as it is a

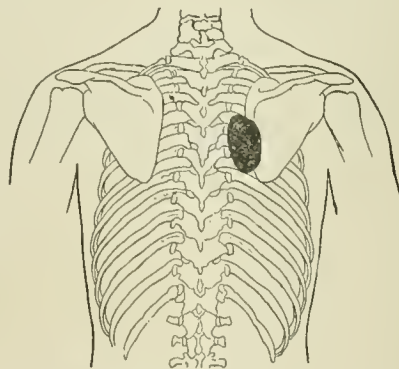


FIG. 1.—Pulmo-diagnostic reaction in congenital and acquired syphilis. The area of dullness measures approximately 4x4 cm. The location is defined with arms hanging. During percussion, the subject places his right hand on the left shoulder.

recognized law of sense perception that the less loud the initial sound the simpler it is to recognize its variations; and furthermore, a heavy blow dulls the sensibility of the finger tips.

Lung Reflexes of Abrams.—The lung reflexes' (contraction and dilatation) account for many modifications in lung resonance. If the lung reflex of contraction predominates, impaired resonance or dullness ensues, and if the lung reflex of dilatation predominates there is hyperresonance.

In England, Auld and Sir James Barr, and in Italy, Plessi, direct attention to the differentiation of atelectasis and consolidation of the lung; in atele-

lectasis, irritation of the skin contiguous to the affected area will convert the dullness into resonance, whereas if the dullness is due to a consolidation, elicitation of the lung reflex of dilatation will not influence the dullness.

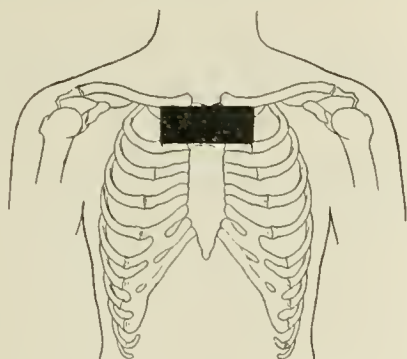


FIG. 2.—Pulmo-diagnostic reaction in congenital syphilis. This area of impaired resonance is present in addition to the area demonstrable in Fig. 1.

In *x*-ray examinations of the lungs, an area of opacity due to atelectasis may be mistaken for consolidation; elicitation of the lung reflex of dilatation immediately clears the opacity in atelectasis, but has no influence on the shadow due to consolidation.

Cesare Minerbi of Ferrara, Italy, regards the absence of the lung reflex of dilatation posteriorly as one of the earliest and most trustworthy signs of pulmonary tuberculosis. This conclusion was based on a study of 300 cases and 14 autopsies.

Pulmonary Atelectasis.—The writer has frequently directed attention in the literature² to areas of lung collapse or atelectatic zones. Not infrequently the apex of the lung in its entirety may be atelectatic, and for this reason alone some individuals have been pronounced phthisical by physicians who fail to recognize lung atelectasis when detected by percussion or seen at an *x*-ray examination.

The writer has heretofore attributed these atelectatic areas to defective chest expansion, but he has adequate reason of late to ascribe their presence in part to another factor. A consideration of the latter factor is the essential object of this contribution.

Symptomatic Atelectasis.—Areas of impaired lung resonance are demonstrable over definite regions of the chest in various diseases not autochthonous to the lungs.

We shall be carried too far afield if consideration is given to more than one disease, and, as a paradigm, syphilis is selected.

It is a simple matter for the physician to demonstrate the following observation, but he must faithfully observe all the exactions necessary in executing the test. Select any individual who is known to have syphilis (congenital or acquired). Irrespective of treatment or duration of the disease, the sign is invariably present. Have the patient face the west. This refers to the geographical west, and the body of the patient must be parallel with the earth's axis.* Any deviation from this position will dissipate the area of impaired resonance.

*The patient stands on a plate of aluminum which is connected by a wire to a faucet, radiator, or gas or electric fixture. This grounding is absolutely necessary.

On percussion, one may detect an area of impaired resonance or dullness (Fig. 1) in the right interscapular region, which is most accentuated at the vertebral border of the scapula. If now the patient is turned either to the north or south, resonance will at once supplant dullness, and the latter reappears on resumption of the original position.

If the lung area in question is carefully auscultated, first in the modified position and then in the original position, bronchovesicular respiration and subcrepitant rales not detectable in the modified position will be heard in the original position. Allow at least one minute for the auscultatory changes to ensue.

The intensity of the dullness will be in direct proportion to the virulency of the disease.

In congenital syphilis, in addition to the area of dullness in the back (Fig. 1) there will be found an area of impaired resonance at the *manubrium sterni* and area contiguous to it (Fig. 2). The latter is likewise modified by the posture cited.

For more detailed information bearing on this and cognate subjects the reader is referred elsewhere.³

Explanatory.—The hypothesis of vitalism and the cell theory are anachronisms. The cell doctrine should be replaced by the electron theory.

Vital phenomena are dynamic, and the actions of organisms should be regarded as processes and not as structures.

The ultimate atomic divisibility of matter is represented by the electron and not the cell.

Every phenomenon in nature is dependent upon matter in motion or vibration, and energy is employed to designate the modes of motion in the universe.

The laws of physical science are universal, and apply equally to all things in nature.

The sun's radiations, with a short wave length are perceived by the eye as light; and the long waves, unperceived by the retina, and acting on the receptors of the skin, are called heat.

All matter responds to stimuli.

Color is determined entirely by the number of waves emitted by a luminous body in a second of time.



FIG. 3.—Area of pallor or flushing in a syphilitic, superinduced by grounding the vasodilator or vasoconstrictor center in the cord. The area represents a streak slightly above the lower border of the lobulus of the auricle.

When the optic nerve synchronously perceives a variety of colors there must be analyzers in the nervous system, or specific fibers in this nerve which are natural detectors always attuned to definite vibratory rates.

Symptoms are reflexes provoked by energy acting on definite centers.

When the fifth cervical segment of the cord (bronchoconstrictor center) is stimulated experimentally a contraction of the lungs ensues (total atelectasis).

Auld, in the *Lancet*, Oct. 7, 1903, in commenting on the lung reflexes of Abrams, observes that Roy and Brown, and later Dixon and Brodie, conclusively established the presence of bronchodilator and bronchoconstrictor fibers in the vagus. "But it undoubtedly stands to the credit of Abrams to have proved at least seven years since, by a simple clinical observation, that the vagus must contain bronchodilator as well as bronchoconstrictor fibers."

Disease, like color, or any other phenomenon, is a question of vibratory rate.

The *Spirocheta pallida*, or the toxinoses resulting therefrom, acting on definite fibers of the bronchoconstrictor nerves, will produce an area of dullness only in a definite lung region.

The localized hectic flush is an analogous condition; the toxins acting only on specific vasomotor fibers. The latter condition may be reproduced artificially, as the writer has shown elsewhere.⁴

In syphilis this specific action on definite vasomotor fibers may be noted as follows: The syphilitic stands on the ground plate, facing west. Fix an electrode connected with a conducting cord to the area between the third and fourth dorsal spines, and note a pallor within 10 seconds in the area designated in Fig. 3, when the end of the cord touches the ground plate. Flushing in the same area occurs when the electrode is fixed at the first dorsal spine. Observations must be made with subdued light. It appears to the writer—and in announcing this observation he seeks the cooperation of others before a final conclusion can be formulated—that in congenital syphilis, in addition to the area cited, there is an additional area of pallor or flushing limited to the antitragus.

The rationale of the foregoing maneuver may be found explained elsewhere.⁵

Relative to the influence of posture on the area of dullness, we must regard our earth as a gigantic magnet with poles. It is generally accepted—although the reverse may be true—that out of the earth's north magnetic pole in the Southern Hemisphere a stream of magnetic flux emerges which traverses the atmosphere until it attains the earth's south magnetic pole in the Northern Hemisphere.

All energy shows polarity. The syphilitic energy is neutral, and when the body of the syphilitic subject is turned either to the north or south the magnetic flux emerging from the north and re-entering at the south pole, or *vice versa*, suffices to account for postural polarity.

Addenda.—1. The dull lung area may be accentuated⁶ by firm pressure on the metasternum with the hand.

2. Modifications in the epicritic (hyperalgesia) and notably the protopathic sensibility (hypesthesia) strictly limited to the dull area may be demonstrated.

3. Paravertebral tenderness is demonstrable at the 5th and 6th cervical spines on the right side. Like the dullness, this is modified by posture although a longer interval of time is necessary.

4. With a stethoscope fixed in the center of the

dull area the inaudible strokes on the skin with a small camel's hair brush become audible when the limits of the dullness are attained.

The writer's galvanometric method of delimiting the dullness will be described in a later communication.

REFERENCES.

1. Abrams: *Spondylotherapy*, 6th edition, 1918. Reference Handbook of the Medical Sciences, 3d edition.
2. Diagnostic Therapeutics, p. 488. *Medical News*, Feb. 8, 1902.
3. New Concepts in Diagnosis and Treatment, 1916. International Clinics, Vol. 1, 27th series, 1917.
4. International Clinics, Vol. 1, 27th series, 1917. Physioclinical Medicine, December, 1916, and December, 1917.
5. Physioclinical Medicine, December, 1917.
6. Abrams: *La Presse Médicale*, Feb. 6, 1907. 2135 SACRAMENTO STREET.

UTERINE FIBROID TUMORS.*

By FRANK D. REESE, M.D.,

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THE subject of fibroid tumors of the uterus is an old one which has been written upon from all angles. Yet it must remain a new subject for investigation until the cause or causes of this frequent trouble of women are found and a treatment is established which will remove or prevent these growths.

Mutilation of the body and unsexing do not furnish a pleasant thought for the average woman to contemplate. When one contends that every uterine tumor should be removed with the knife, unsexing many in the ordeal, it is time to stop and take an inventory of our knowledge on this subject of tumors and see if there is not something lacking in the understanding of the causes which produce these growths.

You might say to me, would you stop removing these tumors because we do not understand the etiology and let the patient drag out a miserable existence? I unhesitatingly answer no. But because we can remove these tumors with a relatively small mortality is no reason why all women who have fibroid tumors should undergo an operation which unsexes and leaves sequelæ which make life a miserable existence. There are hundreds of uterine fibroid tumors which are amenable to medical treatment and there are others which should be removed at once.

The cause of fibroma of the uterus is conceded to be some irritation, chronically constant, of the uterine tissues, with probably a heritage which lends a tendency to an easy formation of these neoplasms. This irritation—presumable but not known definitely—acts upon the glands of the mucosa, causing an hypertrophy which by contiguity of tissues extends into the endometrium. It is possible for me to believe that a segment of a hypertrophied gland may intrude itself into and between fibers of the muscle of the uterus and become occluded there, forming a nucleus for an intramural fibroid.

These theories are not fully established, only

*Read at a meeting of the Cortland County Medical Society, December 21, 1917.

in so far as treatment based upon this supposition has, in many cases, proved successful.

The irritation of sexual activity at the period of life in which the fibromata appear most frequently, prolonged virginity with its attendant hyperemic condition of the pelvic organs, infection due to gonorrhea contracted before married life begins, and also infections which result from self-inflicted abortions and from unclean puerpera are, in general, the causes and stimuli of the growth of uterine fibroids.

It is recorded by a number of writers, including Kelly of Baltimore and Reed of Cincinnati, and has also been observed by myself, that fibroids may exist in early life and also that they may develop rapidly after the menopause.

The focus points where the fibroma has its beginning are in the uterine glands (Cullen) which project from the mucosa into the endometrium.

The etiology of uterine fibroids is still in dispute, but enough has been discovered which is constant in the pathology of fibroids to grant one the liberty to base an opinion and formulate a treatment which may be curative in a large percentage of cases.

The correct diagnosis is everything in the treatment of any disease, and it is of the greatest importance in helping to guide one in the selection of cases which may be treated successfully locally or which should be turned over to the surgeon for operation.

I am well aware that nearly all gynecologists and surgeons advocate operation, and the removal of all fibroids as an operation is advertised in all cases of appendicitis. Whoever takes this stand that all fibroids must be removed with the knife must remember that a fibroid tumor is not an appendix, neither is the pathology of appendicitis and fibromata the same. One is an active inflammation of the appendix, due to a germ which is virulent in its history and quick in its effects, while the fibroma is due to an irritation of the uterine gland by direct injury or by an infection which causes a chronic irritation, dilating the capillaries and increasing the blood supply, causing a hypernutrition of the uterine glands and fibers of the uterus which ends in an abnormal growth or a fibroid tumor.

The pathology I have hinted at in discussing the cause of fibromyomata. The structure of a uterine fibroid is practically the same as that of the tissues from which it arises; in other words, it contains involuntary, smooth muscle fibers and fibrous connective tissue. Yellow elastic fibers are also found.

There are, at least, three varieties of simple uterine fibroids, the submucous, the interstitial, and the subserous; the names indicate their location.

The symptoms of uterine fibroids can be classified. The very earliest symptom—and I wish to emphasize this one—is painful menstruation from the very beginning. The girl is in pain at the first menstrual period; the mother is called, hot applications are made to the feet and abdomen, and the thing is forgotten until it occurs again. This is the history, which can be elicited in more than 90 per cent. of the patients who have devel-

oped fibroid tumors of the uterus, if the physician is thorough in history taking, and history taking is practised in all cases. This must be practised, for it is the stage in which abnormal growths of the uterus can be prevented, and prevention is of more importance than even a late cure. Pain, bearing down, or a feeling of weight in the back or pelvis, a changed odor to the scanty leucorrhea, blood discharge in the intervals between menstruation; also a profuse flow which is quite noticeable at the regular period. If one gets this history and these symptoms, it will be high time that the woman is examined.

Early Dysmenorrhea.—Of one hundred and ten successive cases of fibromata, in my private practice, the symptom of painful menstruation at the very first menstruation appeared in one hundred and six, and there was only one case which did not give a history of dysmenorrhea at some stage of the growth. The other three who did not give a history of pain at first had pain some time during the development of the tumor. This symptom is of such frequency that it should lead one to suspect a condition of the uterus at puberty which favors a growth during the child-bearing period.

Those girls who have dysmenorrhea at puberty should be supervised and wise treatment should be administered early so as to prevent a fibroid growth. In these cases prevention is more important than the removal of a tumor in middle life.

I am well aware that for me to claim that dysmenorrhea at puberty is associated with a later development of fibroids will oblige me to accept criticism because of my stand. So far as I know, I am entirely alone in these observations. I ask no favor only that, with an unprejudiced mind, you who have the opportunity to make observations will first do so, and then later give your criticism.

Treatment.—There are three methods of treatment of fibroid tumors. First, that of prevention; second, that by medical treatment; and third, removal by the knife.

Preventive treatment of the growth of a fibroid tumor in early life is to remove all sources of irritation of the uterine tissues and this is the first obligation for the gynecologist to assume.

In cases of dysmenorrhea due to atresia of the cervical canal gradual dilatation is helpful. This can be practised without an anesthetic. A thorough disinfection of the uterine cavity with iodine or carbolic acid is of value. Remove ovarian irritation, which causes a hyperemic condition of the uterine tissues, which intensifies all chemical activity of the cell tissues.

If we could hold up all marriages until we are sure that the man had fully recovered from his sexual debauches and, therefore, would not infect his unsuspecting bride, and also discourage abortions, we would have done much toward the prevention of fibroid growths.

A clean, sterile accouchement, with a complete delivery of the placenta and membranes, in all confinements, is another preventive measure.

All measures pursued which successfully ensure complete involution of the uterus are preventive measures which tend to reduce the liability to tumor growths.

Local medical treatment of fibroid tumors. I give you my experience, based upon a series of one hundred and ten cases. Of these cases there were ten which were operated upon, leaving one hundred cases which have been treated locally and systematically. The results are as follows: Of this one hundred there were three who should have undergone an operation but refused.

I now have seven under treatment, six in whom I can see a decided improvement, and the seventh is somewhat benefited, in being relieved of pain and hemorrhage, but is so near the menopause that I hesitate to advise an operation in her case.

Out of the one hundred and ten cases three proved malignant, and were operated on by me; one patient was sixty-four years of age, one thirty-eight, and one thirty-four. All three of these women are living and in fair health.

Four of the one hundred unoperated upon drifted away, but not until they were so much benefited by treatment that they considered themselves well.

Eighty-six cases continued the treatment until discharged as cured. I have watched these women, most of them, and I have failed to learn that any of them has suffered a relapse. The shortest time any of them was treated was three months, the longest time was six years.

Operative treatment. The requirements for an operation depend upon the accuracy of diagnosis.

Only such fibromata should be operated upon as will not yield to anti-inflammatory treatment.

Rules for operating:

1. Submucous and subserous fibromata with a pedicle should, as a rule, be operated upon early.

2. Those tumors in association with which hemorrhage is persistent should be removed.

3. Those tumors that have a malignant tendency should be removed; also those which persist after the menopause.

4. All cases of any variety which do not yield after two months to anti-inflammatory treatment should be removed.

The intramural fibroid almost invariably yields to local and systemic treatment; therefore these should have a thorough trial of such treatment before being given over to surgery.

Fibroid tumors in uteri which are retroverted and held down by the promontory of the sacrum, if released, will, with but little treatment, disappear.

The sexual organs in the female are greatly abused by attempted abortions, methods used to prevent conception, too great requirements by and concessions to the husbands, infections from without, lacerations, and complete retroversions. All these things are insults to the uterine tissues. Because the uterine muscle hypertrophies at times physiologically, under the stimulus of pregnancy, I am led to conclude that any continued stimulus applied may excite a growth in the pelvic organs, which can be cured by treatment and by removing the cause.

I hold that by relieving the uterine tissue of the stimuli which have been mentioned the tumor will disappear by absorption, if taken early. If the tumor is old and the lymphatic terminals and blood-vessels are involved and damaged by blocking, it is more than likely that the tumor is one

that should be removed by the knife. However, these tumors yield to antiphlogistic treatment in a fair percentage of cases.

Conclusions.—1. Dysmenorrhea at puberty is a symptom of a condition which favors the growth of uterine fibromata in later life and should be wisely treated.

2. Prevention of uterine tumors is within the possibilities of the gynecologist.

3. The malignancy in the 110 cases is 2.7 per cent.

4. Operative cases comprised 11.8 per cent.

5. Cases cured by local and systematic treatment were 78.1 per cent.

ACCIDENTS AND COMPLICATIONS OF FISTULA OPERATIONS.

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Discharge of Intestinal Contents Over the Operative Field.—This is one of the most annoying accidents during a rectal operation. A large sponge should be prepared and passed into the rectum to provide against this, but even with this protection fluid will sometimes be forced through. To prevent this accident the bowels should be thoroughly cleansed the day before operation and an enema given not less than six hours prior to the hour of operation.

When the field has been soiled the operation must be stopped, the sponge plug removed, the rectum irrigated with sterile water or physiological salt solution, a new plug introduced, and the wound thoroughly cleansed.

Hemorrhage.—Hemorrhage during fistula operations need not be serious. If an artery be cut high in the rectum it should be grasped with a hemostat and a ligature thrown around it. If the ligature cannot be fastened a couple of sutures may be passed beneath the vessel and the wound closed. If that cannot be done the hemostat may be left in place for twenty-four to thirty-six hours. Some operators depend upon packing to control bleeding, and if carefully placed this is usually satisfactory. I use very little packing, but prefer the other mentioned methods. Diffuse oozing may be checked with saline compresses held against the surface. All oozing and excessive hemorrhage must be controlled before the dressings are applied and until so controlled the patient must be kept under the anesthetic.

Hemorrhage is particularly liable to follow operations performed under local anesthesia. The first effect of cocaine is to contract the arterioles which lessens the hemorrhage during the operation, but the paralyzing after effect makes secondary hemorrhage a danger, as the parts sometimes bleed excessively. Therefore, it is well for patients who have submitted to operations under cocaine to remain quiet for one or two hours afterward until the after effects of the drug wear off and the parts regain their normal tone.

Styptics, such as alum or perchloride of iron, are undesirable; the clot thus obtained is fragile and

easily displaced at subsequent dressings, and they accomplish nothing but what is better done with compresses or packing.

If ligatures have been applied the subsequent dressings must be carefully handled so as not to slip the ligatures off and cause secondary hemorrhage.

Anesthesia.—It should be remembered during rectal surgery that when the sphincters are stretched deep respirations are excited and the anesthetic mask should be removed at that time or otherwise there is danger of too much of the anesthetic being suddenly inhaled and overcoming the patient.

In nearly all rectal operations temporary retention of urine occurs as a result of the manipulations and trauma which cause edema and congestion of the periurethral tissues. This swelling in turn constricts the urethral lumen. Sometimes retention is caused by spasm of the compressor urethræ and the neck of the bladder. Branches of the long pudendal nerve supply both the sphincter and the compressor muscle. In all operations upon the anterior quadrant of the rectum there is danger of injuring the urethra. As a result of this swelling the urethral lumen is constricted to such an extent that it may be impossible to introduce a soft rubber catheter into the bladder and a silver catheter may be needed. Both types of catheters should be at hand. Repeated efforts should be made by the patient to urinate voluntarily before attempting to catheterize him. Some men patients must get on their feet to urinate. It is well to wait twelve hours after operating before catheterizing unless the patient suffers from distention of the bladder. Do not wait too long, as cystitis and atony of the bladder may follow prolonged retention. Firm packing of the rectal wound may cause retention of urine and may also make the passage of the catheter impossible. In such a case the packing must be removed, when not infrequently the patient can urinate without help. It is well to give urotropin, 60 to 100 grains daily for two days, before all rectal operations because catheterization is likely to cause sepsis.

Involuntary Defecation.—If the colon has not been well emptied before the operation the patient will have an urgent desire to defecate as soon as he recovers from the anesthetic; or the bowels may move involuntarily before he is awake. In such case when the wound has been soiled, the whole anal region and buttocks should be thoroughly cleansed, carefully dried, and fresh dressings applied. When the patient, having recovered consciousness, complains of repeated desire to defecate, he should be permitted to do so, or at least try once. If he has been properly prepared nothing will be voided or at most only a little gas or liquid, and he will be much relieved. If there has been a concealed hemorrhage, which has filled the rectum with blood and is causing the tenesmus, he will void clotted and free blood, and of course require immediate attention.

Shock.—Shock may follow any fistula operation, especially if the patient has suffered a long suppurative siege and also when the cautery has been used. This danger of shock is one of the chief reasons for not using the Paquelin cautery in cases of

extensive fistula. The loss of blood from operations performed with the knife is not nearly so likely to produce shock as is the actual cautery. The loss of blood cannot be replaced with saline rectal injections, but the patient must be given hypodermoclysis or intravenous injections. Otherwise the treatment of shock and hemorrhage following rectal surgery is the same as laid down in all works on general surgery.

Sepsis.—Acute sepsis following rectal operations may develop within a few hours. It seldom comes on later than the third day. It appears usually as a diffuse periproctitis and the possibility of such sepsis renders it imperative that every antiseptic precaution be taken with rectal surgery. Another form of sepsis is that where secondary abscesses develop and in which prompt incision and drainage are indicated.

Incontinence of Feces.—Tuttle says: "This condition has become a nightmare to the profession and a stumbling block to every layman suffering from fistula. It is the shibboleth of the charlatan by which he frightens the sufferer away from the regular surgeon and induces him to be content with palliative treatment rather than submit to an operation." Incontinence does not occur anything like as frequently as is generally supposed. It is quite unusual to have more than temporary incontinence unless extensive burrowings or multiple fistulous openings exist. Incontinence may follow dilatation of the sphincter, but only if there is some underlying spinal or nerve disease, or if the perineum has previously been badly damaged. Oblique, irregular, or jagged incision of the sphincter, even though single, may result in such a vicious union of muscle ends that incontinence results. Transverse cutting of the sphincter is not likely to produce incontinence. The integrity of both sphincters is absolutely necessary for the voluntary control of the anus. If the muscle is cut squarely across and the ends united again so as not to increase materially the muscle length there will be good control. But if a wide band of scar intervenes between the severed sphincter ends the muscle will not contract sufficiently to close the anus completely. Oblique incision of the sphincter allows the divided ends to slide upon one another until the internal fibers of one end unite with only the external fibers of the other end; this very much lengthens the muscle and is frequently followed by incontinence. When the sinus passes through the body of the external sphincter muscle an incision severs only the lower fibers. These may be left to close by granulation. But if the entire muscle is divided and the wound edges retract there is always some incontinence.

Treatment.—When the incontinence is only partial much relief is obtained with galvanic electricity and hot fomentations. These should both be tried before resorting to operative interference.

The operative relief of incontinence depends upon our ability to reunite the severed ends of the sphincter. Our success also depends upon the amount of muscle destroyed in the original operation or the subsequent sloughing of tissues and also upon the length of time elapsed since the damage was sustained. The muscle cut and therefore unused will atrophy and in time is useless if reunited, or it may have degenerated so much that it cannot be

found. If much tissue has been destroyed the muscle fibers may be too short to be brought together. Usually, however, the fibers, because of their imperfect position, are too long to act and the indicated operation by taking out a V-shaped piece shortens and brings the ends into normal position. The mucous membrane is dissected from its base, thus exposing the sphincter fibers and a V-shaped piece, the base outside, the apex pointing in, containing the scar tissue together with only such of the sphincter muscle as cannot be spared is cut out. This cuts the muscle fibers squarely. The ends are now united with chromicized catgut and a tension suture of catgut or silver wire is passed through the skin and muscle one-half to three-fourths of an inch away from the wound. This tension suture should be tied over a pad of gauze and retained for 5 to 7 days. After all oozing is checked the mucous membrane is sutured back into place; none of it is to be destroyed. The patient should be confined to bed, the buttocks being strapped together with a broad band of adhesive plaster to prevent accidental traction on the wound. The patient's bowels are confined for one week and are then emptied with an enema of glycerine 1 ounce and linseed oil 3 ounces. This enema is repeated twice daily until all hard fecal masses in the colon are removed. Then, but not until then, a laxative may be given. The wound must be carefully examined daily to be sure no infection has occurred and no abscess is developing. Should an abscess occur it must be incised early and drained in such a direction if possible that the united ends of the sphincter will not be injured. If the sphincter has been divided in more than one place this operation should be performed in several steps, repairing only one injury at each sitting. The second operation may be attempted a month after the first.

Narrowing of the anal outlet by plastic operation will greatly benefit the patient, but the muscle function cannot be restored. In such a case a buried kangaroo tendon is passed around the anus at the level of the upper border of the external sphincter and tied firmly upon the index finger introduced into the anus.

Prolapse of Hemorrhoids and Mucous Membrane.—Sometimes following a fistula operation, because of the stretching or cutting of the muscle or the tenesmus afterward, there results a prolapse of internal hemorrhoids or of the anal mucous membrane. If this mass falls into the wound it will retard or prevent healing. This procidentia is usually only temporary, and is relieved by astringent ointments and local applications of hot fomentations. If the prolapsing tissue is removed there is danger of its becoming infected if the abscess and fistula are recent. In such a case it had better not be removed unless it is situated just above the angle of the wound, when it necessarily must be excised. In chronic fistula where there is very little suppuration the hemorrhoids may be removed.

Protracted Suppuration and Extensive Burrowing—If, after a careful operation for fistula, suppuration continues it is usually due to some underlying constitutional disturbance, such as syphilis, Bright's disease, diabetes, cardiac disease, or anemia. These conditions should all have been looked

for before an operation was undertaken. Usually where any of them exist no radical operation should be attempted, but our efforts confined to relieving the patient by enlarging the external opening enough to provide free drainage.

If burrowing continues after the fistula operation it is evidence that some small focus has been overlooked or a branch not laid open, or the dressings have been packed too firmly and drainage prevented. When it does occur the burrowings must be promptly and freely laid open their full length. Goodsall says, "The onset of pain in the wound later than eighteen hours following the operation is suggestive of extensive burrowing. This pain is throbbing in character, associated with chill, fever, and swelling near the wound."

If the wound is not carefully dressed each day, the wound edges may unite earlier than the deeper structures and a cavity be left within. This should be prevented rather than cured, but if it occurs the wound must be promptly reopened with a probe or the finger, or if need be incised with the knife. This accident can be prevented at the time of operation by trimming off the skin or mucous membrane edges for one-fourth of an inch on either side of the wound.

30 NORTH MICHIGAN AVENUE.

SOME COSTLY ILLUSIONS IN THE MANAGEMENT OF TUBERCULOSIS PATIENTS.

BY HOWARD CRUTCHER, M.D.,

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SEVERAL years ago, through the columns of the MEDICAL RECORD, I appealed to our Northern and Eastern colleagues to exercise better judgment than some of them appeared to be doing in the referring of a very large number of hopeless victims of tuberculosis to the far Southwest purely on account of supposed climatic advantages. Somewhat to my surprise, and much to my gratification, I received many testimonials of appreciation concerning that short communication, and I do not desire to appear invidious when I say that the one bearing the autograph of our own illustrious Jacobi was promptly assigned its rightful place at the head of the list.

So far as my observation extends, there has been a notable improvement in the condition mentioned within more recent years, but some illusions die only after terrific struggles and many of them, I fear, are immortal. Some additional words of advice, based upon extended observation, can hardly be amiss at this time. It is unnecessary to add that my remarks are not directed to those who still appear to believe in the miraculous in any branch of medical science.

One day a well-informed layman from the East inquired with some sharpness of tone, "What can be done to stop this procession of walking skeletons from wandering off here to die in misery when they ought to have been kept at home in the first place?"

Some hours later I repeated this inquiry to some colleagues, at the same time expressing some views which appeared to them to be about as heretical concerning the cure of tuberculosis as an edict directed against certain old-time sea practices

might have appeared to the late Captain Kidd. One of them replied: "Why say such things? Why, hundreds of people who were brought here on stretchers are now on their feet attending to business. Just look at our friend Mr. B., who heard an expressman inquire whether to take him to the cemetery or to the morgue!"

As much as I dislike to write a statement apparently so harsh and unfeeling, tuberculosis is a disease only for the rich and the well-to-do. Those possessed of large means may surround themselves with comforts and luxuries wherever they may be located, and so far as this paper is concerned they may be left to shift for themselves. With the poor, there is another story to tell, one neither so short nor so simple as the author of the *Elegy* may have led us to expect.

Only those patients whose danger is detected in the so-called pretuberculous stage should be considered as the ones at all likely to be benefited, and possibly cured, by a radical change of climate. Where the malady has made steady and substantial progress in New York until its real character is at once recognized by street acquaintances and shopkeepers, it may be taken for granted that, while much may be accomplished in the way of prolonging life and palliating suffering, the outcome may be predicted with almost unerring certainty.

All human experience has proved that after the commission of a crime of violence the perpetrator usually seeks safety in flight. A failure to do so generally raises a question involving the mental soundness of the criminal. But the very fact of headlong flight has proved the undoing of thousands of evildoers. The dropping of a key, or a scrap of paper, or a torn garment, may lead to identification and arrest, whereas many a hardened criminal has walked coolly away from the scene of his crime without even a shadow of suspicion following him. In thousands of instances certainly the first impulse of a tuberculous victim when convinced of his danger is to fly somewhere, anywhere, without in many instances taking into the least account the direction of his flight or the safety of his landing place. So anxious is he to leave behind his old surrounding that, as in the case of a criminal, his first step may prove a fatal one. He may leave behind his means of earning a living, his old friends, his family ties, and not infrequently the hard-earned practical wisdom of the old family physician, who may be less familiar with slides and stains than some well-meaning recent graduate, but who does know a great deal about the peculiarities of sick people and the safest and surest means of conserving vital resources and saving life. Tens of thousands of tuberculous victims have lived comparatively long and highly useful lives in New York, Massachusetts, and Pennsylvania who would have died long before from enforced idleness, from lack of proper food, from neglect of skilled medical care, and from sheer homesickness had they flown to some region where they learn too late that climate alone, however salubrious, is only one of the spokes that support the wheel that sustains the weight of the chariot of human life. In general terms, the climate of the far Southwest possesses immeasurable advantages over the inclement regions of the Northwest. The stifling dust storms are far from

pleasant, but they are to be chosen in preference to the nameless spasms of weather that sweep over the greater part of our Northern country. The midday heat for several months of the year in New Mexico is uncomfortable, but is rarely prostrating and never fatal so far as I ever heard. The nights are almost unfailingly cool; in fact, many times too penetrating for pleasant riding, and the tuberculous patient will generally require the same warm garments here that he wears in New York and Boston, gloves and stockings not excepted.

The lover of Nature, and the student of the natural sciences, will find New Mexico abounding in beauties and sublimities of scenery beyond even the imagination to picture. One never wearies of the glowing sunshine and the radiant stars. The rolling, trackless plains themselves are surpassed only by the sky and the ocean.

But tuberculosis, for all its dismal tragedies, pursues its course along practical paths and must be combated with practical resources. The tuberculous subject who sets out for the far Southwest must bear in mind the vital necessity of a sound hull and a steady hand at the wheel. Too often he leaves behind in his old home not only family, friends, the means of earning a living, and the steadfast skill of his medical adviser, but, worse if possible than all these, his last spark of common sense. He has heard much, and perhaps read more, concerning the extraordinary vigor of the typical Southwestern rancher, and immediately makes up his mind that a few months spent in unalloyed sport will lengthen his locks like Samson of old, which it may, and enable him to rebuild the venerable temple, which it will not. That horseback riding is a most wholesome form of exercise for mind and body cannot be doubted, but the primary object of the owner of a stock ranch is to make it pay a return upon his investment. He employs men whose work will insure him a profit, otherwise he would not long remain in active business. Ranch riding, as it is called, is laborious, sometimes very wearisome, and is not free from certain unavoidable risks to life and limb. It cannot in justice be denominated play. Those who engage in it ought to possess elastic muscles, steady nerves, and a reasonable measure of bodily resiliency. The usual food of the ranchers, while abundant and wholesome, is not always prepared and served in such fashion as to appeal to those with sensitive palates, or to those who require a varied dietary.

If not ranching, then some other form of out-of-door work, perhaps. Farm work and crop raising are both profitable and enjoyable under many conditions, but farming is not, and in the nature of things never can be, more than a subsidiary industry in the arid regions of the far Southwest. Some apparently sterile plains and uninviting valleys, when vitalized by abundant water and cultivated with assiduous toil, may yield prolific harvests of the richest products known to the soil; but practical farming as it is conducted under seasonable conditions in the fertile regions of Iowa, northern Illinois, and western New York is unknown here. Aside from the few large mining industries and their allied interests, there is no manufacturing enterprise in the State that would pass for anything important in any large Eastern community.

So far as the odds and ends of labor go, they are generally abundant in every great city, but there is no great city with its vast and complex machinery of manufacture and distribution in this State. All the municipalities in the State, if grouped in one compact area, would not compare in opportunities for labor with any of a hundred that might be named in the old Commonwealths of the East.

As to the patients in whose frames the disease has reached the stormy stage of general infection, those patients whose approach and departure are announced by volleys of explosive coughs, what sensible physician would send them to any far off region with any hope of bettering their deplorable condition? It is even the duty of such physicians to enter a vigorous and determined protest against such pitiable folly. The good people of New Mexico are as full of the spirit of sympathy and helpfulness as the good people elsewhere, but it must be remembered that, however willing they may be, the material resources at their command are not without necessary limitations. Compared with even the least favored sections of Ohio, Indiana and Illinois, New Mexico is a desert, sometimes a desert of surpassing beauty and interest, but yielding little or nothing for the support of man save that which springs from earnest toil and intelligent application of means to ends. There is a ripe field here which some day will be developed by wise and far-sighted philanthropy into some practical form of relief for those suffering from early and curable tuberculosis; but until something based upon scientific lines shall be put upon a practical operating basis, the best possible advice to offer to all who contemplate a change of climate is a modification of a well-known aphorism, amended to read, "Be sure you are right before you go ahead."

RADIUM EMANATION IN HAY-FEVER.

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MY excuse for reporting these two cases lies in the fact that there is no generally successful treatment known for this trouble, and that the results of the treatment were so prompt and lasting as to warrant a hope that we have at last found a positive method of relief for many of the thousands of annual sufferers from hay-fever.

Of the two cases I have to report, the first patient was treated in the late spring for a general run-down condition, with no thought of its effect on the later affection from which he annually suffered; the other was deliberately treated for the disease in question.

CASE 1.—Business man 30 years old. Had always been well save for an annual severe attack of hay-fever. Was of a nervous temperament. Had been under a prolonged business strain, and came to me for general treatment. This was in May, 1913. He was given a six weeks' treatment with radium emanation and discharged, as far as I could determine in good condition.

I did not see him again until the following winter, when he informed me that he had passed through the preceding summer with no attack of hay-fever. This state of affairs persisted for 3 years, until the summer of 1917, when he came to me suffering from a severe acute attack of the old trouble. On questioning him, I found that for the previous two years he had been

harassed by business troubles, and was in a very nervous and run-down condition. He was started at once on the same treatment as he had previously been given. The relief was prompt, he being able to sleep a good part of the first night, and by the end of the week, there was complete relief of all symptoms. The treatment was continued for two weeks longer, when he was discharged, and had no further trouble during the rest of the season.

CASE 2.—Middle-aged lady, whose previous history showed intense overwork in her younger days, with a condition of semi-invalidism from that time on until within the past 5 years when she has shown a distinct gain. There is a history of severe hay-fever attacks of maximum severity for about 30 years back with no intermission. On figuring up the usual date of the beginning of her attacks I found we had about two weeks' leeway, and I proposed to her that we try and see if we could get any prophylactic result, with a course of radium emanation, the same treatment as I had used in the other case. This was done and the treatment extended over a period of four weeks. As a result she passed through her first summer and autumn with no hay-fever, becoming so bold finally as to weed in her garden and deliberately expose herself to the same influences that formerly had affected her.

To one, like myself, who is daily coming in touch with the marvelous regenerating power of radium emanation over cells, both animal and vegetable, there is nothing unexpected or astonishing in these results. They simply confirm in my mind the belief that I have held that here and there are found individuals whose nerve irritability is far above that of the ordinary and is susceptible to the irritation caused by contact with the pollens and other things that are supposed to cause the disturbance known as hay-fever. Now when these individuals have been treated with the radium emanations a remarkable uplift of nerve strength is developed, and as a result the irritating matter, whatever it may be, no longer causes trouble, for the ever-sensitive nerves have gained the needed tone to resist it.

Whether this is the true explanation or not, it looks as if we had at last got on the track of a rational treatment, perhaps promising permanent relief for the sufferings of hay-fever.

Cervical Phlegmon Due to Vincent's Fusiform Bacillus.—Melchior describes a benign phlegmon due to this organism. There is no mention of any lesion of the mucosa.—*Nederlandsch Tijdschrift voor Geneeskunde*.

The So-called Fifth Cuspid and Hereditary Syphilis.—Mozar and Chenet have thoroughly investigated the claim of Sabouraud that a certain dental anomaly is certain evidence of hereditary syphilis. This anomaly, independently discovered by Sabouraud, had long been known to dentists, but not as an expression of syphilis. Sabouraud then insisted that when his "mamillary eminence on the internal face of the two first upper molars" was present in a certain degree it was specific in nature. The two authors studied the dentition of 60 heredosyphilitic children, with Wassermann control. While 19 who presented the dental anomaly gave a negative Wassermann, they showed the presence of some other affection, chiefly bone, joint or gland tuberculosis. But one child of the 60 showed the fifth cuspid along with Hutchinson's teeth and a strongly positive Wassermann. Thus the association of the anomaly with heredosyphilis is not necessarily one of cause and effect. The children had been treated before the appearance of the teeth and were clinically sound, yet the anomaly developed just the same.—*La Presse Médicale*.

Military Medicine.

TESTS FOR THE PERCEPTION EFFICIENCY OF RECRUITS.

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IT is to be regretted that more explicit directions for the investigation of the mental condition of the recruit are not available, but the physician is simply told in the Selective Service Regulations of the United States that he must conduct such an examination "as to develop, whether or not the man examined is possessed of sound understanding," and obtain a history whether he has had epilepsy or previous mental disease. The first demand has its difficulties, for under ordinary circumstances it is a matter of some difficulty even for a trained observer when ample time is afforded to do this, which is not the case in the selection of recruits.

While modern psychology and psychiatry have made such strides as to render the task easier than when the Service Regulations were devised, there is a temptation to resort to ready-made tests of a general character and an arbitrary system of mensuration which has not only been utilized heretofore to gauge the intelligence of children, but is now used in many parts of the country to ascertain the intellectual fitness of soldiers. So far, it has been found unsatisfactory, consuming time and revealing little. The best known test is the so-called Binet-Simon, which seeks to fix positively the degree of intellectual development of the young at various ages, but does not indicate emotional changes or many other things that are necessary to be known, among them the existence of physiological and affective idiosyncrasies.

Haberman¹ in an excellent article suggests tests that are a great improvement upon those just mentioned, and says in speaking of the Binet-Simon method: "The examination and evaluation of a child's intelligence is a most difficult procedure. No method of absolute computation of the normal general mental ability exists, not even a relative computation, and, at best, our conclusions are based on single facts which we ascertain. In other words, we estimate the whole by gauging a separate part, or better still several separate parts." The Binet test, as we know, arbitrarily fixes the degree of intelligence at certain ages, ignoring all the influence upon the individual of environment, education, nationality, example and other things; for this reason it is impracticable and unreliable. Haberman refers to Meumann, who is equally opposed to the test just mentioned. "He also states that the questions are not tests of intelligence, but of quite various things, some being purely psychologic (of psychologic functions), some of knowledge, the latter again partly such as the child learns from those around him (picked up at home or on the street or at school), partly gains through his own observations. All the latter do not test his ability as such, but only the influences of 'milieu' on his ability, etc. These are tests of functions and knowledge mixed (as the language tests, etc.)."

A more satisfactory and exact method consists of the Yerkes-Bridge² Point Scale test, the basis, however, still being the Binet-Simon suggestions

from which it seems difficult to escape. Here the ability to answer the questions—*independent of age*—determines the extent of intelligence, and the degree of correct responsiveness indicates the intellectual soundness and development.

When the observer examines the tasks imposed upon the subject by the various tests provided by many inventors of schemes, and he need not be hypercritical, the impression is immediately created that the requirements of a normal standard of intelligence consist in a collection of necessary attributes which are more or less trivial and fanciful. These certainly are of questionable value when we come to apply them to determine the intellectual fitness of the *adult* recruit. There is something amateurish in the selection of silly anecdotes and catch questions, which are supposed to require answers or explanations indicative of the degree of critical moral and ethical sense of the soldier! They are, besides being impractical, great consumers of time. Dr. R. Sheehan³ of the Navy says: "Are we justified in taking twenty-five minutes of the medical officer's time to use a measure that detects only a small part of the undesirables?" The present efforts to apply psychological tests, therefore do not seem to possess the merits of simplicity, nor are they adapted to the recruit.

We are told that various committees from the American Psychological Society, none of whom are psychiatrists, are covering the country applying tests to officers and men which are obviously insufficient, because laboratory methods are relied upon. Again we find the painstaking subordinates of the Surgeon-General's office devoting their time to the estimation of the mental fitness of the recruit without regard to the needed psychic requirements of the soldier, such as his ability to remember rows of figures after hearing them read or seeing them, or by making him reconstruct and re-assemble the parts of dislocated tools or mouse-traps, etc.

They, however, are moving in the right direction by examining recruits in groups of two hundred or more, although it seems as if the tests should be directed to the evident need of finding out *what special mental equipment the fighting man needs*, and whether he falls short or not. If time is an object there is no economy in examining him as one would a school child or a person in civil life.

1. It would appear to most people that a competent soldier should possess (besides a sound body) sufficient knowledge of the English language to understand and obey orders. To determine this he should among other things be given tasks to perform by written and oral command. Great care, however, should be used in excluding ignorant men, for many of the hardy mountaineers of Tennessee, Kentucky, North Carolina, and western Virginia, as well as other regions, neither read nor write, but make excellent soldiers and are noted as marksmen.

2. Quickness and the extent of *comprehensive vision* is a necessary attribute for a capable soldier. This consists in the individual's capacity to form rapidly, concepts of as large a number of objects as possible in a given area, and after visualizing them, record them immediately. (This may be done with groups of men by means of the magic lantern, proper slides, preferably in monochrome, being used

which portray landscapes and figures, or colored objects by which the color sense may incidentally be tested. The pictures should be exposed for from 3 to 5 seconds, according to the complexity of the subject, and the recruit is briefly to record upon a pad his impressions of the details.)

3. The detection of sounds and flashes of light; time of threshold perception, and nature of the resulting concept; direction, nature, and intensity, quality, *e.g.* from right or left side, behind or in front? loud or faint? intense or dim? "roaring," "ringing," "whistling?" Suitable instruments should be used for these tests that may suggest themselves.

4. The estimation of alertness, muscular co-ordination, stereognostic sense, balancing, and steadiness. (The writer has utilized the small Japanese "maze" puzzle by which small balls may be directed through sinuous tracks and concentrated into a small central receptacle. This operation should be accomplished in less than five minutes.)

For the more extended test of officers or doubtful cases it is, of course, necessary to avail ourselves of other measures, and the advanced Habermann tests, or the Yerkes-Bridges Point scale are available.

As considerable fault has already been found with the alleged unnecessary use of all psychological tests at this time, there is a demand for simplicity which cannot be disregarded. "The charge is being made that we are pursuing such refinements in our selection of men to fight battles," writes a friend who occupies a high position in our national affairs, "as to be embarrassingly obstructive to producing expeditiously the men required. We are apt to think that we have got plenty of time to pursue refinements. So far as I know these tests have never been applied in time of peace, when there was ample time to indulge in refinements."

Although, so far, from 2 to 5 per cent. of recruits have been rejected for nervous and mental disqualifying conditions, it seems as if we should not be too exacting in our selection of soldiers so far as tests of mere intelligence are concerned. The native-born fighting man of America has time and time again proved his intelligent worth even after a preliminary period of confusion and perhaps disorder, and even when he has not had the continued intensive training which is a feature of other armies.

General Crozier,⁴ who was attached to the Pekin relief expedition, had ample time to observe the behavior of the American soldier at a time when no intelligence tests were in use. After commenting upon certain shortcomings of the men who were slouchy and untidy, and "failed to salute their officers," and often acted on their own responsibility, he said: "It is not intended to convey the impression that the Americans constituted anything like a mob; their control was never in the least degree out of hand, and they showed themselves, as heretofore, perfectly amenable to such discipline as was exacted. *They were the most intelligent of all the troops forming the expedition*, as was strictly apparent from observation of their faces at the good opportunity afforded by the march past the staff at the entry of the Forbidden City, on which occasion also their neatness and fine appearance was most gratifying." Upon this occasion they were seen in

comparison with the English, French, Russian, Japanese, and German troops, so the test must have been a highly satisfactory one.

REFERENCES.

1. Haberman, J. Victor: The Intelligence Examination and Evaluation, *Journal of the A. M. A.*, July 31, 1915.
2. Collected Contributions Psychopathic Hospital of Boston, June 26, 1914.
3. Sheehan, R.: Service Use of Intelligence Tests, *U. S. Naval Medical Bulletin*, April, 1915, and *Mental Hygiene*, July, 1917.
4. Crozier: *North American Review*, 1901.

THE SOLDIER CAFARD.

THE word "cafard" is rendered in English by "canti-humbug" or "hypocrite," although we would not refer to a splenetic neurasthenic as a hypocrite. Nor do the French, in applying the word cafard to certain soldiers, confound them with malingerers. A new meaning of an old word has come into use during the present war, which refers purely to a state of mind, a peculiar depression, a morbid condition of the psyche, inconceivable in former times, as a result of life at the front. The odd thing about this word cafard is that it is used in self-reproach and not as an epithet of derision or reproach to others.

In the *Journal de Médecine de Bordeaux* for December 25, Caussimon describes the "cafard" feeling, which he has often experienced. A soldier whose appearance is rational throughout, and who is in the midst of his regular duties, suddenly experiences a feeling of repugnance or unsurmountable fatigue. Nothing more burdensome can be conceived. In its mildest expression it can be thrown off with an effort of will, but as a rule the condition is cumulative. It seizes its victim not only when he is idle, but when he is in the midst of execution of well-laid plans. In certain cases there is a sort of prodromal state. He feels out of sorts and slows up in his work. Generally speaking, the condition is unforeseen and unmotivated. At times one has a presentiment on waking that a bad day is before him, and will say, "I feel the cafard coming," and make no attempt to fight it. In the midst of the crisis he retains, so to speak, only a fourth of his value as a soldier. He is now transformed, wholly indifferent to his surroundings. He scowls, with drawn features, and his appearance suggests both powerlessness and extreme suffering. Every movement is an effort, and, moreover, attended with pain. He immobilizes himself, or else wanders about aimlessly, and can no longer think; becomes almost mute, and reacts to no form of irritation. The picture in no wise recalls the condition of extreme asthenia at the front, as described by Cheyron (*MEDICAL RECORD*, February 2, page 195), in which there are marked lumbago and fever. The "cafard" does not care to eat, although he feels the pangs of emptiness. Mostly he keeps his bed, although when the attack is mild he may endeavor to keep going. He loses all his inculcated respect for cleanliness and spruceness; in fact, his slovenliness is characteristic. The cafard becomes not only very anxious about his future, but seeks a motivation for his condition, and in his weakened mental state may develop a fixed idea. His condition is certainly not simple neurasthenia, nor is it psychasthenia,

although the latter resembles it in many ways. The psychasthenic often suffers by crises like the cafard, but the latter never complains of headache or neuralgia. This is the more remarkable because the mental state of the cafard comes nearer that of migraine than of any other neurosis. True melancholia can be excluded, although "melancholy" is the nearest popular term suggested by the cafard soldier.

Eye Changes in Trench Nephritis.—During the spring of 1917 J. Kirk, Late Temporary Captain, R. A. M. C., and specialist in ophthalmology, had the opportunity while on duty at Malta of examining a series of cases of trench nephritis, or war nephritis. There were about eighty cases and they all came in the same convoy from the Macedonian front. They were chiefly young soldiers between twenty and thirty, although there were a few older men among them. The history was generally the usual one of fairly severe exposure and strain, though not necessarily in the front line. The majority of the cases presented the disease in a severely acute form and on admission were seriously ill. At that time the fundi of a large number were examined and almost invariably retinal congestion with large pulsating veins were found. There were no signs then of any patches of exudation or nerve involvement. Some weeks later, however, there were found in one or two patients, who complained of eye symptoms, more definite changes of nerve swelling, accompanied by patches of retinal exudation. The whole series were then again examined and the following results found. For convenience they were divided into three groups.

Group A numbered about 21. They were all convalescent, presenting practically no symptoms except slight anemia and debility. The urine was free from albumin, except for a very slight trace in a few. In only four of this class were retinal changes found, and they were slight in amount—a few small spots of exudation, a small punctate hemorrhage, a slight haziness of the disc edges, or a little edema along the course of the veins.

Group B—a series of 20 cases who had not done so well as the others. Albumin was generally present, though in small quantity. There was breathlessness and slight edema often. Of these cases, 8 showed minor retinal changes, with small exudation spots. One, however, showed much more marked changes, pointing to a fairly severe neuroretinitis.

Group C, 13 in number, were severe cases in which the disease was still marked. They were suffering from general symptoms, severe edema with often a large quantity of albumin in the urine and sometimes blood. Of these 13, 4 showed very definite retinal changes and 4 changes of a slighter nature.

So far as could be ascertained, there were no signs of any other complicating disease, with the exception that several cases showed malarial infection. In none was there any history of previous kidney attacks. In 9 of the cases presenting the more severe retinal changes a Wassermann test was done, and in all of the 9 the result was negative.

Some points in regard to the fundus changes are: (1) That while the spots of exudation were generally in the usual situations—that is, near the disc and in the macular area—in no case was seen the typical silvery star-like figure of the chronic cases as figured in the textbooks. (2) Hemorrhage was not common. Those seen were of the small punctate variety, and not of the striate or flame-like character. (3) The optic disc was often affected, the changes varying from a definite swelling to slight woolliness and indistinct edges. (4) Small areas of edema were noticed, especially along the course of the veins. (5) An important point was that in several of the series there could be traced the gradual absorption of some of the smaller patches of exudation, and the healing process was very interesting to watch.

Kirk, in a summation of his results, gives the following conclusions: (1) That in this disease the retina is very liable to be involved, although gross changes are not evident in the early stages, and latterly changes which had been present may have become absorbed. (2) That the pathology is probably an acute congestion resulting from some specific toxin, that the exudation which ensues is partly lymphoid and partly cellular in nature, and that this deposit probably clears up in the great majority of cases, without leaving any permanent results. (3) That the retinal changes do not affect the prognosis, except in so far that the severer these changes the severer the cases, in many instances, though by no means necessarily so. (4) That the condition is one which is probably allied to the acute retinitis of pregnancy, scarlatina, and acute uremia, and should not be confounded with the retinitis of chronic kidney inflammation with its permanent changes in the retinal circulation vessels and tissues.

The Treatment of Flat Foot.—The *Monthly Bulletin* of the New York State Health Department publishes the experience of Major Isaac W. Brewer, in a series of about 400 men from various parts of the country who were placed under treatment by Lieut. H. B. Perry, M. R. C., at Fort Ethan Allen, Vermont, about 90 per cent. of whom were returned to the ranks cured.

Of the white men who applied for enlistment in the United States army during the period from 1912 to 1915 inclusive, 55 out of every 1,000 were disqualified because of flat foot. Thirteen per cent. of the men examined since the outbreak of war were rejected for this reason. A much larger number of men had flat feet, for those with this deformity in moderate degree were passed. A large number of the men who were so passed later appeared on the sick list, because the condition of their feet precluded their engaging in the strenuous exercise incident to the training of the soldier. The following exercises for the treatment of flat foot are those that have been found adapted to conditions met with at an army post and now in practice at Fort Ethan Allen, Vermont. The feet and legs should be free. Shoes and stockings should be removed. Underdrawers and breeches loosened so as in no way to restrict or limit muscular action of the legs. The toe exercises are the first ones taken up. The men stand on a raised platform—a 2-in.

plank is sufficient; they are then directed to flex the toes to the extreme point of flexion with a hard pull of the flexor muscles of the sole of the foot at the extreme point of flexion. This is followed by extension without effort. This exercise is repeated continuously from five to ten minutes, the shorter period at the beginning, gradually lengthening the time of this particular exercise until the full time is possible without fatigue. The second exercise is a continuation of this flexion of the toes on the sole of the foot, plus inversion of the foot to the extreme, bringing into the action the *tibialis anticus* muscle. At the extreme point of inversion a *strong, hard pull is made*, then the foot is allowed to resume its usual position without any muscular effort.

At the beginning, fifteen or twenty minutes is sufficient for the entire routine of exercise. Later, after the muscles become stronger, a full half hour may be devoted to this without marked fatigue. The plan as outlined above should be carried out each morning under the supervision of a man trained along this line. The patients should be instructed to repeat this performance each night on retiring, devoting one-half the time consumed in the morning. Many of the cases with marked eversion of the foot walk with the toes turned out. The men are instructed to walk with the toes turned in at all exercises and at all other times during the day. We believe that this latter advice relative to walking is vitally important in the general handling and treatment of these cases.

Artificial Limbs for Disabled Soldiers.—The application of artificial limbs in Australia is described in a pamphlet by Sir Thomas Anderson Stuart, M.D., Dean of the Faculty of Medicine of the University of Sydney. The writer has found great difficulty in getting disabled men to realize how much can be done to improve their lot. They tend to become discouraged with the irksomeness and discomfort of the unaccustomed burden of an artificial limb. Great temporary weakness and lassitude of the remaining tissues, which are just those to which the artificial limb is attached, follow severe amputations as a matter of course. These become permanent in the case of healthy parts, however, only if left unexercised. The utilization of the stump in doing actual work, through the instrumentality of a light, inconspicuous, and suitably constructed artificial limb, gradually restores both strength and vitality. The temptation which the patient at first finds almost irresistible to unburden himself of the unaccustomed appendage soon gives place to pleasurable interest and pride in finding himself enabled to resume profitable occupations from which he had believed himself forever debarred. The artificial limb, as is pointed out, should be such that the patient likes to wear it. When the limb really fits him, the physical and mental comfort which it brings to the wearer is beyond expression; it converts the desponding into hopeful, active, useful men. The Germans are supplying two limbs, one strong and simple, provided with hook or ring, or other device, for the man's everyday work, and a Sunday arm for walking out. To most patients the main thing is that the limb should be of practical use in their work, but the limb and its movements should be natural looking, for that will help the wearer to get employment.—*Recalled to Life*, No. 2.

The Owen Bill.—At the meeting of the New York Academy of Medicine, held on February 7, Dr. Louis Livingston Seaman called attention to the fact that the Owen bill, providing for a reorganization of the Medical Department of the Army, which would confer upon the officers of the Medical Corps the same authority as was possessed by other military officers of equal rank, was one that should receive the attention of the Academy of Medicine and of the entire medical profession. He stated that the Medical Department of the Army had to combat a foe that in all the great wars of history, except the Russo-Japanese War, had caused 80 per cent. of the mortality, and had never had authority to reduce this frightful mortality to a minimum. The passage of the Owen bill would give this authority without in any way interfering with the military operations.

Daily Inspection of Army Hospitals Ordered.—The Secretary of War, under date of February 1, issued orders through the Chief of Staff to all Division and Post Commanders to have an officer of their staff make a daily inspection of hospitals connected with the camp or post and a daily report to the Commanding General, and, in the event of the discovery of any condition needing attention beyond that under his immediate control, to report the fact to the Chief of Staff for the information of the Secretary of War.

Disease Conditions Among Troops in the United States.—A statement issued from the Surgeon General's office shows that the annual admission rate for disease only, per 1000, for all troops in the United States is 1713.6; for the National Guard Camps, 1506.2; for the National Army Camps, 1995, and for the Regulars in Divisions and Departments, 1485.7. The non-effective rate per 1000 on the day this report was made was as follows: All troops, 51.1; National Guard Camps, 49.6; National Army Camps, 55.7, and Regulars, 41.3.

Plea to End Use of Gases in Warfare.—A dispatch from the *Petit Journal* of Paris states that the International Red Cross at a conference in Geneva, on February 6, decided by unanimous vote to appeal to the belligerent powers to suppress the use of asphyxiating and other deleterious gases. Why not ask the Kaiser to refrain from murder and theft and lying and treachery and poisoning wells and baby killing and rape and arson and all the other crimes which his braves are committing daily?

Dr. William Clarence Braistead has been reappointed by the President to serve another term as Surgeon General of the Navy.

Captain Henry James, M. R. C., of New York, who has been stationed at Base Hospital 15 in France since July 1, 1917, has returned to this country on a six months' leave subject to call.

Dr. Henry J. Harp of Sussex, N. J., has been mustered out of service in the Medical Reserve Corps of the Army in compliance with a petition presented to the War Department by the residents of Sussex, pointing out that the community was without adequate medical help and needs his services.

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A VITALLY IMPORTANT MEASURE.

THERE is now a bill before Congress, introduced by Senator Owen of Oklahoma, of which little is heard, but which may be said, without exaggeration, to be one of the most important, if not actually the one vital, war measure before that body to-day—more so as regards the outcome of the struggle than either the Chamberlain or the Overman bill. Whether the President must accept more advisers, or whether he is given the power virtually to go it alone, the war will go on, troops will be trained, equipped, sent to France, and will there give the gentle Hun the surprise of his life; but unless the health of these same troops is carefully guarded, and they are protected from endemic and epidemic disease and maintained in hygienic surroundings, both here and abroad, the war will be lost; at least it will not be won with our aid. The men to whom the health of our soldiers is theoretically entrusted are the members of the Medical Corps, both regular and reserve. We say theoretically since practically the medical officer has but little voice in the medical and hygienic care of the army; for whether or not his recommendations or criticisms reach headquarters depends entirely upon the will of one or more line officers who are his superiors in rank. As Dr. Lambert, Dean of the Medical Department of Columbia University, has well said in a recent interview: "All inferior officers must make their reports through the superior officers of the line who command, and the medical officers are no exception. A medical colonel must report through the brigadier general of the line, and be blocked if he attempts anything that benefits his men unless the line officer desires it. And of course the regimental surgeons with the rank of captain, and even major, must report through the colonel in command of the regiment, and he to the brigadier general in command of the brigade, and he to the major general in command of the division, before any report or suggestion for improvement is allowed to go up to headquarters staff and the question be actually taken up with the general in command."

It is to remedy this deplorable and dangerous condition that the Owen bill has been introduced. At present there is but one officer, the surgeon general, in the Medical Corps above the grade of colonel,

but if the Owen bill passes there will be in the Medical Corps, with the present enrollment of about 15,000 officers, 37 major generals, and the same number of brigadier generals, 600 colonels, 1,200 lieutenant colonels, and those of lower rank in proportion. Then the medical man could speak with authority, and could make his voice heard at headquarters, regardless of the opposition of some medically ignorant or unfavorably disposed line officer. The bill would benefit especially the officers of the Reserve Corps, recruited for the war from civil life, for it would make them—at present barred from all grades above major—eligible equally with the officers in the regular army for promotion to higher rank.

The members of the Medical Reserve Corps will also benefit personally if this bill is passed, for they will receive the increased pay which goes with their higher rank—a matter of secondary importance in comparison with the health of our fighting men, yet one of justice to those who have abandoned lucrative practices at the call of patriotism, and one that would enable many more men to give their services who now are deterred by the necessity of providing for their families. A man with a large family who has an income of ten to twenty thousand dollars a year from his practice should not be forced to abandon this and support his family on the \$3,000 a year of a major or the \$2,400 of a captain. The medical profession has responded nobly to the country's call, and when more men are needed more will respond, whether the Owen bill becomes a law or not; but the response will naturally be more prompt and more hearty if the volunteer knows that he will not have to leave his wife and children in want. The physicians of the country have therefore both a patriotic and a personal interest in this measure, and we would urge them to exert what influence they possess with their senators and representatives to secure the passage of the bill, and they should do this without delay.

THE USE OF X-RAYED GUINEA PIGS IN THE DIAGNOSIS OF TUBERCULOSIS.

THE unequivocal diagnosis of tuberculosis is so frequently dependent upon the element of time for the actual demonstration of tubercle bacilli that any method which will assist in arriving at a more rapid conclusion is worthy of consideration. It is a well-known fact that a comparatively high percentage of pathological fluids and excretions derived from individuals afflicted with tuberculosis fail to reveal the presence of tubercle bacilli, even after careful search under the best possible technical conditions. Aspiration fluids generally, and pleural exudates in particular, in addition to sputum, pus, and urine, often contain so few bacilli as to escape detection in the course of routine examinations. Such specimens are usually inoculated into guinea pigs to determine the presence or absence of tuberculous infection. It is generally assumed by path-

ologists that if after the lapse of six weeks the animal shows no gross or microscopical evidence of the disease at autopsy the injected material did not contain tubercle bacilli. Such an assumption is, on the whole, correct, but, like so many biological tests, it is not absolutely infallible, for it has been shown that some guinea pigs have sufficient resistance to overcome a mild infection. The time limit of six weeks is a very important factor in both diagnosis and treatment. Many things may happen during this period to a patient who is infected with this dread disease. On the other hand, a fairly large number of guinea pigs, when inoculated with positive material, succumb to the infection, or exhibit definite evidence of it in a much shorter space of time.

Experimental work during the past two years has brought to light some interesting data in regard to the effect of x-rays on the inoculated animal. If a guinea pig is inoculated with tubercle bacilli, and then subjected to different doses of the x-ray at varying intervals, the lymph nodes will develop lesions sooner than if the animal is left untreated. In the most recent contribution to this subject, W. H. Eckford (*Journal of Laboratory and Clinical Medicine*, Dec. 17, 1917) gives the results obtained by this technique, whereby susceptibility to the experimental infection is increased. Eckford recommends that the substance for inoculation be suitably prepared by washing, and digesting the mucus or fibrin when necessary. The specimen is then centrifuged and a uniform amount of the sediment is injected into both groins, as well as intraperitoneally. The guinea pig is then exposed every second day to a five-minute dose of roentgen rays for at least three exposures. If a nodule appears, and is still present in two weeks, it is removed under local anesthesia, smeared, and examined for bacilli and tuberculous lesions. If positive, the result is reported at once, thus gaining possibly four weeks; if negative, the pig is allowed to live for the usual six weeks and then autopsied. Eckford has found that removal of a nodule in two weeks is usually diagnostic. When negative, visceral or peritoneal evidences of the disease may develop subsequently. Frequently repeated doses of the rays seem to be more effectual than a single application.

The mechanism whereby the disease is accelerated in the guinea pig has not been entirely explained. It is known that destruction of lymphoid cells in the glands causes lowered resistance to the action of tuberculous toxins, but that this is the full explanation is not generally believed. In any event, whatever reason is forthcoming for the phenomenon, the procedure is apparently of sufficient practical value to merit a routine place in diagnosis when the inoculation test is to be utilized.

CAFFEINE AND URIC ACID.

WHILE much of the romance connected with the activities of uric acid in the body seems to be, for the time being, dropping out of medical lore, at least in regard to the influence of uric acid in the

causation of gout and nephritic conditions, yet it must remain as an important indicator of the nature of the food ingested and the form of metabolism following. Uric acid is an end product of purin metabolism, that is, an oxidation product of the purins. The elimination of this substance in the urine is increased with the ingestion of foods rich in purin, and whether it is the ingestion of such food that is the direct cause of certain of the specific medical conditions or whether the action of such foods and their end products is only one of general irritation and the causation of fibrosis and degeneration is much of a question. Suffice it to say that the purin free dietary is considered the simpler dietary and recommended still as a prophylactic measure against degenerative conditions and in the treatment of them when they arise. Proteins and foods rich in nuclein are also rich in purin and increase the amount of uric acid eliminated. Yet the same significance to the purin free dietary is no longer accorded in the treatment of gout or the degenerative conditions as previously, since the question of the influence of uric acid has fallen into doubt.

Investigations made last year by Mendel and Wardell have definitely placed coffee, tea, and to a lesser extent cocoa in the class of substances which if ingested will cause a marked increase in the output of uric acid, that is, an increase in the activity of the purin metabolism. It is hard to say whether the objection to the excessive use of these beverages lies in the stimulation of this metabolism or whether it lies in the fact that the caffeine contained in them is a vegetable poison. The known physiological effects of the ingestion of excessive amounts of coffee has led to the manufacture of a number of decaffeinated products, purposed to obviate the effect of excessive purin metabolism as well as the untoward physiological or poisonous effects. These products have become very popular with the public.

Only a very small portion of the ingested caffeine appears in the urine unchanged; most of it is demethylated and the resultant purin substances are oxidized to uric acid. Yet it has been variously reported by many experimentors that in animals the ingestion of caffeine has no effect to increase the output of uric acid. In dogs these findings can be explained on the ground that the end product of purin metabolism is not uric acid but allantoin. In man the results of experiment seem to point to a decided increase in the uric acid output from caffeine. When a man is placed on a purin free diet of eggs, milk, bread, butter, and fruit until the endogenous level of uric acid is reached and coffee then added, it is found that there is a marked increase in the amount of uric acid eliminated in the urine. With the removal of coffee and the retention of the purin-free diet the endogenous level of uric acid is again soon reached. On the other hand, the addition of one of the preparations of decaffeinated coffee to the purin-free dietary does not raise the uric acid eliminated, but the latter is raised when

caffeine is added to this combination. This would seem to point rather definitely to the caffeine in the coffee as responsible for the increase in the purin metabolism and at the bottom of the increase elimination of uric acid. Similar experiments with tea (*J. A. M. A.*, June 16, 1917) have brought out the same points. The increase in the elimination of uric acid seems to be proportional to the ingestion of caffeine. The increase in the amount of uric acid eliminated after the ingestion of caffeine is said to be equal to the quantity of uric acid which could be obtained by the demethylation and subsequent oxidation of the caffeine ingested in the proportion of about 10 or 15 per cent.

THE DEMENTIA PRECOX PROBLEM IN PRIVATE PRACTICE.

It is quite possible that a great many physicians are ready to deny that there exists, at least to any extent, such a problem as indicated by this title. Looking back upon the busy years of his practice, the general practitioner doubtless recalls now and then the case of a youth in the family of one of his patients who became insane, as the saying is, and was carried off to a State hospital where later on it was given out he had dementia precox. Few, unless they have ridden the psychiatric hobby, have much of an idea how dementia precox originates, its early manifestations, and its prevention, looking upon it as rather a medical curiosity, or as one of those bolts from the well-known blue. That such a condition is as much a disease as malaria or typhoid fever does not figure in their everyday calculations.

The practising physician should be familiar first of all with the "precox personality," the shut-in type of disposition that tends to brood over problems, to withdraw from everyday life, and become absorbed in phantasies and introspection. Of course, this sort of conduct is often regarded as a phase of the humors of adolescence and assumed to be but temporary. But too often it is indicative of the sort of make-up which, when brought face to face with stress, turns in upon itself and retreats behind the fantastic barriers of a psychosis. It is a question yet how much can be done in the way of prophylaxis in this problem. Whether a careful analysis and re-education will equip such a nature to battle successfully with reality or not is doubtful, certainly many cases seem fated so to succumb, but others may perhaps be reclaimed. At least it is worth a trial, and the saving of even a few of our youths from the curse of dementia precox will be well worth the effort.

Too comfortable, anyway, is the attitude toward the humors of adolescence. To be restless and eccentric at this time of life may be merely an evidence of that condition of adolescent irritability described by Wm. Healy, where the prognosis is good under reasonably intelligent parental handling, but on the other hand it may be that such symptoms are the precursors of a far more serious state of affairs,

of a psychosis that means thirty, forty, or fifty years dragged out in an insane asylum. Examination of peculiar children or eccentric adolescents by a qualified psychiatrist is the only way to be sure and such a consultation may be productive of advice which would be sufficient to turn the scales in the right direction and prevent a lifetime of misery.

INTRAVENOUS MEDICATION IN THE XVII CENTURY.

A WRITER in the *Bulletin of the Progrès Médical* for December 22, calls attention to the fact that in the XVIII century the practice of intravenous injections was already old and condemned. His authority for the statement is Heister. The origin of the procedure is involved in some obscurity and the doubtful honor of priority was awarded to several practitioners. The then universal custom of venesection could have suggested it to any medical man. Heister stated that this "chirurgia infusoria," as it has been termed by some sponsor, had enjoyed its greatest vogue in the XVII century, about 1660-1680. The indications seem to have been much the same as they are to-day—rapid medication in desperate conditions in which buccal exhibition was impracticable, notably apoplexy and cyanosis. This was extended to leprosy, gout, epilepsy, tuberculosis, syphilis, scurvy, and malignant fevers. The results as a whole were hardly fortunate. Purmann tested the injections upon himself and pronounced them harmless. Some authors reported stupor, delirium, and death as sequences, doubtless in part because of the desperate character of the diseases treated. The writer is silent about the medicaments used, but the technique is described and illustrated, the cut being taken from Heister's "Institutiones Chirurgicae," Amsterdam, 1750. While a cannula and bulb figure in the illustration, a syringe was also employed.

POLYSEROSITIS.

THIS affection is not often described in English medical literature, although not uncommon in the annals of Continental medicine. Its not infrequent occurrence in Brazil and Argentina has raised the question of the possible role of a trypanosome in the genesis of some of the material. As the etiology of the European disease is a complete riddle, this view may ultimately throw light on the nature of the malady. At the present time, however, so-called Chagas's disease can only be regarded as a simulator of polyserositis, in which the trypanosome by attacking the myocardium favors the mechanical collection of fluid in the great serous cavities along with enlarged liver and other evidences of cardiac stasis. In true polyserositis there is an active inflammation of the serosæ, while the involvement of the heart is evidently secondary to pericarditis. That true polyserositis occurs in Brazil well appears in certain case reports, for example one by Barroso of Bahia in the *Brazil-Medico* for December 1. Syphilis, tuberculosis, and trypanosomiasis could all be excluded. The case was a classical one of total polyserositis involving all four of the serous sacs which come in contact with the diaphragm. Since in severe infections, commonly with fatal ending, these sacs may be involved, and since polyserositis

is sometimes associated with synovitis, etc., it seems fair to conclude with the author that the condition must represent a masked infection or the sequelae of an infection. The treatment is limited to roborants (hypophosphites) and cardiotonics with diuresis and punctures.

PARADOXES OF THE SENSE OF SMELL.

ACCORDING to Voivenel in the *Progrès Médical* for December 29, psychologists like James and Ellis have written slightly of the sense of smell. On the other hand Baudelaire, a layman, regarded odors as most powerful stimulants to ideation and memory and not a few scientists have dilated on the complicated nature of the olfactory apparatus and its embryological identity with the brain. Among well-known men who possessed a characteristic odor of agreeable nature may be mentioned Alexander the Great, Malherbe, Haller, and Cujas. The ability of various savages to recognize disguised women by the smell is on a par with the fascination of the personal odor of many women for their admirers. In fact this latter element plays a certain rôle in sexual selection which would be much more in evidence if artificial perfumery were less in use. It is not unlikely that misogynists are influenced to some extent by feminine odors which at the same time repel and sexually excite them. The author appears to see in some of Tolstoi's writings a sort of defence reaction of this character.

News of the Week.

Measles in New Jersey.—Measles is prevalent to such an extent in the towns of western Essex County, New Jersey, that the schools and Sunday schools have been closed until the epidemic abates. The schools of Roseland have been closed for two weeks.

Palestine Needs Hospital Unit.—According to advices received by the Palestine Restoration Fund Commission, disease, starvation, and expulsions have reduced the Jewish population of Jerusalem to 33,000, or about 40 per cent. since the beginning of the war. The British authorities have cabled that there is urgent need of a hospital unit. The women's Zionist organization in this country is planning to send one.

Meningitis Closes Schools.—The Board of Health of Columbia, S. C., has closed the public schools, churches, and other public gathering places, in an effort to prevent the spread of cerebrospinal meningitis, of which fifteen cases have been reported in the city.

Anthrax Patient Cured.—William Mathews, the New Brighton, S. I., man who was admitted to Bellevue Hospital on January 27 suffering from anthrax, has been discharged cured. Out of nine cases of anthrax that have come to Bellevue Hospital in the past two years this is the second cure.

A Vote of Thanks to Publishers.—At the meeting of the New York Academy of Medicine, held February 7, 1918, to show its high appreciation of gifts to the library by William Wood & Co. and D. Appleton & Co. of New York, and W. B. Sanders Co. of Philadelphia, the Academy passed unanimously a vote of thanks to those publishers.

The Bankers' and Brokers' Auxiliary of the United Hospital Fund of New York announces subscriptions to that fund amounting to \$31,331.

Gifts to Columbia University.—At a recent meeting of the trustees of Columbia University announcement was made of a gift of \$3,000 from an anonymous donor for research work in war problems and a gift of \$5,000 from Clarence MacKay for surgical research work.

The National Committee for Mental Hygiene held its tenth annual meeting in New York City on February 6. Dr. Lewellys F. Barker, the president of the Association, emphasized the importance of the measures taken by the Medical Corps of the Army to weed out men who would collapse under the stress of battle in increasing the efficiency of the American fighting forces in Europe. Dr. Frankwood E. Williams made the statement that the army cantonments have better facilities for the care and treatment of soldiers suffering from nervous and mental diseases than any city of 40,000 people in the United States. He said that up to the present about 300 psychiatrists and neurologists had been commissioned as officers of the Medical Reserve Corps, and were now doing duty in the various camps. The National Committee for Mental Hygiene elected the following officers: *President*, Dr. Lewellys F. Barker of Baltimore; *Vice-Presidents*, Dr. Charles W. Elliot, Dr. Walter B. James of New York, and Dr. William H. Welch of Baltimore; *Treasurer*, Mr. Bannard; *Medical Director*, Dr. Thomas W. Salmon; *Associate Medical Director*, Dr. Frankwood E. Williams.

Appointments at Columbia University.—Dr. Russell A. Hibbs of the University of Louisville has been appointed Professor of Orthopedic Surgery in the College of Physicians and Surgeons of Columbia University.

Dr. Eugene W. Caldwell of Bellevue Hospital Medical College has been appointed to the newly established Chair of Roentgenology.

Dr. Vera Danschakoff, formerly of Moscow, has been appointed assistant professor of anatomy.

Dr. I. H. Goldberger has been appointed Special Lecturer of Child Hygiene in the School for Oral Hygiene, Columbia University.

Appropriation Asked for New York Quarantine Station.—Secretary of the Treasury McAdoo has asked Congress for an appropriation of over \$1,500,000 for the purchase and operation of the New York Quarantine Station. He has requested an appropriation of \$1,395,275 for the purchase of the property from the State of New York and \$275,000 with which to operate it during 1919. In making the request for this appropriation Secretary McAdoo cites reasons why the station should be taken over by the Federal Government.

Pneumonia Deaths Continue to Increase in New York.—According to the records of the Health Department of New York there were reported for the week ending February 9, 1,772 deaths for the Greater City, of which 355 were due to pneumonia, as against 1,736 for the preceding week, of which 325 were due to pneumonia.

Brooklyn Hospital Appeals for Funds.—According to a statement recently issued by the president of the Jewish Hospital, Brooklyn, the expenses of that institution for the past year have exceeded

those of previous years by \$53,000. Thus far the expenses of the institution have been met by the directorate, but the burden has now become so heavy that it has become necessary to make an outside appeal. The Jewish Hospital last year treated 6,289 patients, an increase of 840 over the previous year.

Reorganization of State Board of Charities.—There is a bill before the New York Legislature providing for a reorganization of the State Board of Charities. Instead of an unpaid board of twelve members appointed by the governor from the districts of the State the bill provides for a board of nine members, of which at least one must be a woman and three of whom are to be paid. Under the proposed plan the members are to be appointed by the governor from the State at large and are to possess special qualifications specified by law. The three paid members are the president and the chairmen of the two new bureaus within the board, the Bureau of Mental Deficiency and the Bureau of Dependent Children. Those requiring special qualifications are an educational specialist, a specialist in tuberculosis and one in psychiatry, a general practitioner and a lawyer.

Plan for Fighting Tuberculosis in New York State.—The *Bulletin* of the New York State Department of Health for January shows that progress is being made in complying with the laws of 1917 which made mandatory the erection of a tuberculosis hospital in every county having a population of over 35,000. This law has affected twenty counties in all, of which the department has inspected sites, with the exception of Sullivan and Washington, which counties have appointed site committees. Sites have been approved in eleven counties and are being prepared for consideration in six others. The Tuberculosis Committee appointed by the Health Commissioner in July, 1917, has adopted a state-wide program for the following year, the main features of which are: The establishment of adequate tuberculosis hospital provision for each county in the State on the approximate basis of one bed for each average annual death in such county; the inspection of local tuberculosis hospitals during the year 1918, and the promotion of the adoption by them of the recommendations made subsequent to this department's survey in 1914-1915; the formulation of plans for the development of the county tuberculosis hospitals as the campaign center in each county; cooperation with the superintendent of Ray Brook in the establishment of a course of instruction for hospital superintendents; systematic efforts to secure the attendance of all local tuberculosis hospital superintendents at the Ray Brook courses of instruction; promotion of a systematic plan for the protection of children from tuberculosis infection, and, as an alternative to dispensaries, the establishment of out-patients' service and physicians' clinics to be conducted by the county hospital superintendents in cooperation with health officers. The program also includes a widened range of activities for nurses and health officers in anti-tuberculosis work.

Medical Society Elections.—THE PARK REGION DISTRICT AND COUNTY MEDICAL SOCIETY held its annual meeting at Fergus Falls, Minn., on January 13, at which time the following officers were

elected: *President*, Dr. A. Kessler of Battle Lake; *First Vice-President*, Dr. P. Boyeson of Pelican Rapids; *Second Vice-President*, Dr. W. L. Patterson; *Treasurer*, Dr. C. O. Estram of Fergus Falls.

THE MCCrackEN COUNTY MEDICAL SOCIETY, at its annual meeting in Paducah, Ky., on January 11, elected the following officers: *President*, Dr. H. P. Linn of Paducah; *Vice-President*, Dr. V. L. Powell; *Secretary-Treasurer*, Dr. H. P. Sights; *Censor*, Dr. J. Q. Taylor.

THE CASE COUNTY MEDICAL SOCIETY, at its annual meeting in Fargo, N. D., recently, elected the following officers: *President*, Dr. John Rindlaub; *Secretary-Treasurer*, Dr. C. N. Callander.

Obituary Notes.—Dr. GEORGE W. WESSELLIUS, a graduate of the Detroit Medical College, in 1886, died suddenly at his home in Grand Rapids, Mich., on January 7, aged 69 years.

Dr. JOHN W. RAWLS, First Lieutenant in the United States Medical Reserve Corps, a graduate of Tulane University, in 1900, died recently of tuberculosis at his home in Dallas, Texas, aged 40 years.

Dr. MARION G. CHANCEY of Tampa, Fla., a graduate of the Medical University of the South, Sewanee, Tenn., in 1903, died of tuberculosis at the home of relatives, in Pierra County, Georgia, on January 11, aged 40 years.

Dr. MAXWELL GOLDMAN, a graduate of the Boston University School of Medicine, in 1913, died at his home in Boston, after a long illness, on January 14.

Dr. ROYAL HATCH, a graduate of Harvard Medical School in 1904, and chairman of the Wellesley Board of Health, died after a brief illness at his home in Wellesley, Mass., on December 29, aged 39 years.

Dr. WILLIAM E. IRWIN, a graduate of Vanderbilt University Medical Department, Louisville, Ky., in 1878, died suddenly of heart disease at his home in Owensboro, Ky., on December 28, aged 62 years.

Dr. CHARLES H. PRINDLE of Chicopee, Mass., a graduate of the University of Vermont Medical College, in 1885, died of pneumonia on January 21, aged 62 years.

Dr. ALBERT H. VARNEY of Exeter, N. H., died at his home in that city on January 16, at the age of 81 years. He was graduated from the Harvard Medical School in 1857. He was for three years assistant surgeon in the Second New Hampshire Regiment, and was elected to the State Legislature in 1871.

Dr. FRANK WEBSTER THOMAS, a graduate of the Eclectic Medical College, Cincinnati, in 1880, died at his home in Claremont, Cal., on January 11, aged 65 years.

Dr. FREDERICK POWERS of Westport, Conn., a graduate of the College of Physicians and Surgeons, New York, in 1870, died suddenly on January 11, at the age of 75 years.

Dr. HUBERT ANTON SUMPMANN, a graduate of the Chicago Homeopathic Medical College, in 1890, died, after a long illness, at his home in Dubuque, Iowa, on January 9, aged 54 years.

Dr. EDWARD DYER ELLIS of Poultney, Vt., a graduate of Harvard Medical School, in 1877, died at his home on January 26, aged 66 years.

Dr. WILLIAM NELSON HAMMOND died at Philadelphia on January 22, at the age of 44 years. He was graduated from the Atlantic Medical College of Baltimore in 1896, and he was associate professor

of surgery in Hahnemann Medical College and Hospital. He was a Fellow of the American Academy of Surgery.

Dr. MONTROSE GRAHAM TULL died at Philadelphia on January 25, at the age of 55 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1885.

Dr. JAMES WILSON WALK died at Philadelphia on January 19, at the age of 64 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1878. He was in 1892 director of the Philadelphia Board of Charities and Correction, and in 1897 director of the Bureau of Health.

Dr. PETER ANDERSON of New York, a graduate of the Toronto School of Medicine in 1903, died of tuberculosis at the Kingston Avenue Hospital, Brooklyn, on January 30, aged 39 years.

Dr. JOHN A. GORDON, the oldest physician of Quincy, Mass., died after a long illness, on January 25, aged 75 years. He was graduated from Harvard Medical School, in 1869, and was one of the founders of the Quincy City Hospital. He was at one time town physician and chairman of the Board of Health of Quincy.

Correspondence.

SANATORIA FOR DRUG ADDICTS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Some of the newspapers containing reports of my testimony before the Whitney (Senate) Drug Addiction Committee published distorted and absolutely incorrect accounts. I did not contradict them because of my repugnance to newspaper publicity and because I knew that my colleagues would not credit me with such views. Finding however that lies travel much farther than the truth, as I discovered in repeated reiteration of the false report in newspapers outside of the city. I have written the following letter to Senator Whitney, which explains my views:

"My Dear Senator—I want to ask you to help me set myself straight in the following. From the inclosed clipping you will see that I am reported as approving private addict sanatoria as philanthropic institutions. The fact is quite the contrary. I believe they are conducted as all other business enterprises, for profit. . . . My testimony on this point was to meet the absurd and untrue statement of the addict doctor who preceded me that doctors know nothing about drug addiction and that medical ethics are a manifestation of narrowness. I testified that medical ethics were only a code of politeness and that they were more for the protection of the patient than the doctor.

"Nor did I say that my method was the best. The fact is that I have no method, and told your committee that I had no personal experience to offer for comparative results. I only mentioned the water treatment of other diseases to illustrate that, being regarded as an enthusiast on this treatment, my judgment may be warped, and this may be true of those who had specific addict treatment.

"You would do me a great favor to send me a transcript of my testimony as taken down by your official reporter," etc.

I wrote Senator Whitney that Dr. Dana's article in the last number of the MEDICAL RECORD is in every respect exactly like my own testimony given a month previously, and suggested that he obtain it. He wrote me that he would do so.

SIMON BARUCH, M.D.

NEW YORK, February 7, 1918.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 31, 1918.

1. Mental Conditions Disqualifying for Military Service. L. Vernon Briggs.
2. Vaginal Discharge in Children; Study of 255 Selected Cases, with Special Reference to the Question of the Diagnostic and Specific Value of Smear Examinations. I. C. Rubin.
3. The Primary Lesion of Tuberculosis: Its Significance, Diagnosis and Treatment. William W. Howell.
4. Lipoids in 131 Diabetic Bloods. Horace Gray.

2. Vaginal Discharge in Children; Study of 255 Selected Cases, with Special Reference to the Question of the Diagnostic and Specific Value of Smear Examinations.—I. C. Rubin has found that of all the cases seen, from the clinical side, the very smallest number were truly gonorrheal, resembling the disease as met with in the adult. A definite history of contact infection, as by pervers (the infectionist theory of Pollock) or through attempts of rape, was obtained in only one case. In two others there was definitely the evidence of a ruptured hymen without such a history of assault. In the vast majority of cases the complications and sequelae of gonorrhea were entirely lacking. The absence of gonorrheal ophthalmia, of urethritis, of joint symptoms and of peritoneal symptoms, in spite of the apparent chronicity of the discharge, certainly makes one reflect that this condition in children is at least different from the gonorrhea of adults. It certainly does not have the virulence nor the tendency to cause metastatic foci as it does in the adult. In this connection Louise Pearce's work on the comparison of adult and infant types of gonococci is both suggestive and significant. She found in working with strains of gonococci from adults and strains from children that, both in agglutination and complement-fixation experiments, these strains differed so uniformly that they could be distinguished as two distinct types corresponding to the clinical source of the strains. Her experimental material was derived from 6 cases of vaginitis in children, 3 cases of gonorrheal ophthalmia (a) neonatorum; (b) girl 18 years with vaginitis; and (c) boy 15 years with urethritis; and finally 8 cases of gonorrhea in adults. It is of the greatest significance to note that the strains of gonococci isolated from the three cases of ophthalmia are classed by Pearce with the adult type. In the cases which had come under Rubin's observation there was not a single instance of ophthalmia. Rubin considers that if the disease were really as prevalent as we have been led to suppose, we ought to see more dangerous sequelae later on in life. We ought to see more pyosalpinx and pelvic peritonitis in young girls. We know, however, that practically in every instance where such condition obtains in a young girl of 14 years and upward there is always a definite history of recent exposure, with all other signs and symptoms of a gonorrheal infection. That a true gonorrheal infection does occur in children cannot be denied; there have been enough reports where the gonococcus of Neisser was recovered from metastatic foci in the body joints, eyes, etc., associating a gonorrheal vaginitis. The actual incidence of the latter in children is probably very small. Rubin's clinical experience coincides with that of V. Pirquet and V. Reuss, for example, who stated that they see in their very large clinical material only 5 or 6 cases yearly. If the majority of children having vaginal discharge are infected with the gonococcus, it must in all probability be a different microorganism from that described by Neisser as occurring in adults. Whether it is some other organism, however, can be established only by proper bacteriological and serological tests. Thus the well-recognized infectious vaginal catarrh which spreads through hospital

wards may have some other bacteriological etiology than the gonococcus. Some other method of diagnostic control than that offered by smear examination must be available if we are to treat it intelligently and scientifically. He has found not only the greatest discrepancy between the clinical picture and the smear report, but in a series where two different bacteriologists made the examination there was the greatest contradiction in their reports on the same material examined. The bacteriologists were of unquestioned reputation, with the best facilities for bacteriological examination. While this difference of opinion is possible in any other laboratory test, in this work it adds considerably to the other difficulties in coping with the vaginitis problem. From his experience with these cases he is led to the following conclusion: To establish the diagnosis of *gonorrheal vaginitis* in children and infants, it is necessary to have: (1) A purulent discharge from the vagina. (2) The intracellular Gram-negative diplococcus of Neisser must be discovered in the pus cells (smears and cultures are facilitated by the endoscope). (3) This organism must further be grown on suitable culture media and properly identified as the gonococcus. (4) In case of doubt, complement-fixation tests and agglutination tests should also be resorted to. In the absence of these tests we are not justified in considering any vaginal discharge in children as gonorrheal, nor are we justified in treating it as such. *The smear examination, even by the Gram stain of secretion or discharge from the vagina, is unreliable and misleading, and hence valueless as a method of diagnosis.* The desideratum in the problem of vaginitis among children, therefore, is more complete and scientific bacteriological study, including animal inoculation.

New York Medical Journal.

February 2, 1918.

1. The Present Status of the Carrel System in the Treatment of Wounds of War. Frank Le Moyné Hupp.
2. The Psychological, Physiological, and Pharmacological Basis of Nicotinism, Alcoholism, and Morphinism. James L. Tracy.
3. Postoperative Tetanus. Moses Behrend.
4. Nonsurgical Treatment of Cancer. Albert C. Geyser.
5. An Analysis of Seven Cases of Friedreich's Ataxia. Michael Osnato.
6. Active Immunization Against Diphtheria. Julius Blum.

2. The Psychological, Physiological, and Pharmacological Basis of Nicotinism, Alcoholism and Morphinism.—James L. Tracy points out that mankind does not come up out of the past without struggles. Not all of heredity is progressive, nor is it altogether retrogressive. There is more progression, but of course some backward pull of an ignoble past. Progressive inheritance translates the stresses of life into terms of inspiration for harder work, while retrogressive instincts demand relief from the normal stimuli to better and more persistent work. This demand is the pull of barbaric contentment. This inheritance weakness fails to see that the stresses of life, when rightly made use of, are the only agencies that are beneficently and with unchanging aim bringing humanity from lower to higher levels of civilization's attainments. This instinct prompts mankind to seek freedom from care in some narcosis. The hereditary weakness, the ancestral degeneracy yearning for a sense of freedom from care, is everywhere more male than female. It is the instinctive looking back of a courageless mentality to the scenes and place and time of some lower plane of living. Out of this weakness grow all forms of superstitious beliefs and practices. The loss to humanity from the cutting out through narcosis of the inspiration from full appreciation of the meaning of life's realities is incalculably great. It is impossible to think of courage or of cowardice without thinking about the nerve cell—the degenerative nerve cell. The riddle of psychophysiology is to tell which came over in heredity, the cowardly thought or the verveless nerve cell. Not all of the powers of the inherited nerve cell are cowardly, but no really courageous nerve cell ever asked for narcosis. Tracy deals with the hereditarily craved and invited narcosis, and not with the man behind the narcosis. He deals with the impulses of a sickly nerve cell combining with a feeble will power to form a mind. It is a mind and neuron staying in the evolutionary game, but which choose while fighting to be rendered oblivious

to surroundings. They prefer to work as in a treadmill. They are still conscious of the persistence of life's facts. They know that as soon as the narcosis passes off, the facts will reappear to again trouble them. This accounts for the bitter fight that the beguiled will and the soothed nerve cell put up against interference with their comfort. No study in the realm of scientific medicine is of more practical importance than is the study of the hereditary degeneracy that underlies the universal dread of meeting the so-called ills to which flesh is heir. This dread of reality in some people tries to hide behind the ecstatic state of mind that denies the existence of disease. Of the three principal narcotics used in this country, nicotine for several reasons leads in popularity. It most quickly satisfies the longings of the storm-tossed mental and inept neuron. Nicotine exalts the ego. The medical matter involved is that the end results of nicotine narcosis are never as good as the nonnarcotized man would have been capable of. Alcohol is the second on the list of the three narcotics. Alcohol may almost be said to be the first thought of degeneracy weakness. It has the psychical handicap that its narcosis carries with it some degree of shame for having used alcohol. The ego feels humiliated. Alcohol supplies a felt want in all classes of people. The narcosis is of the same neuron in all grades of mentality, but necessarily the intoxication is at different intellectual levels. The one common desire in all users of alcohol is to be made oblivious to the distressing things of life. The apotheotic aspect of alcoholic intoxication makes for unpopularity. Morphine narcosis is one of the most cowardly of intoxications. Morphine caters to the death part of the nerve cell. Public opinion prefers life to death and condemns morphinism because it slinks and cowers. Tracy submits the following propositions: The general open public use of some form of narcotic is a matter that demands serious medical consideration. The use of narcotics has its origin in the retrogressive cowardly instincts that are ever coming up with man out of the past. The other basis for the public use of any narcotic is in the voice of public opinion. The public use of narcotics represents the intelligence and moral level of public opinion, but the commendation or condemnation of a narcotic by public opinion does not in the least affect the workings of physiological laws.

Journal of the American Medical Association.

February 2, 1918.

1. The Value of the Wassermann Reaction, as Indicated by Postmortem Investigation in Three Hundred and Thirty-one Cases at Bellevue Hospital. Douglas Symmers and Charles G. Darlington, with the Collaboration to Helen Bittman.
2. The Diagnosis of Infarction of the Entire Spleen. Frank Nuzum.
3. Excretion of Ingested Purins in Chronic Gout: A Study of Two Cases. Jacob Rosenbloom.
4. Heart Block and Congenital Heart Disease in Childhood. Murray H. Bass.
5. Syphilis as a Cause of Stillbirths: Analysis of Forty-eight Stillbirths Occurring in Fifteen Hundred Obstetric Cases at the University of Michigan Maternity Hospital. R. A. Bartholomew.
6. Commitment to Psychopathic Hospital as Related to Question of Personal Liberty: Advantages of a Proposed Law for Detention Instead of the Present Law for Commitment. Richard Dewey.
7. Treatment of Nontuberculous Lung Abscess with Pneumothorax: Report of Ten Cases. W. D. Tewksbury.
8. Hemorrhage Into an Ovarian Cyst Simulating Ectopic Pregnancy. Chester H. Waters.
9. The Place of Intrasplinal Therapy in Urology. Ernest M. Watson.
5. Syphilis as a Cause of Stillbirths: Analysis of Forty-eight Stillbirths Occurring in Fifteen Hundred Obstetric Cases at the University of Michigan Maternity Hospital.—R. A. Bartholomew first defines the term stillbirth as the birth of a child which has reached the stage of viability, at the twenty-seventh or twenty-eighth week, but in which cardiac action ceased during or before birth. The number of stillbirths in this series is 32 per thousand, which falls within the limits found for New York City, where the number varies from 30.3 to 59.2 per thousand. Out of 1,867 stillbirths reported in Manhattan in a period of seven months, 1,331, or 71 per cent., occurred during the period from the seventh month on. Theoretically, these children would

have had a chance to be born alive, had the mother received proper prenatal and natal care. The great majority of the patients admitted to the maternity hospital are illegitimately pregnant, and hence come to the hospital at about the seventh month, as a rule, when it becomes difficult to conceal their condition any longer. Each case receives an examination and a Wassermann test, and if syphilis is indicated a more careful examination is made and treatment instituted. Out of the forty-eight cases of stillbirth, twenty-one infants were born in a macerated condition. In sixteen of these twenty-one cases, a necropsy was performed and showed congenital syphilis in nine cases, or 56.25 per cent. Of the other seven negative cases, two were so badly decomposed that no diagnosis could be made, but it is strongly probable that one or both were syphilitic. It has long been recognized that from 60 to 80 per cent. of stillborn macerated babies are syphilitic. Hence, the good effects of all measures tending to reduce the frequency of syphilis, which has been estimated at at least 10 per cent. of the population, will be seen at once in a reduction of stillbirths. Syphilis complicating pregnancy will be diagnosed more frequently if the Wassermann test is made more universally available. The problem of greatest interest and importance is that of prevention. He has discussed the factor of syphilis in some detail because of the fact that this disease alone accounts for fully one-third of the cases of stillbirth and is by far the largest single factor. Bartholomew concludes from his thorough study that there is need for the adoption of a uniform definition of stillbirth and of compulsory reporting of stillbirths, in order that statistics on this important cause of infant mortality may be improved. Syphilis is the causative factor in at least one-third of the stillbirths from the time of viability to full term, and a Wassermann reaction is strongly indicated in cases in which there have been suggestive clinical symptoms, unexplained abortions, or premature labors with macerated babies. A combination of mercury and salvarsan is more effective in assuring the birth of a healthy infant than salvarsan alone. Important confirmative evidence in the diagnosis of syphilis can be obtained from microscopic examination of the placenta, or in case of stillbirth, from examination of the fetal liver by the Levaditi method. More efficient and practical training in obstetrics, and safer surroundings for the patient during confinement will prevent some of the stillbirths resulting from other complications of pregnancy and obstetric emergencies. But there will always remain a considerable number of stillbirths from unavoidable causes.

The Lancet.

January 12, 1918.

1. Valedictory Presidential Address on Antenatal Syphilis. Suggested Action of the Chorionic Ferments. Amand J. Routh.
2. Heart Failure and Pregnancy. James Mackenzie.
3. Some Points in the Diagnosis and Treatment of Dysentery Occurring in the British Salonika Force. Duncan Graham.
4. Wounds of the Chest as Seen at an Advanced Operating Center. W. A. Rees and Gerald S. Hughes.
5. John Coakley Lettsom and the Foundation of the Medical Society. St. Clair Thomson.

2. Heart Failure and Pregnancy.—James Mackenzie points out that heart failure is essentially a question of myocardial efficiency. He describes the force possessed by the heart as of two kinds, a force which maintains the circulation when the body is at rest—the rest force; and a force called into play when effort is made—the reserve force. Heart failure begins by the diminution of the reserve force, and is made manifest by a limitation of the power of the heart to respond to effort. All failing hearts show a limitation of the field of cardiac response—the first sign being the patient's consciousness that certain efforts which he used to make with ease now give rise to distress. But healthy hearts may show these signs when there is the added burden of pregnancy, for the condition then resembles an individual undertaking an effort with an impaired heart. Many healthy hearts burdened by pregnancy show distinct signs of inefficiency, and yet there is no danger. The notion that the left ventricle hypertro-

phies to meet the burden of pregnancy is not based upon trustworthy evidence. What does happen in every healthy woman is a limitation of the heart's power to respond to effort—a diminution of the reserve force, greater in some cases than in others. A careful investigation which Mackenzie carried out in 100 women before pregnancy, during pregnancy, during confinement and the puerperium, showed no evidence of that hypertrophy which is supposed to meet the increased demands, for the increased demands were only met by calling upon the reserve force. As the growth of the abdominal tumor proceeded the diaphragm was pushed up, the sides of the chest widened, and the heart was displaced upward and to the left, so that the apex beat was frequently felt in the fourth interspace outside the nipple line. With the emptying of the uterus the heart's position shifted to the normal position. While the exhaustion of the reserve force gives rise to the same symptoms whether it is a healthy heart overburdened or a heart failing from disease, it is the extent to which the signs of cardiac inefficiency go and the progress of the failure which serve as a guide. The most striking phenomena of the progress of heart failure are the onset of dropsy, breathlessness gradually increasing till the patient has to sit up, edema of the lungs, and persistent increase of rate or violent beating of the heart on exertion. In regard to dropsy there is this to be remembered, that it frequently occurs in pregnancy from other causes than heart failure—in kidney affections and from pressure of the uterus upon the abdominal veins. When it is present it must not of itself be taken as an indication of a failing heart, but only when there are present the other symptoms of heart failure. It is unnecessary to insist upon orthopnea. When this stage is reached in heart failure the sooner premature labor is induced the better. Edema of the lungs is probably the most reliable guide. When carrying out his investigations it was his custom to begin the examination of the patient by finding out on which side she lay, and then get her to sit up, and auscultate the base of the lung on that side. In many healthy women he found during the later stages of pregnancy that the first deep inspiration was accompanied by numerous crepitations, and that the inspiration dispelled them, so that they were not heard after. In cases that did badly these crepitations did not disappear, but tended to persist, so that their continual presence, coupled with an impaired percussion note, is such a grave sign as to indicate the need for terminating the pregnancy. Termination of the pregnancy is indicated in mitral stenosis when edema of the lungs persists in spite of sitting up in bed or when the heart-rate is persistently over 100 with violent palpitation on the slightest effort. The dangers in aortic regurgitation are so great and yet so difficult to anticipate that he would recommend the termination of pregnancy in all cases when the woman has a "Corrigan" pulse, and when there is a distinct forcible apex-beat outside the nipple line.

British Medical Journal.

January 12, 1918.

1. An Address on the Orthopedic Outlook in Military Surgery. Robert Jones.
2. On the Separate Suture of Nerves in Nerve Trunks. J. N. Langley.
3. Antenatal Syphilis: Suggested Action of the Chorionic Ferments. Amand J. Routh.
4. The Course of Instruction in Venereal Diseases. David Watson.
5. Suggestions towards a Systematic Operative Treatment of Gunshot Wounds of the Mandible. Wilfred Trotter.
6. Solvents for Dichloramine-T. H. D. Dakin and E. K. Dunham.
7. A Skin Ink for Radiography. N. S. Finzi.
8. Drainage v. Scraping in the Operation of Curettage of the Uterus. G. S. Thompson.

3. Antenatal Syphilis: Suggested Action of the Chorionic Ferments.—Amand J. Routh points out that under the action of salvarsan, etc., as well as spontaneously, the mature spirochetal spiral becomes broken up transversely into granules, and that in a suitable environment these granules are capable of development into the mature organism after a short or long period of biological activity. Infection by the granules in congenital syphilis can apparently occur during pregnancy, and if the granules are kept quiescent it is prob-

able that the infected individual (mother or child) would give a negative Wassermann reaction after the birth so long as mature spirochetes were absent. If congenital syphilis is to be checked before the embryo is destroyed it must be dealt with locally at its source, and from the very first days after fertilization and infection. It seems obvious that the embryonic tissues could not during the first hours or days produce antibodies which could destroy spirochetes. Routh suggests that the trophoblastic chorionic ferments produced by the syncytial cells of the fetal chorionic villi are not only able to break up the infective spirochetes into granules, but can, by their continued action, keep the granules quiescent and powerless to develop into the mature organism till after pregnancy, when the ferments soon cease to be present. The biological activity of the granules, unless restrained by other substances, would then be resumed, and mature spirochetes would be developed. He proposed explanations of the four following problems, founded on the spirillolytic action of the chorionic ferments: (1) Why may a pregnant woman who in due course either has a stillborn or a living syphilitic child have a negative Wassermann reaction during pregnancy and for some time afterward? (2) Why are some syphilitic children negative at birth and for some weeks afterward? (3) Why are spirochetes so rarely found in abortions, even though alternating between stillbirths, in the tissues of which they are swarming? (4) How do these suggestions of the spirillolytic action of the chorionic ferments help to explain the truth of the original words of "Colles's law"? His conclusions were as follows: (1) The "granules" are the result of the "spirillolysis," or breaking up of the *Spirocheta pallida*. (2) The "granules" are infecting agents, being in fact spirochetes in the granule stage. They are able to develop into the mature spirochete in a suitable environment, or may become biologically inactive and remain latent for short or long periods. (3) Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and to open up maternal blood vessels, so that the ovum may find for itself a resting place with nutritive blood spaces round it. As a result of the destructive action of the ferments upon the maternal tissues, so-called syncytiotoxins are formed, but appear to be at once neutralized by so-called syncytiolysins. If not thus neutralized, maternal and fetal toxemia may occur. (4) The chorionic ferments (or their derivatives) are suggested as being capable of exercising their destructive properties upon the *Spirocheta pallida*, which may either be in the maternal intervillous, or fetal intravillous tissues, both of which are in intimate relations with the syncytial cells of the villi whence the ferments arise. (5) This destructive action of the chorionic ferments upon the spirochete breaks it up into granules. (6) He further suggests that during pregnancy it is the continued action of the chorionic ferments upon the granules which may render them latent and biologically inactive, and perhaps in a few cases may destroy them. (7) After the pregnancy, when the chorionic ferments cease to be present in the tissues of the mother and child, the granules, wherever they may be, may develop into mature spirochetes. (8) The success or failure of the chorionic ferments to protect the mother and child from spirochetal infection would depend upon (a) the virulence of the infection, which tends to diminish, owing to the presence of more maternal antibodies, with each successive pregnancy; and (b) upon the source of the infection. Infection is probably most difficult to arrest in a "mixed transmission," or in a true maternal infection, where attempts at infection of the embryo would be constantly proceeding throughout the pregnancy. It is probably least severe, and most easily countered by the ferments, when the primary infection is paternal, for it may then be a single infection only, and probably not capable of repetition if the primary infection be arrested. 9. The Wassermann reaction in mother and child appears to be negative if infection has been only by spirochetes in the granule stage, so long as the granules remain biologically inactive and the mature organisms are absent.

Berliner klinische Wochenschrift.

November 19, 1917.

The Technique of the Open Treatment of Wounds.—H. Marx describes his procedure for continued moistening of wounds. The wounds are simply covered by a gauze dressing and a band of flannel, deprived of all trace of grease, is folded in several layers over the gauze and dips into a jar containing the liquid, hung above the bed. The solution employed by Marx is a hypertonic solution of NaCl, which he prefers to Dakin's formula. The advantages of the treatment are the comfort derived by the patient, the absence of scab formation over the wound surface, and stimulation of the secretions without causing any tissue change or destruction. Any fear of hemorrhage occurring contraindicates the use of this procedure.

War Experiences with Malaria.—F. Munk describes how malarial patients are treated in barracks with automatically closing doors. There is an antechamber of from 2 to 3 meters broad, so that both doors are never open at the same time. The antechamber is freed from all mosquitoes every day when any are to be found. Since adopting these measures (the windows are also screened with wire nets) the writer has never observed a case of the disease contracted in the hospital. Besides these measures, the patients are not allowed to go out in the evening, and no patient is discharged until all parasites have disappeared from the blood. The writer is of the opinion that the concentration of malarial patients in special hospitals is more effective in results than when they are allowed to mingle promiscuously with other patients. The tertian type is the most common form encountered. As to foci of contagion, swampy land leads the van. Next in frequency are agglomerations of men, undoubtedly because there are many germ carriers among them. The majority of cases observed by Marx offered their maximum of frequency during the months of May and September.

Münchener medizinische Wochenschrift.

November 20, 1917.

Recurring Puerperal Anemia, Followed by Osteomalacia, Considered as Endocrine Disturbances.—Naegli considers chlorosis as an affection pertaining to the domain of the endocrine system. Its exclusive development in the female and its eclosion at the time of puberty are certainly reasons of considerable weight in respect to this theory. In order to uphold this line of reasoning, Naegli reports the case of a woman who, at each pregnancy, presented an anemia gravis, quite independent from any considerable loss of blood, and at the same time presenting the phenomena of osteomalacia. Naegli places the seat of the disease in the bone marrow, the determining factor being an excessive functioning of the sexual glands. Besides the hematological and pathological arguments put forward the writer also invokes the favorable action of castration, the exhibition of adrenalin and products of the hypophysis. In the case reported Naegli looks upon the process as an exhaustion of the bone marrow following upon a period of hyperplasia.

The Ultimate Results of Wounds of the Nerves, Particularly from the Standpoint of Operative Interference.—A. Stoffel has had the opportunity of studying various treatments of nerve injuries. His total of 158 cases is shown in the following table: (1) Various injuries, 12 cases; (2) Psychogenous paralyses, 41 cases; (3) Injuries, not operated on and no regeneration, 28 cases; (4) Injuries not operated on followed by spontaneous regeneration, 16 cases; (5) Injuries operated on unsuccessfully, 28 cases; (6) Injuries operated on successfully, 33 cases. In the fortunate cases the successful result was always slow in making its appearance (5 months to 2 years), a fact which probably explains the skepticism of some surgeons as to ultimate results, because they were unable to follow their cases for a sufficiently long time after the interference. The nerve trunks most prone to undergo regeneration are given in the following order: Radial nerve, 28 operations, 19 successes; median nerve, 9 operations, 5 successes; ulnar nerve, 8 operations, 3 successes; peroneal nerve, 8 operations, 1 success; sciatic nerve, 7

operations, 4 successes; musculocutaneous, 1 operation, 1 success. The total results is therefore 33 successful results out of 61 operations, consequently 54 per cent., and of these suture gave 57.1 per cent., and neurolyses 69.2 per cent., while the operative results from plastic operations were nil.

Deutsche medizinische Wochenschrift.

November 22, 1917.

Death from Salvarsan.—M. Dissauer, although appreciating the fact that it is always difficult to prove that death is the result of salvarsan treatment, a fact which has undoubtedly greatly prevented the published data, records a case in which this mechanism must be admitted. In a patient undergoing a mixed treatment with Hg. and salvarsan, the second injection of the latter drug gave rise, after the lapse of forty-eight hours, to general nervous phenomena ending in death in twenty-four hours. At autopsy several hemorrhagic foci were found in the brain, one the size of a plum being situated in the central nuclei. Such accidents are due to a susceptibility peculiar to the patient, and should not be the means of causing rejection of salvarsan treatment, any more so than instances of individual intolerance for other medications noted in certain other morbid processes.

Muscular Plastic Operations in Amputation Stumps from the Viewpoint of Prothesis.—I. F. S. Esser, quite in opposition to Sauerbrück, does not believe that it is ever indicated to shorten the bone in unsatisfactory stumps. On the contrary, the bone ends, covered by the skin, should extend below the muscles in order to allow fixation of the prothesis, thus leaving the joints situated above, their full play. The muscles should be separated into more numerous bundles than is ordinarily done, so as to tunnel each part of the stump in order to form a more evenly distributed padding over the point of application of the prothesis. The tunneling may be accomplished by making Thiersch's flaps, or yet by forming longitudinal muscular flaps which remain connected with the skin flaps of the stump, and this is Esser's method. A detailed description of the technique is given, after which Esser makes a long plea for conservative surgery in wounds of warfare.

Wiener medizinische Wochenschrift.

November 24, 1917.

The Pathology of Edema Disease.—A Schiff gives some details on a disease which he claims to have been the first to describe in May, 1917 (see *Wiener medizinische Wochenschrift*, No. 22, 1917). It is a symptomatic triad consisting of edema, polyuria, and bradycardia. The edema is not related to any renal lesion, because it undergoes its evolution parallel with the diuresis, therefore both these symptoms are the effect of the same cause. A study of the disease shows its great ubiquity. It was, for that matter, mentioned during the Napoleonic wars. It is especially frequent in industrial centers, rare in the agricultural districts of Austria. The writer concludes that everything points to the supposition that edema disease is the result of denutrition. It is a cell change producing an insufficient assimilation of the alimentary chlorides. The hydremia and edema are the consequence of this interstitial chloration. The polyuria, which is nocturnal, and the great quantities of chlorides eliminated (40 to 45 grams in 24 hours) are to be explained by the same reasoning. The direct cause of the affection is rather more due to a qualitative insufficiency of alimentation than to a quantitative insufficiency. A change of diet is often alone enough to control the morbid manifestations. Finally, Schiff incriminates especially the richness in water and the high percentage of NaCl in the food, combined with the alkalinity of an excessive vegetable diet. The treatment is naturally indicated from the etiology of the affection.

The Treatment of Tuberculosis.—L. Wick demonstrates the inferiority in which Austria is placed from the standpoint of treatment of tuberculous soldiers. After offering some general considerations, the writer expresses his desire to see serotherapy more extensively employed, and above all to study it from a scientific standpoint.

La Presse Médicale.

December 20, 1917.

The Teratogenic Rôle of Factors Which Make for Abortion.—Mme. Nageotte-Wilbouchewitch contributes a valuable paper on this subject. Conditions, voluntary or involuntary, which make for abortion have been strangely neglected in the causation of monstrous births and developmental defects. Nothing is so perplexing in teratology as the chronological element. Malformations are naturally associated to a notable extent with the evolution of the embryo and fetus, and the writer considers only such as date from the embryonal period. The distinction between typical and atypical malformations is all important; and the subject can be understood only through studies of the individual cases, of which the authoress cites five. From this number we cite Case II. The parents were young, large and handsome. The offspring were two boys and a girl. The two boys "bred true" in all respects and were an honor to their parents. The girl was large and handsome, but was from early childhood an epileptic idiot. An hereditary taint could be forthwith excluded. No element could be found to explain this anomaly, save one—the mother had made persistent use of "medical" resources to provoke abortion, and the child was born in spite of these attempts. Convinced of the ill consequences, the mother allowed a fourth gestation to go on undisturbed, with the result that the fourth infant was normal. In Case IV there was congenital absence of the radius. The parents were admirably built. It was claimed that the mother, unaware of her pregnancy, had for some unknown reason received abdominal massage. The infant, a daughter, was born at term and was very vigorous. Nevertheless there was absence of the right radius, curvature of the ulna, and other anomalies of the right forearm. On the left the defective development of the forearm was much less marked. Several years later a second infant, perfectly intact, was born. Case V presented complete epispadias and luxation of the fibula. The mother, who had recently conceived without knowledge of the fact, had tried to make a railway train, with the result that she fell in a faint, breathless. This was the second child of very vigorous parents, the first child having bred true.

Correspondenz Blatt für Schweizer Aerzte.

December 15, 1917.

Maternity Tetany.—Guggisberg refers to the earliest description of tetany by Steinman in 1830. In the '80's the thyroid theory came into prominence, but was later demolished by Vassale. At present the parathyroid theory is the occasion of much debate and research. The chief argument against it is the multifold nature of tetany, no less than 8 categories of incidence having been isolated. Under maternity tetany the author includes the gestational, parturient, and nursing expressions. Only women of otherwise normal condition are included. The disease may appear during labor as well as in the puerperium and lactation period. It is often overlooked by the medical man or confused with hysteria. A geographical factor is often in evidence. Multiparæ are chiefly attacked and in the latter half of gestation. It is apt to recur in successive pregnancies and to be aggravated progressively. Labor exerts no influence on gestational tetany. The puerperal and lactation periods tend to exert an unfavorable influence. Clinically maternity tetany differs in no wise from other forms, but individual patients exhibit much variation in intensity and duration. From imperceptible to fatal attacks there are all degrees of expression. There may be a single seizure or a long series with intermissions. Aside from seizures proper there are internal symptoms which may also appear as prodromes or sequelæ. For example, there is a heightened tonus of certain muscles which interferes with finer movements. In chronic cases trophic disturbances may be in evidence in the skin, hair and nails. Here also belongs the cataract of tetany. Diagnosis is not difficult because of the availability of the induced phenomena (Chvostek, Trousseau, Schultze? Erb, Hoffmann). The influence of tetany in maternity differs widely. Now and then premature labor is determined.

As a rule the child is born in good condition, but often enough the disease appears to have been transmitted. But even after the severest maternal tetany the infant may be perfectly sound without any suggestion of latent tetany. In certain cases the disease may appear in the first few days of life. The writer upholds the parathyroid theory, but knows of no pathogenic mechanism which applies to all cases. In certain women a goiter of pregnancy causes atrophy of the parathyroids. In animals removal of the parathyroids is followed by latent tetany which becomes active during pregnancy. In at least one autopsy case of maternity tetany the parathyroids, normal to the naked eye, were found to be the seat of extensive changes. Tetany must be ranked as a toxicosis which in certain respects resembles ergotism and points to definite chemical substances (amino-bases). However, the evidence is far from conclusive, and the author admits that we really know nothing of the nature of the poison. It appears to be certain that tetany is not a member of the pregnancy toxicoses. The known presence of normal parathyroids in tetany must be interpreted in favor of the existence of a second, extraglandular factor concerned with abnormal calcium metabolism which appears to act as a predisposition. It is easy to understand how this factor (deficiency of calcium) could be present in gestation and afterward. The treatment of maternity tetany does not differ from that of other forms.

Is an Increase of Birth Rate Desirable for Switzerland?—Goenner bases his article on one by Knopf of New York, who claims that birth control has its peculiar advantages in that it tends to diminish infant mortality, tuberculosis, lues and constitutional inferiority. It also favors early marriage and antagonizes illegitimacy. Knopf sees no shadows in such a state of affairs. He believes in a four-child system. In Holland this *modus vivendi* has obtained for decades, and despite the falling birth rate there is much less total mortality and child mortality. Mere falling off of birth rate is not necessarily an evil. The relative superiority in man power of Germany over France may have been a matter of birth rate, but inasmuch as it led to expansion of the former people it was directly responsible for the present war, for Germany's policy became one of peripheral expansion plus colonization. The increased birth rate has therefore reacted as a greatly decreased birth rate and increased mortality. Increased birth rate has brought Germany into conflict with almost the entire civilized world, and she had sustained only up to the first of 1917 a loss of births amounting to 1,177,000, with deaths from war mortality alone of 1,157,000. Her population had decreased by over 2,000,000 purely as a result of the war. These figures are given out by the Germans and may, of course, be censored. Under the most painful conditions imaginable the German mothers are now warned to make up this deficit. This can only lead to a vicious circle. Moreover, these mothers are actually asked to bear children to carry on a second war should the present one fail of victory. But the men who have fought this war rebel at the idea of more children who have no further outlook in life than munitions making and facing cannon. The mind that can think favorably of reproduction for such ends is abnormal, diseased. The problem has hit Switzerland already, and the Swiss women along the German frontier are shocked at the outlook. The republic is already overstocked with a population which can hardly be properly nourished. This is true now of the whole of Europe save Russia. In some Swiss cities the foreign element is outbreeding the native stock. The republic depends more and more on imports which help to feed its 700,000 aliens. Under such conditions should native women be asked to bear more children? The author is pessimistic about increasing birth rates by resolutions and recommendations. He believes in the existence of a great elemental reaction against high birth rates which is the outgrowth of rapid civilization and is essentially economical in character.

Hygiea.

November 16, 1917.

Enterocystoma.—Hansson has collected 48 cases of intestinal cysts from the literature and contributes a

personal observation. He gives a brief synopsis of the reported cases and discusses the question of pathogenesis. Studies of the embryos of seals made during the German South Polar Expedition of 1901-1903 finally determined that in the entire vertebrate division embryonal anlage of the pancreas are to be found throughout the intestine, as far down as the valves of Bauhin. The presence of cysts which protrude into the lumen of the intestine is better explained on this ground than any other. These cysts, together with those which develop from the omphalo-mesenteric duct, differ from all other forms of intra-abdominal cysts. The author's case ran the clinical course of an invagination and presented a strong resemblance to the well-known case of Sprengel in its microscopic structure. The cyst, which projected beyond the valve of Bauhin like a prepuce into the intestinal lumen, was seated between the two layers of muscle in the intestinal wall; and presented its own mucosa, which was atrophic, with villi but hardly any epithelia or glands. The cavity, which presented no communication with the intestine, was filled with cement-like substance.

Prophylactic Appendectomy Through a Hernial Sac.—Norrin reports a series of 81 cases of this form of intervention as performed by a number of Swedish surgeons. But 10 cases were in women, while the ages ran from 1 to 66 years. Over one-half were between 20 and 40 years. In 74 cases the hernia was right-sided, external inguinal, of which number 5 were incarcerated. In the majority the patients were operated on for such conditions as varicocele, hydrocele, retentio testis, hernia of the other side, etc. The operations performed were those of Bassini or Girard, and in all but a few cases primary union occurred. Sixty-six patients were discharged within 15 days' average. In all but 1 case the author noted the presence of macroscopic alterations of the appendix.

Finska Läkarsällskapets Handlingar.

September, 1917.

Unusual Indication for Cesarean Section.—Creutz of Engström's clinic reports seven cases of unusual indications for classical cesarean section. The first and second cases were in the same patient, who had a burdensome insufficiency of the public arch, fear of stretching the latter unduly and aggravating the condition led to the selection of the abdominal route. The third case was in a woman with placenta previa, who had weak pains widely spaced. The fetal heart sounds were irregular, and the head movable above the inlet. The cervix had not shortened nor was the os dilated beyond a finger's width. The membranes had not ruptured and patient's forces were already lessened. In Case IV the patient had a cardiac lesion, and total placenta previa. In Case V, in addition to pelvic stenosis, which alone would have furnished an indication, there was a strong suspicion of premature death of the fetus, verified by the results of cesarean section. Case VI occurred in a woman whose earlier gestations had terminated in death of the fetus—probably from premature detachment of the placenta. Cesarean section not only showed that the latter surmise was quite correct, but resulted in a living birth (unfortunately, the infant died on the following day). In Case VII the fetus was in a transverse position, with child still living. Cesarean section was regarded as the indication of necessity to save the child; version apparently offered no chance for its survival.

Fat Transportation in the Body.—Ehrström traces the fate of fat in the organism. It reaches the blood from the intestine, and is transported partly in the blood corpuscles and partly in the plasma. In the later it is present in solution, or as hemocones, or blood dust—in the latter state, chiefly after overconsumption of fat, or in disease (diabetes). Hemoconemia is a condition not well understood; in some sort it shows insufficiency on the part of the plasma to hold fat in solution. In health the fat content of blood is a relative constant, being slightly increased after eating fat. The red corpuscles also have their fat content somewhat increased, the corpuscular fat being transformed to lecithin. A hyperlipemia occurs *par excellence* in diabetes, but not always; more marked in severe cases, it may be absent in coma.

Book Reviews.

THE PRINCIPLES OF MENTAL HYGIENE. By WILLIAM A. WHITE, M.D. With an Introduction by SMITH ELY JELLIFFE, M.D., Ph.D. Price, \$2.00. New York: The Macmillan Company, 1917.

WHENEVER a book on psychoanalysis is placed before the thinking reading public, there accompanies it often a feeling of skepticism on the part of the reader as to the efficacy of the means offered through this channel for a solution of the same old problems which have disturbed the world for centuries. Only a small proportion of the medical profession, to say nothing of the general public, are believers in psychoanalysis. Holding the attitude "of the herd," we must all "be shown." Perhaps, in the main, this doubting attitude is a safeguard, for, as Dr. White says, no great work grows without effort; and the value of a particular movement is only increased, if it is worth while, by the amount of opposition encountered.

Mental hygiene has come to be one of the principal measures through which we may reach world betterment and eventual happiness; one of the measures toward personal understanding and hence toward personal happiness. One of its expressions is in psychoanalysis. Whether psychoanalysis is the final means in the attainment of improved mental hygiene, thus producing saner, broader social conditions and standards, is very far from being proved. It is, if anything, but one side of the broad prism of truth leading to other yet unknown means of understanding of human travail and human happiness. And all this preamble is but an introduction to a book which attempts to explain and offers a remedy by the psychoanalytic method for the social troubles of the mass of mankind which are the result of ill mental conditions. Dr. White covers the question of the criminal, the prostitute, the insane, the feeble-minded, the alcoholic, divorce, various types of the neuroses, and even the woman movement. He gives much thought to the humane treatment and understanding of the insane, criminal, and the feeble-minded. He also shows how far away we are from the goal of complete understanding of these and other abnormal conditions afflicting humans. The reader may not always agree with the author in his solutions, but, agreeing or not, he will find in this book a hopeful, broad-minded, uplifting attitude and outlook toward all of these questions which have troubled mankind so long. The book has much to offer to the men of the law, physicians, social workers, and every intelligent reader who is eager for a better understanding of the problems of life in their human aspect, and with a desire to improve social conditions by an improvement of the individual. "Each individual would need individual treatment—the principle for which this book stands."

RECOLLECTIONS OF A NEW YORK SURGEON. By ARPAD G. GERSTER, M.D. Price, \$3.50. New York: Paul B. Hoeber, 1917.

THIS book deserves reading by far more than the author's very large circle of friends and acquaintances, although to these, of course, it will especially appeal. It is essentially an autobiography and as such is unlikely to have the extensive circulation which it deserves on the basis of its real literary merit and the real interest which it cannot fail to excite in the reader, absolutely irrespective of whether or not he may have the good fortune to be personally acquainted with the author. Gerster's personages are real, many, like Billroth and Zorn, being of world-wide renown, and he describes real situations, real places and real peoples.

Gerster divides the book into three parts: The first, covering his life in Europe; the second, his emigration and life in this country; the third, his diversions. There is also an Appendix covering certain miscellaneous matters, including the list of his publications and the list of offices and memberships held. Finally, there is an exceptionally good index. The reader cannot fail to enjoy accompanying the author through his school and university days and noting the various points of similarity to or variance from the experiences of his own school and college life. One must admire the courage with which Gerster set out from home determined to succeed in his chosen profession in a strange

land thousands of miles away. The story of his journey and the trials and successes of his early years in this country should be inspiring to any young man who contemplates entering the medical profession. But the young man who reads this book even superficially cannot fail to recognize the fact that Gerster's ultimate success was based not alone upon fortuitous circumstances and the happy faculty of making friends who would interest themselves in his advancement, but also and fundamentally upon years of conscientious study, attention to detail, and hard and painstaking work. How many, while in the throes of building up a practice, would devote spare time for almost a year to the systematic study of Greek grammar, as did Gerster, and still bewail not being able to read Homer as fluently as Virgil? Or when in the midst of an unusually busy hospital and private practice would still find time for the serious study of music, drawing and etching? One cannot read far in this book without realizing that besides being endowed by nature with the capacity and desire for the acquisition of knowledge the author has been an indefatigable worker from youth to the present day. Hence one cannot wonder that the ambitions of early manhood have been abundantly realized, and that besides many lesser honors the author has been the recipient of the highest honor in the gift of perhaps the most expert body of surgeons in the world—the presidency of the American Surgical Association.

PRACTICE OF MEDICINE. A Manual for Students and Practitioners. By HUGHES DAYTON, M.D., Associate Attending Physician, New York Hospital; Attending Physician, Hudson Street Hospital; Formerly Instructor in Physical Diagnosis, Cornell University Medical School, New York. Third revised edition. Price, \$1.50. Philadelphia and New York: Lea & Febiger, 1917.

THIS volume can be characterized as the smallest work on the Practice of Medicine. It is the third edition of what first appeared as an "epitome." Within the compass of about 300 small pages the author has ventured to compress the "Practice of Medicine." It is true that space has been gained by the omission of diseases of the pharynx, larynx, and tonsils, as well as nervous and mental diseases; but, even so, diseases of the importance of acute poliomyelitis, syphilis, and gonorrhea cannot be properly treated in the space of one page or less. One line, or less, is devoted to the diagnosis of secondary anemia, the treatment of cardiac hypertrophy, the pathology of hydrothorax, and of acute poliomyelitis. The little that there is is so well done that it is a pity the author does not write a complete "Practice."

CONGENITAL WORD-BLINDNESS. By JAMES HINSELWOOD, M.A., M.D., F.R.F.P.S., Glasgow; Late Surgeon to the Glasgow Eye Infirmary and Lecturer on Ophthalmology in the Glasgow Western Medical School. Price, \$4. London: H. K. Lewis & Co., 1917.

THE author of this handy little book will at once be recalled as having contributed so much to the subject of aphasia before and since his book on letter-, word-, and mind-blindness in 1900. That congenital word-blindness is much more frequent than is generally supposed and has a better prognosis should be known to all physicians, especially those who examine school children, and thus many such might be saved from life-long illiteracy. Dr. Hinshelwood has presented his subject in a concise but thorough manner.

THE SURGICAL CLINICS OF CHICAGO. Volume I, Number 5, October, 1917. Octavo of 216 Pages with 84 Illustrations. Published Bi-monthly. Price per year, \$10. Philadelphia and London: W. B. Saunders Co., 1917.

THIS number contains reports of the clinics of sixteen Chicago surgeons, and the material presented is particularly varied in character. Mock's report of a case of bichloride of mercury poisoning diagnosed as, and operated on for, perforated gastric ulcer is of especial interest. Bevan's discussion of breast tumors; Harris' case of hernia of the breast; Andrews' case of hemangioma of the brain, inoperable by ordinary methods and treated by boiling water injections and the hot metal point; Carl Beck's case of elephantiasis treated by the Handley operation; and Eisendrath's discussion of the complications of appendicitis deserve especial mention.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 20, 1917.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

THE program of the evening was presented with the cooperation of the Section on Laryngology.

The Treatment of Stenosis of the Larynx and Trachea Following Diphtheria.—Dr. HENRY LOWNDES LYNAN read this paper, which he illustrated with lantern slides. He classified stenosis of the larynx following diphtheria according to its causation into four types as follows: (1) Neurotic, (2) Spasmodic, (3) Traumatic, (4) Pathological. In considering the first group he said there was a marked neurotic element which accompanied all cases of acute and chronic laryngo-tracheal stenosis. The impending fear of having an intubation tube removed or a tracheal cannula changed promoted a stage of excitement often bordering on convulsions, especially in children. The passive congestion caused by the crying or struggling of the child added to the difficulty and invariably made reintubation or recannulation necessary from glottic spasm, and subglottic and tracheal edema. At times adults suffered from this "neurotic shock" in equal proportion to that encountered in children. As it was so much easier for the child to breathe through the properly fitted intubation tube or tracheal cannula, the fright that followed, when the intake of air was to them not so easy as with the tube *in situ*, often made detubation and decannulation extremely difficult. There was apparently a vicious circle which should be considered with this "chronic neurotic fear" of impending accident. Venous passive congestion promoted subglottic edema and gradual asphyxiation, and the fear of asphyxiation kept up the ever active neurotic element. All of these conditions taken together made the final cure of the case at times an extremely discouraging problem. (2) Glottic spasm was usually the result of the wearing of an intubation tube for a long period, especially when the neck of the tube was too thick and held the vocal cords in a state of fixation or functional disuse. The wide neck intubation tube virtually acted as a splint to the intralaryngeal muscles, and as the balance of power between the opposing two sets of muscles, the adductors and abductors, was disturbed adductor spasm was the natural result. Supraglottic and arytenoid edema might or might not contribute to this rapid closure of the glottic aperture. To overcome pure spasm of the adductors an extremely narrow necked tube with a long anteroposterior lumen should be used to allow for reeducation of the posticus muscle and give the cords a chance to separate. The speaker had overcome glottic spasm in a number of cases by the use of the flat head and cut-out abductor tubes. In other cases upon whom digital intubation had been constantly performed he had been able to deceive the patient by removing the tube by direct inspection and immediately introducing a small tracheoscope or bronchoscope between the cords and then gradually removing the tracheoscope, and he was thus able to see the partial separation of the cords on inspiration. These patients who had become accustomed to the digital method of the removal of the tube were not aware of what was being done when the tube was removed by direct means and hence the neurotic element was overcome. The cut-out flat tubes should never be used when there was polypoid tissue present. Practising deception as a cure for adductor spasm with a tracheoscope was of no use in supraglottic or subglottic edema. Tracheotomy as recommended by Dr. Jackson would also overcome the spasm with gratifying results. (3) Under this heading of traumatic came the unfortunate false passages made in the larynx by the hand of the unskilled intubator. It was not infrequent when examining the larynx by direct inspection to see the hole which had been driven into the laryngeal ventricle, or a fracture of the cricoid cartilage and dislocated arytenoid, or both. The attempt at digital intubation had been made at times with such force that the end of the tube was driven

through the cartilage out into the tissues of the neck. The making of a false passage in these days of direct laryngeal intubation was inexcusable. Far less damage would be caused by a tracheotomy even when not performed in the median line than by one attempt at intubation when an effort was made to drive the tube in at all hazards. Dense cicatrices had followed laryngofissure operations for the removal of so-called bands of adhesions when the wound was allowed to granulate over an intubation tube. Another type of traumatism might result from a rapid stab tracheotomy when pieces of the trachea had been sliced off, more than one tracheal incision made, or as the result of thyrotomy and tracheotomy. Again there might be injuries as the result of tracheotomies in the autoextubation stage when there had been extensive destruction above the cannula at the cricoid level. All of these traumatic and surgical measures greatly contributed to the development and prolongation of laryngeal stenosis. (4) The entire pathology of laryngeal stenosis was laid down in the beginning with the acute diphtheritic process, the amount of laryngeal involvement as well as the amount of traumatism at intubation. Under this heading one might have hyperplastic and cicatricial types which might be supraglottic and subglottic. The hyperplastic and cicatricial types were both supraglottic and infraglottic. The supraglottic type was usually due to marked edema occurring at the base of the epiglottis and ventricular bands. After the removal of the intubation tube the edema might greatly increase and close the laryngeal orifice. This type might also be due to polypoid supraglottic connective tissue masses falling together and closing the laryngeal lumen immediately on the removal of the tube. Among other pathological types which the speaker discussed were decubitus ulcers, paralysis, perichondritis, chondritis, metaplasia, and endochondrial bone formations. When there was marked edema of the arytenoid cartilages it was best to leave the tube in place, for the arytenoids and aryepiglottic folds would close over the glottic opening and shut off attempts at respiration. When the edema was confined to the subglottic level the edema was not so rapid and the child might breathe for a short time without the tube. Polypoid masses of new connective tissue sometimes arose from the epiglottic base and ventricular bands. These masses, when not recognized by direct means, fell together as soon as the intubation tube was removed and obstructed inspiration. They were easily removed with the guillotine or punch forceps and when cauterized did not recur. Decubitus ulcers might result from the moving to and fro of the intubation tube, and when of sufficient depth involved the perichondrium and chondrium of the cricoid cartilage and soon the tube was autoextubated. If the pressure continued or larger and larger tubes were introduced to prevent autoextubation further damage might result leading to a complete necrosis and disappearance of the cricoid cartilage. The essayist said that while he was willing to admit that all tracheotomies arrested the larynx they would not arrest the formation of new connective tissue and the complete atresia of the larynx and trachea above the cannula was the inevitable result. All of the cough-up cases should be treated early with the author's bulbous tracheal noncough-up tubes, as these tubes put an absolute stop to autoextubation. They also saved much anxiety, as one could leave the patient and feel perfectly comfortable. They were far preferable to the tracheal cannula and had a tendency to keep the larynx open and to rest it at the same time. Paralysis of the motor nerves of the larynx in diphtheria seldom, if ever, occurred. In over 100 cases of all forms of multiple neuritis following diphtheria, in whom no intubation was performed, direct inspection showed no paralysis of the motor nerves. On the other hand, the superior laryngeal nerve was affected in a small percentage of cases. The result was an inability to cough out secretions which made respiration difficult and caused a damming back of the secretions in the bronchi and lungs with a consequent pneumonia or drowning in their own secretions. This was the invariable result, especially in young children. One might have a metaplasia of the thyroid and cricoid

cartilages from the long continued inflammation, resulting in new cartilage formation which extended out into the lumen of the larynx. Perichondritis or chondritis might follow decubitus or tube pressure sores caused by the retention swell of the tube in the cricoid level. Von Bokay in his work on intubation claimed that the pressure of the tube on the recurrent laryngeal nerve caused the coughing out of the tube. This, however, Van Gieson and the speaker had found to be incorrect, for the recurrent laryngeal nerves as they entered the larynx were perfectly normal histologically, and the true cause of the coughing out of the tube was the perichondritis and chondritis at the cricoid level. Perichondritis and chondritis might also involve the arytenoid cartilages and the cricoarytenoid joint and there might be fibrous, metalplastic, or bony ankylosis of this articulation, rendering the vocal processes and ventricular bands immobile. Endochondrial bone development occurred as the result of perichondritis and chondritis. The bony spurs might grow directly into the larynx, making the case extremely difficult to cure. The method of getting rid of the spurs was to cut them off, cauterize the surfaces and introduce the intubation tube into the larynx. Dr. Lynah described a rubber-covered cannula which was effective in preventing the formation of granulations and cicatrices.

Dr. JOHN ROGERS said it was a great satisfaction to hear Dr. Lynah say that practically all cases of laryngeal stenosis following diphtheria could be cured if treated along the lines that he had marked out. He had become interested in this subject some fifteen or twenty years ago and must confess that he had very few cures in the beginning of his work. He had at first tried excision of the cicatrices but found that not many cicatrices were permanently removed by this procedure, and frequently something worse developed than the condition for which he had operated. In fact, many of these cases lost a large part of the thyroid or cricoid cartilage. It was interesting to hear Dr. Lynah say that the same thing had happened in a number of his cases, and that these cartilages would regenerate and he had shown specimens demonstrating that the cartilages did reform. In the speaker's fifteen or twenty years experience with these intubated cases of laryngeal stenosis, it was interesting to follow the outcome after a number of years had passed. He had just last month received a letter from one of his earlier patients who had now reached young manhood. This former patient began his letter by thanking the speaker for what he had done for him and saying that his voice had made a nearly perfect recovery; in this case there had been a large slough of the cricoid. This young man had so far recovered his voice that he wished to study for the ministry. Another patient was a Vassar student who, since her graduation, had been teaching a subject requiring the almost constant use of her voice and she suffered no inconvenience from her former laryngeal trouble. All of these cases were handled as Dr. Lynah advised, namely, by long continued dilatation. Adults were much more difficult to manage than children, and adults with intubation for chronic stenosis were more liable than children to develop pneumonia. Dr. Rogers said that quite early in his experience with these cases he was impressed with the danger of autoextubation, and to escape this complication he devised a so-called "plugged tube". It was an instrument with a right-angled attachment, or "plugs," which after the intubation tube was in place was pushed through the usually present tracheotomy fistula and screwed or fastened at a right angle into the intubation tube. Dr. Lynah seemed to have improved on some of the earlier instruments which were occasionally quite troublesome, though indispensable to the patient. The "plugged tube" for these autoextubation cases had to be worn for many months before the hypertrophic laryngitis, usually present and apparently causing the autoextubation, had subsided. The fistula then usually closed spontaneously, or after a freshening of its edges; but during this period and for some time afterwards, he had generally instituted the wearing of an ordinary intubation tube with a large enough neck to prevent undue cicatricial contraction. This little device was sometimes difficult to manage, and occasionally unsatisfactory, and to make required expert workmanship, but

on the whole he had found it useful. Dr. Rogers, in closing, congratulated Dr. Lynah on his excellent results, and expressed the hope that this method of treating all forms of chronic laryngeal and tracheal stenosis would speedily be recognized as the best.

Dr. EMIL MAYER said it was almost impossible to say much to the laryngologists who saw the ultimate results of these cases, whereas he saw these cases as a rule almost immediately after infection had occurred. To the laryngologist these cases came as a stenosis, and happily they came much less frequently than in the earlier days when Dr. O'Dwyer was still with us and showed us how to perform intubation. Recently these cases seemed to have become still less frequent so far as the laryngologist was concerned. It should be remembered, however, that diphtheria was not the only disease that might be followed by stenosis of the larynx. It had been known to follow typhoid fever. He thought he might epitomize briefly by saying first and foremost: "Do not do any external surgery in stenosis of the larynx. Remember that the larynx is extremely tolerant of endolaryngeal methods of treatment." One might use even an ordinary uterine dilator followed by the introduction of a large intubation tube. Dr. Mayer said he was sorry to hear Dr. Rogers speak so disparagingly of his rectangular apparatus for preventing autoextubation. He did not think he did himself justice. One more point he wished to mention and that was that they should give the patient time to recover; if given time these patients would recover, though it sometimes took a long while. He knew of nothing that could be done for those suffering from this condition other than to follow out the patient and long-continued treatment recommended this evening.

Dr. WILLIAM P. NORTHRUP referred to his association with Dr. O'Dwyer in his early work on intubation. He stated that Dr. O'Dwyer had invented the tubes and was the first to use them both in the hospital and outside. While Dr. O'Dwyer was engaged in perfecting the tubes and putting them in, the speaker was making the autopsies and digging the tubes out. Dr. Dillon Brown had practice in doing the intubations in the hospital and later outside. The speaker was the pathologist. The others had passed on and hence he was the oldest living person associated with this early work in intubation. Many modifications of the O'Dwyer tubes had been made but the principle still stood. Dr. O'Dwyer was five years in perfecting the tubes and when he had finished them and they were ready to be put on the market there was only one change made, and that was in the gag; instead of twisting down as Dr. O'Dwyer first made it, it went straight back. Dr. Dillon Brown was a very skillful operator and Dr. O'Dwyer of course was. Dr. Northrup said he had had 125 cases of his own and he did not recall one instance in which the intubation tube was retained. He had asked Dr. Lynah why it was that he had so few retained tubes and Dr. Lynah was now getting so many. Dr. Lynah's answer was quite satisfactory. He said that the cases in the speaker's series were either in private practice where they were seen early or they were in the hospital where they were seen still earlier. The difference was due to the cases themselves. The patients in which they had unsatisfactory results were either poorly nourished, or they were seen late, or the membrane was below the vocal cords. Dr. Northrup related his experience with tube cases before the days of antitoxin, stating that he frequently had several cases with tubes in at the same time and that it was no easy matter to keep a watch on a number of cases widely scattered throughout the city. Dr. O'Dwyer's great achievement was his insertion of the tube and making it fit anatomically into place; his second great achievement was intubation for chronic stenosis due to syphilitic lesions of the larynx. A third problem that Dr. O'Dwyer was working on at the time of his death was how to retain the tube so that it would not be coughed up. He had worked this problem up and had partly prepared the results of his work for publication at the time of his death, but it was never published. Dr. Northrup also referred to the part Dr. William Kelly Simpson and Dr. Clinton Wagner had played in developing the work that Dr. O'Dwyer had initiated.

Dr. D. BRYSON DELAVAN said that the address of the evening should touch the civic pride of all present. It should be recalled with satisfaction that the principles underlying the treatment of chronic stricture of the larynx had been first discovered and applied in New York City and that their development had been carried out by New York men. Horace Green, a founder of the Academy of Medicine, was the first to recognize the important physiological fact of the tolerance of the larynx to the presence of a foreign body. Joseph O'Dwyer, going a long step in advance, successfully demonstrated the tolerance of the larynx to the continued presence of a foreign body. Following his own discovery, O'Dwyer perfected the art of intubation for the relief of acute laryngeal obstruction. Later he entered upon the study of the cure of chronic cicatricial stricture of the larynx and trachea. Something had already been accomplished in the successful treatment of cicatricial webs of the larynx by dilatation, or by cutting of the web, followed by dilatation, by such methods as those of Morell Mackenzie, Whistler, Schroetter, Gleitsmann, and others, and the operation of thyrotomy for the deeper and more diffused strictures had been successfully practised and perfected by Clinton Wagner. But by the above methods of dilatation the stretching of the scar tissue was not very vigorous and it could only be applied at intervals and for a few minutes or less at a time. O'Dwyer thought that dilatation, to be effective in the more stubborn cases, must be applied by means of a dilator made of hard, unyielding material and that the stretching at the cicatricial bands must be maintained at a maximum and continuously for long periods of time. O'Dwyer died before he had perfected the execution of this idea. Subsequently Dr. John Rogers undertook to elaborate it. The success of his efforts was complete. For certain types of cases his method had not been surpassed, permitting as it did continued forcible dilatation of the constricted areas with a minimum of discomfort to the patient, with perfect security in the retention of the tube, and without further external operation in cases in which a tracheal cannula had already been worn. The value and effectiveness of this method was far greater than Dr. Rogers had led them to suppose. Much time and patience must sometimes be used in its application, but with these a far greater degree of ultimate success could often be attained than by the use of harsher means. Not seldom a good thing had been lost or else set aside and forgotten. With Dr. O'Dwyer time had only added to the world's appreciation of his genius and to the value of his great original ideas. Thus, in 1913, a tablet was set up in the diphtheria department at the Stephania Children's Hospital in Budapest in honor of Dr. O'Dwyer and in commemoration of the performance of 2000 intubations in that institution. Far in advance of anything done abroad, Dr. Lynah had continued the good work of Drs. O'Dwyer and Rogers until there were few cases, however difficult, which were not amenable to relief at his skillful hands, while his demonstration had been so clear and graphic as to make his methods readily understood. Gurden Buck, the father of intralaryngeal surgery, Horace Green, Clinton Wagner, John Rogers, and the lecturer of the evening were all citizens of New York and members of the Academy of Medicine, a fact of which as Fellow members we had abundant reason to be proud.

Dr. HENRY L. SWAIN of New Haven believed that the answer to Dr. Northrup's question as to why he saw so few cases of retained tube and Dr. Lynah saw so many was that severe cases came in waves. In New Haven, at the Contagious Disease Hospital, they had no cases of retained tube for two or three years until a month ago when four occurred all at the same time. He had had no cases of tracheotomy for a long time and then four occurred at the same time, simply showing how these cases ran in waves. The demonstration of the evening hinged on the development of the work of Dr. O'Dwyer by the use of the direct laryngoscope. Dr. Lynah had shown that the bronchoscope and direct laryngoscope could be used in cases of acute stenosis. The audience was to be congratulated on such a demonstration.

Dr. L. T. LEWALD said he just wished to voice his sentiments in regard to Dr. Lynah's work since he had

had the opportunity to control it by roentgenographic examinations demonstrating the cures in these cases. He had been struck by Dr. Lynah's persistence and care in following up these cases. In regard to one of the cases shown, the case of bronchiectasis of the upper lobe of the lung, that case was of considerable interest as it was the only one of posterior bronchiectasis in the upper lobe that he had seen, and the recovery as shown by the x-ray in that case was remarkable. The relation of enlargement of the thymus to the laryngeal stenosis was interesting. In one case the treatment of the thymus gland by the x-ray had led to so much improvement that he was forced to believe that the pressure of the thymus did much to keep up the irritation and stenosis of the larynx.

Dr. LYNAH, in closing, commended the work of Dr. Rogers, whose method of cannulation, while following the principle of that of Dr. O'Dwyer, was an improvement upon it. Formerly when there was any trouble with the laryngeal tissues resulting in the formation of scar tissue, perichondritis, chondritis, or metaplasia, they had operated and attempted to get rid of the tube. They now obtained very excellent results by the frequent dilatation of the stenosis in these cases, thus going back to the original idea of O'Dwyer. Dr. Lynah said his personal experience was that the voice was better in the cases treated by intubation and successive dilatation than in those treated by laryngotomy. It might be recalled that he had shown several cases before the Laryngological Section last year with normal speaking voices following prolonged intubation. It was remarkable what the larynx would tolerate in the way of dilatation and internal treatment, yet occasionally one met cases that were very refractory and discouraging. Dr. Swain spoke of the severity of the cases as a factor influencing the results of intubation. He thought Dr. Swain was correct, for he had seen cases in which properly fitting tubes were used and the technique correctly carried out, and nevertheless complications ensued which were probably due to the severity of the original diphtheritic infection. Dr. LeWald had been making the x-ray pictures and had shown some remarkable instances of the influence of an enlarged thymus upon laryngeal affections. Dr. LeWald reported that after an appropriate course of treatment the enlargement of thymus in these cases had almost disappeared.

SECTION ON SURGERY.

Stated Meeting, Held November 2, 1917.

Dr. JOHN DOUGLAS IN THE CHAIR.

Congenital Pyloric Stenosis.—Dr. W. G. VINCENT presented this case for Dr. EDWARD W. PETERSON. He stated that the child was born in the Jewish Maternity Hospital, in February, 1916, and weighed 5½ pounds at the time of birth. The child did well for ten days while it was in the hospital. On the third day after its return home it began to vomit with more or less frequency. The vomiting became persistent and the child presented the classical symptoms of pyloric stenosis, projectile vomiting and marked visible peristalsis. The urine was scanty and the child hungry. A tumor mass about the size of an olive could also be detected. It was decided that operation was indicated. The Rammstedt operation was performed and in this connection the danger of the pyloric incision perforating the duodenal junction with the pylorus should be borne in mind. This accident occurred in the present instance but the duodenal puncture was closed with one stitch and all went well with the patient. Hyperdermoclysis was employed at the time of the operation. Dr. Peterson gives intravenous saline by injecting it into the superior longitudinal sinus. The child did well until recently. The x-ray now showed hypomotility of both the stomach and intestines.

Carcinoma of the Orbit, Cheek, and Superior Maxilla; Result of Operation.—Dr. GEORGE H. SEMKEN presented this case. He stated that this patient, a man 61 years of age, a teacher of languages in a western university, came under his observation in June, 1917. The origin of his malady dated back to 1907, when an epithelioma

began in a cicatrix in the upper right cheek. The cicatrix had been produced by the electrolytic destruction of a small angioma. The epithelioma was excised in 1907. It recurred in 1910, when it was apparently cured by x-ray treatment administered by Drs. Hill and Thomas of the Lakeside Hospital Staff in Cleveland, Ohio. The second recurrence, in 1912, was treated in the same way, with a similar result; but the third recurrence, in 1915, was uninfluenced by this method, although given by the same competent roentgenologists. On July 17, 1915, the growth was removed by operation, which included apparently the scraping of the lower bony orbital margin and the use of the actual cautery. The last recurrence was about November, 1916, when the x-ray was again tried but proved unsuccessful. At the time the patient came under the speaker's observation, in June, 1917, he had a small deep area of ulceration over the lower bony margin of the right orbit, around which there was an area of induration in the cheek tissue adherent to the orbital margin. There was pronounced ectropion of the lower lid, with injection of the palpebral and lower bulbar conjunctiva. The movements of the eyeball seemed unrestricted, but there was a slight protrusion and displacement of the eye. The patient had double vision. There was no visible or palpable extension of the process to the nasal cavity or through the hard palate. There was no demonstrable involvement of the glands of the neck. The operation was performed at the New York Skin and Cancer Hospital, in June, 1917, under ether-colonic anesthesia. The operation was briefly as follows: (1) As a preliminary step, the right common carotid artery was exposed and an untied catgut ligature was placed about it so that hemostasis could subsequently be produced if necessary. (2) For the removal of the tumor an incision was made through the upper right eyelid, just below the eyebrow, from one end to the other. It was carried down the side of the nose, then across the cheek, two or three cm. below the lower limit of the neoplasm, and finally upward at the outer end, well external to the eye, to join the upper lid incision. The incision was deepened to expose the outer and upper orbital margins, the nasal process of the superior maxilla, the lower antero-external surface of the upper jaw, and the outer part of the malar bone. The malar bone was divided at its outer end with the chisel, and a similar section was made through the outer orbital wall, from before backward. The radical exenteration of the orbital contents, with the straight raspatory, was done from above downward, the optic nerve and vessels being cut well back, with scissors. Next followed the division with the chisel, of the nasal process of the superior maxilla and the adjacent inner orbital wall as far as the sphenoidal fissure, and in succession, the antero-external wall of the superior maxilla, above the incisor and canine teeth, the alveolar process through the region of the first tricuspid, and the hard palate from this point obliquely backward and inward. The tumor could then be removed en masse. Finally the invaded posterior ethmoid cells and the partly eroded upper bony lateral nasal wall were removed, and all the tissues that had been close to the area of the neoplasm were destroyed by the actual cautery. (3) The wound was closed with the frontal flap. The large resultant cavity was loosely packed with five per cent. iodoform gauze. The external closure was then accomplished by means of a large flap of skin and subcutaneous fat tissue taken from the forehead, having its pedicle at the lower temple region and its apex mesial. It contained the uninjured temporal artery and veins. The site from which it was taken was covered with Thiersch grafts. Healing had been uneventful. All of the Thiersch grafts took. Since the operation there had been a progressive obliteration of the cavity. As an added precaution against recurrence this patient had had intensive treatment with radium by Dr. H. H. Jane-way on July 12, 1917, and milder treatments on November 1 and 2.

Cases Illustrating Surgical Treatment of the Lesser Curvature.—Dr. A. J. BELLER presented six cases illustrating the six types of surgical treatment of the lesser curvature, namely, sleeve resection, partial gastrectomy with gastroenterostomy, excision, excision with gastroenterostomy, excision with jejunostomy, and jejunostomy.

Tuberculous Peritonitis, Saddle Ulcer of Lesser Curvature; Carcinoma of Stomach; Colonic Bands.—Dr. SETH M. MILLIKEN presented this patient. He stated that the history of this patient was briefly as follows: She was 22 years of age at the time of her first operation, on December 20, 1907. The operation was performed for the relief of a tuberculous peritonitis. A low incision was made and a small amount of yellow fluid was obtained. Small tubercles were found along the lower margin of the omentum and along the mesentery. The abdomen was cleansed as thoroughly as possible and closed. After this the patient made an uneventful recovery and remained perfectly well until 1913. She was then admitted to the medical division of Lincoln Hospital. After observation it was decided that she had a surgical ulcer. She was operated on in June, 1914, when she was run down almost to the starvation point. It was found at operation that she had a saddle ulcer of the lesser curvature proximal to the pylorus and involving both the anterior and posterior walls of the stomach. The operation consisted in a sleeve resection and the removal of approximately one quarter of the stomach. The patient improved rapidly, her weight going up to 132 pounds, and she was able to work as a waitress for the following two years. Last year she had a recurrence and suffered from return of symptoms from December to June of this year. The x-ray showed a large pouch in the cardiac end and a shadow the shape of a finger along the pyloric end of the stomach. The x-ray plates taken after a bismuth injection show two kinks at splenic flexure of the transverse colon. The patient not only had tympanitis, but there was a ball on the lower right side that would form and then gradually fade away. The patient was in extremely bad condition, weighing only 75 pounds just before operation. At the exploratory operation a mass was found involving the entire distal half of the remaining stomach and firmly adherent to the pancreas and under surface of the liver. A long loop anterior gastroenterostomy was done as high up as the operator could reach on the cardiac end of the stomach. It was found that there were two very dense bands extending across the distal one-half of the transverse colon, apparently scar tissue bands. These bands were released and the wound closed. The patient made a surprisingly good recovery. She spent five weeks at the Burke Foundation Convalescent Home, where she gained twenty pounds. She now weighed 105 pounds and was back at work. The pathological examination showed the condition to be carcinoma as shown by glands removed for microscopic examination.

The Roentgenological Diagnosis of Congenital Pyloric Stenosis.—Major LEON T. LEWALD said he had been studying this subject since 1910, and had been very much impressed with the definiteness with which one could differentiate a pyloric stenosis from other conditions and decide whether a case was suitable for operation or not. It had been interesting to see how this subject had developed. Men were rather doubtful as to the value of the x-ray in the diagnosis of pyloric stenosis, but each man as he got a case and saw what roentgenology revealed became enthusiastic in its praise. In this way most of the men who had grown up in the x-ray work had learned what it could teach them in the way of diagnosis. He did not wish to give the impression that he would have the x-ray take the place of other methods of diagnosis; it yielded the best results only when accompanied by all the data that could be secured. He would prophesy, however, that the time was coming when every patient suspected of having a pyloric stenosis would be given a roentgenological examination, just as every surgeon today had an x-ray examination made in every case of fracture. Major LeWald then gave a lantern slide exhibition showing first different types of normal stomachs in infants and said that in infancy there was a great variation in the size and shape of stomachs that might be considered normal. He then showed slides illustrating pyloric stenosis and the conditions before and after the operation of gastroenterostomy. These showed that gastroenterostomy might result in a too rapid emptying of the stomach. The Rammstedt operation did not possess this disadvantage. The only disadvantage of the Rammstedt operation was the danger of puncturing the duodenum. He had known this accident to occur but

the opening was sewed up and the patient did well. He felt convinced that the Rammstedt operation was to be given the preference in operating on pyloric stenosis in infancy.

Clinical and Experimental Studies of Congenital Pyloric Stenosis.—Dr. RICHARD LEWISOHN presented this communication, in which he expressed the opinion that the division of cases of congenital pyloric stenosis into groups was too didactic. Holt's advice simply to divide these cases into mild and severe was more in accordance with the clinical facts. He did not agree with the viewpoint expressed by different authors that all patients with congenital pyloric stenosis should be operated upon immediately. The pediatricist ought to try to cure these cases with proper regulation of diet, paregoric, etc. If his attempts were futile and the baby was losing weight rapidly, the case should be treated surgically without delay. The essayist analyzed a series of 16 cases of pyloric stenosis admitted to Dr. Koplik's service at Mount Sinai Hospital during the last three years. Eight of these were treated medically and eight were transferred to the surgical department. Of those treated medically one died and seven were discharged from the hospital improved or cured. Of the eight cases operated on four were cured and four died. The Rammstedt operation, consisting of incising in a longitudinal direction the thickened and hardened pylorus through the serosa and muscularis down to the mucosa without opening the latter, the one most generally adopted in the surgical treatment of pyloric stenosis in infants, was employed. The essayist described the microscopical findings of sections removed from the center of the incision at the seat of operation in a fatal case and from the proximal and distal ends, and stated that these sections demonstrated very plainly the incomplete division of the muscularis. In order to avoid the danger of perforation, the incision had been a concave one and the stenosis was thus not completely relieved. While the apparent simplicity of the technic of the Rammstedt operation was likely to appeal to every surgeon, it was not as simple and safe a procedure as had been claimed by Rammstedt and other surgeons. The operative mortality of 13 per cent. among 36 gastroenterostomized cases (combined statistics of Scudder, Stillman, and Richter) compared favorably with the mortality of 24 per cent. in Downes' cases following the Rammstedt operation. It would require a much greater series of cases than had heretofore been published before a decision could be reached as to whether the Rammstedt operation could be considered the method of choice or whether gastroenterostomy, though less rapid in its execution, might not give better clinical results.

Dr. WILLIAM A. DOWNES said he had performed 100 Rammstedt operations for hypertrophic pyloric stenosis, and the more he saw of this operation the more he was convinced that it should be given preference over gastroenterostomy. When the operation first appeared he was prejudiced against it. He performed it once and then returned to gastroenterostomy. He then lost several gastroenterostomies by persistent vomiting and diarrhea coming on six or seven days after the operation, so he returned to the Rammstedt operation. In his series of 100 cases there were twenty-one deaths, and out of the twenty-one fatal cases eight or nine would have been hopeless by any operative procedure. Only one case was refused operation, and that was a baby weighing three pounds and two or three ounces, and practically dead when brought to the hospital. He had operated upon a number of babies that were almost in collapse. They were transfused, operated upon, and made good recoveries. He felt that one was scarcely ever justified in refusing to operate on any case of pyloric stenosis however bad the condition. After the Rammstedt operation he had lost two babies from hemorrhage; one of these was a hemophilic and the other bled to death from an unclosed vessel. One accident that must be borne in mind was opening the duodenum. In passing from the thick musculature of the pylorus to the thin tissue of the duodenum there was danger of penetrating the latter. This accident had occurred four times in his experience. The puncture was easily repaired, but one of these babies died of peritonitis about ten days after the operation. In about twenty cases a sound was passed through the pylorus to dilate the open-

ing by means of a small incision in the anterior wall of the stomach some distance from the pylorus. The benefit was doubtful and did not seem to justify the added risk. Among the twenty-one deaths occurring in this series of cases there were several due to enterocolitis which occurred from ten to thirty days after operation, but which were counted as operative deaths. Dr. Downes said he had compared the postoperative course of infants after gastroenterostomy and after the Rammstedt operation, and he felt convinced that they made a more straightforward convalescence after the Rammstedt operation. Even a few hours after operation they would have improved considerably and would want food, and they did not show the tendency to develop diarrhea and vomiting that was sometimes seen after gastroenterostomy. Dr. Downes also cited evidence showing that the results obtained by the Rammstedt operation were permanent.

The Surgical Treatment of Ulcer of the Lesser Curvature of the Stomach.—Dr. ALBERT A. BERG made this presentation. He said that while many different methods had been devised for the surgical treatment of ulcer of the lesser curvature, the surgeon when confronted by a given case was still in a quandary as to what surgical procedure he had best employ—which one would be followed by the best distant as well as immediate results. He said that he wished to discuss this subject not only from the standpoint of the operative procedure but from that of physiological function and a study of the musculature and nerve supply of the stomach. Surgeons were pretty well agreed that for an ulcer on the lesser curvature near the pylorus pyloroplasty was the operation of choice, but if one excluded these ulcers near the pylorus and those in the extreme cardiac end of the stomach then there were many moot questions. First with reference to the muscles and nerve supply of the stomach, there was no accurate description of the nerve supply of the stomach. Hence the statements that he would make were based largely on clinical observation rather than upon anatomical demonstration. All the peristaltic waves started at the reentrant angle between the vertical and horizontal parts of the stomach. There was no definite connection between the Auerbach's and Meissner's plexus and the nerve supply of the stomach itself. The initiation of the peristaltic waves was derived from the relay center in the reentrant angle; hence if this was removed the musculature of the stomach became paralytic and one had clinically a condition of the stomach similar to paralytic ileus. Excision that included the relay nerve center in the reentrant angle was, in his opinion, not a desirable operation. At Mount Sinai Hospital they had classified ulcers of the lesser curvature into groups according to the operation performed, whether a sleeve resection, partial gastrectomy with gastroenterostomy, excision, excision with gastroenterostomy, excision with jejunostomy or jejunostomy. The series of cases included thirty, with eleven deaths, or a mortality of 36 per cent. Of these eleven deaths eight had been caused by postoperative pneumonias. Dr. Berg analyzed this series of cases with reference to the type of operation performed and the results. It had been their experience that excision of an ulcer at the site of reentrant angle, between the vertical and horizontal portions of the stomach, was dangerous. If an ulcer was located at the cardiac end of the stomach excision alone might be indicated. If the ulcer was near the angle the excision should be accompanied by a gastroenterostomy or jejunostomy; the sleeve resection was indicated when the ulcer was within the reentrant angle. The operation of partial gastrectomy and gastroenterostomy was reserved for large indurated and adherent ulcers. He saw no particular advantage in a two-stage operation.

Dr. GEORGE WOOLSEY said that these ulcers of the lesser curvature formed the largest group of gastric ulcers met with surgically. There were a larger number of ulcers of the posterior than of the anterior wall, but the greatest number were located on the lesser curvature. Summing up it might be said that for ulcers not very distant from the pylorus the best operation was resection. If the ulcer left uninvolved a considerable portion of the antrum a mesial resection was indicated, as it sacrificed less of the stomach. Personally the speaker said he did not like the V-shaped incision and he never made such an excision without a gastroenterostomy, for

he had had the experience of having to do a gastroenterostomy afterward, having failed to do it in the first place. According to von Eiselsberg and Payr excision was a bad operation and should be given up. At the same time excision was occasionally indicated in ulcers high up along the cardia, where mesogastric resection was more difficult, but in his opinion all excisions should be accompanied by gastroenterostomy. He did not see any reason for Dr. Berg's experience in the cases with ulcer at the reentrant angle. He had had no such experience. If there was trouble from removal of the nerve centers following an excision at the reentrant angle, why should there not be trouble in a sleeve resection at the same point? A very favorable factor in the sleeve resection was that it paralyzed the sphincter, preventing pylorospasm, so that one did not need to do a gastroenterostomy. These cases of sleeve resection did remarkably well and often did not suffer from postoperative vomiting. He had not had the experience of postoperative vomiting and gradual failure until death without any pathological lesion to explain it, and Dr. Berg's explanation that the trouble was due to the extension of the nerve centers did not appeal to him.

Dr. MEYER M. STARK said that Dr. Berg's clinical deductions were correct and there might be reason to suspect that the deformity resulting from the excision of an ulcer might interfere with the motility of the stomach, but the inference was not correct that there was a considerable nerve supply at the reentrant angle between the horizontal and vertical portions of the stomach. The tonic waves of contraction originated not at this angle but higher up, and proceeded along the border of the lesser curvature from the cardiac portion of the stomach downward to the lower antrum. If owing to the presence of an ulcer the motility of the stomach was interrupted, with a segmental resection and a reunion of the segments the motility that might have been interrupted by the presence of an ulcer is restored. This restoration of motility had been noticed in animals after a sleeve or segmental resection of the stomach. It has been noticed in experimental work on animals that there was a wide undulatory movement which began high up in the stomach and passed downward, and that it was much more active on the lesser than on the greater curvature.

Dr. L. T. LEWALD said Dr. Woolsey had just asked him whether he had made any x-ray observations with reference to the interruption of the peristaltic waves after the different types of operation. After a sleeve resection the stomach emptied very well. His impression was that the waves were not interrupted. The general appearance and tone of the stomach after these resections was good, about similar to that of a normal stomach. As to paralysis of the sphincter the wave was not interrupted there. The speaker expressed himself as convinced that the sleeve resection was the best type of operation for an ulcer located in that region, and he based this opinion on a careful examination of the results of these operations as shown by the x-ray examinations. In the simple excision cases the patients were more apt to have retention and recurrence of hour-glass constriction.

Dr. DOUGLAS asked Dr. LeWald if he had observed whether the peristaltic waves began at the point of resection.

Dr. LEWALD replied that Dr. Barber said the peristaltic waves began high up and were not interrupted at the resected region.

Dr. DOWNES said he thought Dr. Berg was not strictly correct when he said that hour-glass stomach always persisted after resection. He had had five cases. In two, three and one-half years after operation, one could scarcely tell that there had been an operation. In one case he did not excise widely enough—he had placed the clamps too close to the resection. He now made it a practice to open the ends of the clamps and stretch the ends of the stomach before approximating them and when this was done there was very little constriction. He had excised a number of ulcers on the lesser curvature with gastropasty without gastroenterostomy with good results. A number of these cases had been followed from two to five years with roentgenological examinations before and after the operation. The remote results bore out the idea that this was a

very valuable procedure. Dr. Berg has overlooked the question of gastroenterostomy for large pyloric tumors in which group he had five deaths out of 14 cases. In that type of case the two-stage operation, gastroenterostomy followed later by pylorotomy, was a valuable procedure. Both Dr. Crile and Dr. Lilienthal had recommended a two-stage operation in a certain number of their cases. The ulcer disappeared practically the same as in a jejunostomy and the mortality was certainly much lower.

Dr. MILLIKEN said that it was interesting to note the consensus of opinion as to the best mode of operation for ulcers of the lesser curvature. He said that he always did a gastroenterostomy with an excision of the ulcers; even with the excision of a small ulcer at the cardiac end of the stomach.

Dr. JOHN DOUGLAS said that he was sorry that he had been unable to present his case as he had intended. This patient had an ulcer of the lesser curvature which he had excised. Convalescence followed and the patient was improved for several months, although never absolutely well. Two years after the first operation there was a recurrence of symptoms and a second operation. At this operation no deformity was found such as often follows the excision of a hard, indurated ulcer, but there was present a new ulcer of the duodenum. The ulcer was situated very close to the pylorus, and a gastroenterostomy with pyloric exclusion was done. He said that he believed that if an incision or Balfour cautery operation were done, a gastroenterostomy should also be performed, even though the ulcer were located high up on the lesser curvature. In the extensive, hard, indurated, adherent ulcers, especially when the patient is in poor condition, a preliminary gastroenterostomy should be done, and at a second operation a partial resection. This statement would seem to be borne out by Dr. Berg's high mortality in this class of patients. He agreed with Dr. Berg that the sleeve resection was the operation of choice in cases of ulcer of the lesser curvature with hour glass contraction, but in these cases with a small upper pouch, with the ulcer adherent to the liver, this was often almost impossible, or extremely dangerous.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

THE NATIONAL BOARD OF MEDICAL EXAMINERS.

Chicago, October 10-18, 1917.

The examination was conducted orally also, as well as clinically and in the laboratory.

ANATOMY.

1. Describe the elbow joint with overlying structures and muscular attachments in immediate vicinity.
2. Name cavities of heart and describe the valves.
3. Define synarthrosis, amphiarthrosis, diarthrosis. Example of each.
4. Through what arteries is collateral circulation established after ligation of common carotid?
5. Origin, insertion, action, and nerve supply of (a) triceps extensor cubiti; (b) serratus magnus; (c) pectoralis minor; (d) biceps femoris.
6. Describe the lacrimal apparatus.

PHYSIOLOGY.

1. Describe the methods by which may be determined the events of the cardiac cycle in the right and left sides of the heart, respectively, in man. Detail the results.
2. (a) What is the normal stimulus of the respiratory nerve center? (b) What is meant by the "buffer" action of the blood salts and what is its use? (c) What condition supervenes when the "buffer" action is inadequate?
3. (a) What relation has the "pulse pressure" in an artery to the volume of blood passing through it? (b) What are the factors determining pulse pressure?
4. Give evidence as to the functions of the thyroid gland.
5. Describe the origin and function of secretin.

6. Give the various functions of the sympathetic nerve.

7. Describe the stages of protein digestion.

8. Give the qualitative and quantitative essentials for the diet of a working man.

PHYSIOLOGICAL CHEMISTRY.

1. What is an amino acid and how many and what amino acids are found in the protein molecule?

2. Give the characteristic color tests for proteins and the significance from a chemical standpoint of each test.

3. Define a purin body and tell what purin substances are formed in the animal body, what relation they have to one another, and in what form each is eliminated.

4. Give the steps in the formation of urea, uric acid and hippuric acid in the body, and the significance of an excess or a deficiency of each of these substances in the urine.

5. Discuss in detail the coloring matters of the blood and the urine, giving the formation and function of these coloring matters and the significance of their presence in excess in the urine.

ANSWERS.

ANATOMY.

1. The *elbow joint* is a ginglymus or hinge joint, formed above by the lower end of the humerus, and below by the greater sigmoid cavity of the ulna and the head of the radius. The ligaments are (1) the *anterior*, which extends from the front of the humerus just above the coronoid fossa and from the internal condyle to the orbicular ligament and to the under surface of the coronoid process of the ulna; (2) the *posterior*, which extends from the lower end of the humerus and the olecranon fossa to the olecranon process of ulna; (3) the *internal lateral*, which extends from the internal condyle of the humerus to the coronoid and olecranon processes of the ulna; and (4) the *external lateral*, which extends from the external epicondyle to the orbicular ligament and to the external border of the upper end of the ulna. There is a *synovial membrane* which lines the inner aspect of the ligaments, the coronoid and olecranon fossa, and extends into the superior radio-ulnar articulation.

The *overlying structures* are: *In front*, skin, superficial fascia, cutaneous nerves, superficial veins, deep fascia, bicipital fascia, tendon of the biceps, brachialis anticus, brachial artery, median nerve, and recurrent radial and ulnar arteries. *Behind*, the superficial structures, triceps, and anconeus. *Externally*, the extensors and supinators arising from the external condyle of the humerus, the musculospiral and radial nerves and the superior profunda artery. *Internally*, the flexors and pronators arising from the internal condyle, the ulnar nerve, and the inferior profunda artery.

Muscles arising from inner condyle of humerus: Pronator radii teres, flexor carpi radialis, palmaris longus, flexor carpi ulnaris, flexor sublimis digitorum. *Muscles arising from the outer condyle of the humerus:* Extensor carpi radialis brevis, extensor communis digitorum, extensor minimi digiti, extensor carpi ulnaris, anconeus, and supinator brevis. To the *olecranon process of the ulna* are attached the triceps, anconeus, and one head of the flexor carpi ulnaris. To the *coronoid process of the ulna*, the brachialis anticus, pronator radii teres, flexor sublimis digitorum, and flexor profundus digitorum. To the *upper end of the radius*, the biceps, supinator brevis, flexor sublimis digitorum, and flexor longus pollicis.

2. The *cavities of the heart* are the right auricle, left auricle, right ventricle, and left ventricle.

VALVES OF THE HEART. "The *mitral* and *tricuspid* valves are situated in the left and right ventricles respectively at the auriculo-ventricular orifices, and prevent the passage of blood into the auricles during the ventricular systole. They consist of flaps or cusps, two in the mitral, and three in the tricuspid, connected by their bases to the auriculo-ventricular orifices; their free margins and lower surfaces give attachment to the chordæ tendineæ which connect them with the musculi papillares. They are formed of a duplicature of the lining membrane of the heart, strengthened by connective tissue. During the ventricular systole, the pressure

of the blood in the ventricles presses their free edges, or rather their marginal surfaces, together, the musculi papillares regulating the tension of the chords and preventing the valves from becoming retroverted into the auricles.

"The *semilunar valves* guard the aortic and pulmonary openings. They consist of three semicircular folds attached by the convex margin to the wall of the artery at its junction with the ventricle, and are formed by a reduplication of the lining membrane strengthened by fibrous tissue. In the center of each free margin is a little nodule, the corpus Arantii, the three meeting in the center when the valves are closed. On each side of the corpora Arantii is a thin semilunar marginal surface, where the fibrous tissue is absent, called the lunula; these surfaces come in contact when the valves close."—(Ashby's *Notes on Physiology*.)

The *Eustachian valve* is found in the right auricle, between the anterior margin of the postcava and the auriculo-ventricular orifice. It is semilunar in shape and is formed by a duplicature of the lining membrane of the auricle. The *coronary valve* is a semicircular fold of the lining of the membrane of the right auricle; it protects the orifice of the coronary sinus.

3. *Synarthrosis* is an immovable articulation, such as the sutures of the skull. *Amphiarthrosis* is an articulation that permits of limited motion, such as the symphysis pubis. *Diarthrosis* is a freely movable articulation, such as the shoulder joint.

4. *Collateral circulation after ligation of the common carotid*: "(1) Branches of the external carotid on the side tied, anastomosing with the corresponding branches of the opposite side. (2) Anastomoses between the internal carotids of opposite sides through the anterior segment of the circle of Willis—*anterior cerebral* of one side, with the *anterior cerebral* of the other, through the anterior communicating. (3) Anastomoses between the subclavian and the external carotid of the side tied: (a) the deep cervical with *princeps cervicis* of occipital; (b) the vertebral with the occipital; (c) inferior thyroid with superior thyroid. (4) Anastomoses between the subclavian and the internal carotid of the side tied, the vertebral through the basilar and posterior cerebral, with posterior communicating from internal carotid, *i.e.* through the lateral segment of the circle of Willis. (5) Anastomoses of the ophthalmic, from the internal carotid, through the circle of Willis, with branches of the external carotid on the side tied: (a) nasal of ophthalmic with angular of facial; (b) infra-orbital, from internal maxillary, with twigs of facial; (c) supra-orbital and frontal, from ophthalmic, with terminations of the anterior temporal."—(McLachlan and Skirving's *Applied Anatomy*.)

5. **TRICEPS EXTENSOR CUBITI.** *Origin*, immediately below glenoid cavity of scapula, posterior surface of shaft of humerus between insertion of teres minor and upper part of musculospiral groove, external border of humerus and external muscular septum, posterior surface of shaft of humerus below the musculospiral groove, and internal border of humerus. *Insertion*, olecranon process of ulna and deep fascia of forearm. *Action*, extensor of forearm and elbow joint. *Nerve supply*, the musculospiral.

SERRATUS MAGNUS. *Origin*, outer surface and upper border of upper eight ribs and from aponeurosis of the corresponding intercostal muscles. *Insertion*, the ventral aspect of the vertebral border of the scapula. *Action*, it carries the scapula forward and raises its vertebral border; it is concerned in the act of pushing; it raises the acromion process and assists in raising the arm. *Nerve supply*, posterior thoracic.

PECTORALIS MINOR. *Origin*, upper margin and outer surface of third, fourth, and fifth ribs near their cartilages, and from the aponeurosis covering the intercostal muscles. *Insertion*, coracoid process of scapula. *Action*, it depresses the shoulder, draws the scapula downward and inward, and throws the inferior angle of the scapula backward; it aids in forced inspiration. *Nerve supply*, anterior thoracic.

BICEPS FEMORIS. *Origin*, tuberosity of ischium, great sacrospinous ligament, linea aspera of femur. *Insertion*, outer side of head of fibula, and external tuberosity of tibia. *Action*, flexes leg upon thigh and rotates leg slightly outward. *Nerve supply*, great sciatic.

6. The *lacrimal apparatus* consists of the lacrimal

gland and its secretory ducts; the lacrymal canals, which carry the tears to the lacrymal sac, and the nasal duct, which carries them from the sac to the nose.

The *lacrymal gland* occupies a depression in the supero-external angle of the orbit; the anterior margin is connected to the back part of the upper eyelid. The ducts (twelve or fourteen) open by apertures, placed in a row, at the inner surface of the upper lid.

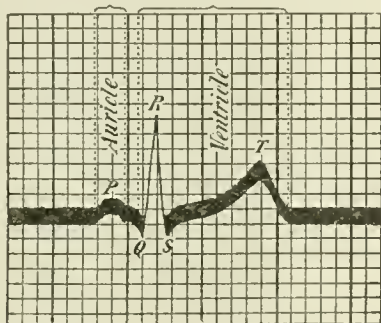
The *lacrymal canals* commence at the *puncta lacrymalia*, which are the openings of the canaliculi, and, arching in the free edge of the lid, pass inward to open into the *lacrymal sac*.

The *lacrymal sac* is placed in a groove formed by the lacrymal bone and the nasal process of the superior maxilla, being behind the *tendo oculi*, and in front of the *tensor tarsi*; it is the dilated upper end of the nasal duct.

The *nasal duct*, formed by the lacrymal, superior maxilla, and inferior turbinal bones, leads from the lacrymal sac to the inferior meatus of the nose, where it opens, the aperture being partly guarded by a valve formed of the mucous membrane. It is about one-half inch long, and is directed downward and slightly outward and backward.—(*Aids to Anatomy*.)

PHYSIOLOGY.

1. "An electrocardiogram obtained by photographing the oscillations of the galvanometer string during the cardiac cycle when different portions of the body surface are connected with the terminals of the string, is shown in the figure, the different features of



which are designated by the letters P, Q, R, S, T. This curve, which represents the relative strength, duration, succession, and direction of the currents during the cycle, it is believed furnished a correct picture of the strength, duration, succession, and direction of the physiologic processes—the excitation and contraction processes—as they arise in the heart muscle during its activity. The interpretations of the electrocardiogram and the significance of its various features are not, in some respects, in as complete accord as seems desirable. In general it may be said that P corresponds to the auricular systole and that Q, R, S, T correspond to the ventricular systole. R and T are always present in physiological conditions at least, while Q and S may, either one or the other or both, be wanting. Einthoven is of the opinion that the general form of the electrocardiogram indicates the path and propagation of the stimulus or the excitation process through the heart, as well as the order of contraction of different portions of the ventricular walls, both of which are in harmony with the origin, course, and ultimate distribution of the auriculoventricular conduction system as determined by Tawara. The record presents first a horizontal portion—the image of the galvanometer string—which indicates that the string is at rest by reason of the fact that all portions of the heart during the diastolic pause are isoelectric or of equal electropotential. P is the result of the contraction of the auricle, indicating a condition of negativity toward the ventricle, which is now electropositive, in consequence of which the electric currents pass down the heart, thence to the body surface, thence through the galvanometer circuit and back to the heart, causing the string as they pass through it to move outward. With the cessation of the auricular contraction the string returns to its position of rest. The more or less horizontal line between P and Q indicates that both auricles and ventricles are now at rest and in

the same state of electric potential. The passage of the excitation process through the conduction system, which is now taking place, from its beginning to its terminations is, in and of itself, too feeble to cause a deviation of the thread under the conditions of tension necessary for the registration of the other features of the electrocardiogram. The system of points or waves, negative and positive, Q, R, S, in the first part of the ventricular portion of the electrocardiogram permits of the inference that the stimulus arrives and the contraction arises at once or almost at once in different places of the ventricular masses. The first point Q indicates that the stimulus arrives first at a point lying near to the apex and calls forth a contraction of moderate degree, establishing a certain degree of electronegativity toward the base which is now electropositive. The direction of the point below the horizontal portion is due to the direction of current through the heart and galvanometer, which is of course the reverse of the current that originates in the auricle and which gives rise to P. The point R, which immediately follows, indicates that the stimulus has arrived at the base of the ventricle, calling forth a more pronounced contraction and a greater degree of electronegativity than that present at the apex. The point S indicates that soon thereafter the stimulus reaches regions lying nearer to the apex of the ventricle, calling forth a contraction and establishing an electronegativity which soon gains the upper hand. The horizontal portion of the electrocardiogram between the system of points Q, R, S on the one side and the point T on the other side represents a contraction state in which the entire muscle mass of the two ventricles participates in the same measure, and hence all portions are in a condition of equal negativity, for which reason the string remains stationary. It is during this period that the ventricles are engaged in driving the blood out of their cavities into the aorta and pulmonic artery. T, the last peak of the ventricular portion of the electrocardiogram, is directed upward, and hence reveals the fact that the base of the ventricle is at this moment in a condition of greater electronegativity than are portions of the heart lying nearer the apex. The origin of the T peak has been a subject of much discussion, but the investigations of Gotch have made it apparent that it is due to the contraction of muscle fibers which have not before been brought into action; that is, fibers near the root of the aorta, in that portion of the ventricle which is the homologue of the bulbus arteriosus in the lower animals. The contraction of this region completes the discharge of the blood from the ventricular cavity. The activities of the different parts of the heart indicate by the lettering may be summarized as follows (Ott):

PHASE OF ELECTROCARDIOGRAM	APPROXIMATELY
A. Activity of auricle	presystole. Period of filling of the heart (ventricle).
h. Activity of His's bundle	
J. Activity of papillary system	Period of distention of the heart.
—intersystole	
t. Activity of middle layer of ventricular muscle	systole. Period of ventricular discharge.
F. Activity of conus arteriosus	
P. Rest of the whole heart—	Period of filling of the heart.
pause of heart	

—(Brubaker's *Physiology*.)

2. (a) The normal stimulus of the respiratory center is, probably, an excess of carbon dioxide in the blood. Other views are: (1) that it is due to a lack of sufficient oxygen in the blood, and (2) that it is due to both a lack of sufficient oxygen and an excess of carbon dioxide in the blood.

(b) "Carbonic acid is continuously being thrust into the blood by the tissues, but nominally it produces no great preponderance of H ions, and the reaction is but little disturbed; this is because the blood plasma contains certain substances, spoken of as 'buffers,' which enter into loose combination with the CO₂, and so prevent it raising the acidity of the blood fluid. These substances are sodium bicarbonate, sodium phosphate, and proteins. The sodium bicarbonate secures the prepon-

derance of the CO_2 ; the sodium phosphate helps by increasing the amount of sodium bicarbonate according to the following equation: $\text{Na}_2\text{HPO}_4 + \text{CO}_2 + \text{H}_2\text{O} = \text{NaH}_2\text{PO}_4 + \text{NaHCO}_3$; and about one-third of the CO_2 is in loose combination with the proteins; finally about 5 per cent. is present in simple solution."—(Halliburton's *Physiology*.)

(e) When the buffer action is inadequate acidosis supervenes.

3. (a) "The pulse pressure is, with qualifications, an indication of the cardiac output per beat. As a rule, increased ventricular output leads to increased pulse pressure and *vice versa*. The attempt has been made to establish formulas enabling one from the pulse pressure and the cardiac rate to estimate alterations in the cardiac output per minute; in other words, of the blood flow from the heart. As a rule changes in pulse pressure and aortic volume flow are in the same direction, but this is not always true, for aortic regurgitation and so common a condition as arteriosclerosis tend to produce alterations of these factors in contrary directions. Moreover only under very limited conditions is there any constant quantitative relation between the respective changes in these factors. Hence all attempts aiming to express in figures the blood flow on the basis of the pulse pressure should be regarded with suspicion."—(Norris's *Blood-Pressure*.)

(b) The factors which determine pulse-pressure are: The rate of the heart beat, the peripheral resistance, and the systolic discharge. Pulse pressure is increased by: Decreased peripheral resistance, decreased heart rate, and increased systolic discharge. Pulse pressure is decreased by: Increased peripheral resistance, increased heart rate, and decreased systolic discharge.

4. "The thyroids are essential to life. If they are wholly removed death occurs with cachectic symptoms. If part of the gland is left *in situ* or transplanted into another part of the body, or if accessory thyroids capable of hypertrophy are left behind, or if thyroid substance or its active principle be ingested, the consequences of removal will be less severe, or may be escaped entirely. Such regeneration, or compensation, for probably both are concerned, is more likely to occur in young animals, and the resulting changes will depend partly upon the youth of the subject. Two opposite sets of symptoms follow from diminished and excessive thyroid activity respectively. With diminution, growth is lessened. In the young animal not only is macroscopic growth diminished but cells fail to reach their proper development and the connective tissue remains myxomatous. The skin and hair show impaired growth. The nervous system undergoes degeneration and its function is impaired, as shown by psychic, motor, and sensory disturbances. The heat regulation, metabolism, and gaseous interchange are all depressed. The results of lessened activity of thyroid function are seen in myxedema and cretinism. Excessive activity of thyroid function, produced experimentally by feeding with suitable preparations, is shown by excessive metabolism, decrease of weight, not only from destruction of fat but also of proteins, increased growth of long bones in young animals, and various nervous symptoms affecting the heart (palpitation and tachycardia), the central nervous system (irritability, sleeplessness), and the peripheral nerves and muscles. Glycosuria is not rare. These conditions will be found in connection with Graves' disease. The present conception of thyroid function is that the action is chiefly exerted through a secretion, thyroglobulin, which acts as a hormone. The hormone may be compound, with special affinities and activities. At present we can recognize only effects on many organs and tissues, some stimulating, some inhibiting, but we do not know whether the hormone action is different or exerted through the nervous system."—(Osler and McCrae's *Modern Medicine*.)

5. *Secretin* is a hormone which is formed in the mucous membrane of the small intestine. It is formed by the action of the acid chyme from the stomach acting on *prosecretin*. The function of secretin is to promote the flow of the pancreatic juice; it is believed also to assist in the production of the succus entericus, and to stimulate the flow of bile.

6. The functions of the sympathetic nervous system: "It may safely be said that the sympathetic system has, to a great extent, a controlling influence over the secre-

tion of most of the glands, the lacrymal, the salivary, the sweat glands, the glands of the stomach and intestines, the liver, the kidney, etc.; that it presides over the circulation by regulating the caliber of the blood vessels and the action of the heart; that it influences respiration; and, finally, that all involuntary muscles, those of the digestive apparatus, of the genitourinary system, of the hair follicles (pilomotor nerves), are under its control to such an extent that, for instance, in certain mammals the bladder still continues to fulfill its function for weeks after all the cerebrospinal motor nerves leading to it have been severed. In short, we find that all vegetative life of the organism is, to a greater or lesser extent, under the control of the sympathetic system. Therefore it may properly be called the vegetative nerve system *par excellence*."—(*Reference Handbook of the Medical Sciences*.)

7. The digestion of protein takes place in the stomach and in the small intestine. In the stomach it is acted upon by the pepsin in the presence of hydrochloric acid, and is changed into simpler substances. First, it is converted into a soluble globulin, then acid metaprotein is formed, then two primary proteoses (protoproteose and heteroproteose) are produced, deuteroproteose or secondary proteose is then formed, and then the final stage of protein digestion in the stomach is reached by the formation of peptone which is probably a mixture of polypeptides. Sometimes, if sufficient time is allowed, aminoacids may be produced. In the small intestine the passage of the acid chyme from the stomach starts the action of the secretin and promotes the flow of the pancreatic juices; the trypsin (in an alkaline medium) splits up the protein into soluble globulin, and then into alkaline metaprotein; this is split up into proteoses, notably deuteroproteose, then into peptone and polypeptides; these last are finally split up into aminoacids, hexone bases, and tryptophane.

8. Assuming that a working man requires a diet which produces say from 3,000 to 3,300 calories a day, and that we accept Rubner's figures that 1 gram of protein has a calorie value of 4.1, 1 gram of fat 9.3, and 1 gram of carbohydrate 4.1, then the following table (taken from Stewart's *Physiology*) will show the required diet. We may take 500 grams of bread and 250 grams of lean meat as a fair quantity for a man fit for hard work. Adding 500 grams milk, 75 grams oatmeal (as porridge), 30 grams butter, 30 grams fat (with the meat, or in other ways), and 450 grams potatoes, we get approximately 20 grams nitrogen and 300 grams carbon contained in 135 grams protein, rather less than 100 grams fat, and somewhat over 400 grams carbohydrates. Thus:

	Proteins.	Fat.	Carbo- hydrates.
(9 oz.) 250 gm. lean meat.....	55	8.5	..
(18 oz.) 500 gm. bread.....	40	7.5	245
(¾ pt.) 500 gm. milk.....	20	20	25
(1 oz.) 30 gm. butter.....	..	27	..
(1 oz.) 30 gm. fat.....	..	30	..
(16 oz.) 450 gm. potatoes.....	10	..	95
(3 oz.) 75 gm. oatmeal.....	10	4	48
	135	97	413

This would be a fair "hard work" diet for a well-nourished laborer.

135 gm. protein	× 4.1 =	553.5
97 gm. fat	× 9.3 =	902.1
413 gm. carbohydrate	× 4.1 =	1693.3

Total calories = 3148.9

PHYSIOLOGICAL CHEMISTRY.

1. An aminoacid is an organic acid in which one or more of the hydrogen atoms in the chain (not in the COOH group) have been replaced by the amino group, NH_2 . Up to the present, eighteen aminoacids have been found in the protein molecule. (1) Glycine, glycoll, or aminoacetic acid; (2) alanine, or aminopropionic acid; (3) valine, or aminoisovaleric acid; (4) leucine, or aminoisocaproic acid; (5) isoleucine, or aminomethylethylpropionic acid; (6) phenylalanine, or phenylaminopropionic acid; (7) tyrosine, or oxyphenylaminopropionic acid; (8) serine, or hydroxyaminopropionic acid; (9) cystine, or thioaminopropionic acid; (10) aspartic acid, or aminosuccinic acid; (11) glutamic acid,

or aminoglutaric acid; (12) proline, or pyrrolidine carboxylic acid; (13) oxyproline; (14) arginine, or guanidineaminovaleric acid; (15) lysine, or diaminocaproic acid; (16) ornithine, or diaminovaleric acid; (17) histidine, or imidazoleaminopropionic acid; and (18) tryptophane, or indolaminopropionic acid.

2. CHARACTERISTIC COLOR TESTS FOR PROTEINS: (1) The *biuret reaction*. The protein solution is made strongly alkaline with caustic soda or potash and a few drops of a dilute solution of copper sulphate are added carefully so as to avoid an excess. A purple color is obtained. Some proteins (peptones) give a red purple, others a blue purple. If only a blue color, without any mixture of red, is obtained, no protein is present. At present this reaction gives the best single test for protein. It obtains its name from the fact that it is given by biuret $\text{HN} < \begin{smallmatrix} \text{CONH}_2 \\ \text{CONH}_2 \end{smallmatrix}$, a compound that may be formed

by heating urea. Two molecules of urea give off a molecule of ammonia and form biuret. (3) The *Millon reaction*. The protein solution is boiled with Millon's reagent. The solution or the precipitate, if one is formed, takes on a reddish color, which varies in intensity with different proteins. Millon's reagent consists of a solution of mercuric nitrate in nitric acid containing some mercurous nitrate. This reaction is supposed to be given by the tyrosine (oxy-aromatic) grouping in the protein molecule, and fails, therefore, with those proteins in which tyrosine is not present. (3) The *xanthoproteic reaction*. Nitric acid is added to strong acid reaction and the solution is then boiled. After cooling, ammonia is added. The ammonia causes the development of a deep-yellow color if protein is present. This reaction is supposed to be due to the presence in the molecule of the groupings belonging to the aromatic series. (4) *Adamkiewicz's reaction*. A mixture is made of one volume of concentrated sulphuric and two volumes of glacial acetic acid; if the protein solution is added to this mixture and warmed a reddish-violet color is obtained. According to Hopkins and Cole, the reaction depends upon the presence of glyoxylic acid in the acetic acid, but according to Homer it is really a formaldehyde reaction. The action of the sulphuric acid upon the glyoxylic acid produces some formaldehyde. This reaction seems to be due to the tryptophan grouping in the protein molecule. (5) *Liebermann's reaction*. Dry protein purified with alcohol and ether gives a blue color upon boiling with strong hydrochloric acid. (6) The *lead sulphide reaction*. The protein solution is boiled with a solution of a lead salt made strongly alkaline with soda or potash. A black precipitate or black or brown coloration results, according to the amount of protein. The color is due to the splitting off of sulphur and formation of lead sulphide. It is given, therefore, by the sulphur-containing groups in the protein molecule. (7) The *Molisch reaction*. A few drops of an alcoholic solution of α -naphthol are added to the protein solution and then strong sulphuric acid. A violet color is obtained. This reaction is given by the carbohydrate grouping in the protein molecule. The strong acid forms furfural from this group, which then reacts with the naphthol. The reaction is not given by those proteins that do not contain a carbohydrate group.—(Howell's *Physiology*.)

3. The *purine bodies* are a group of substances so called because of their close relationship to purine, the mother substance of the group. Their base of formation is the so-called purine ring, which consists of two urea radicals linked together by a central chain of carbon atoms. They are decomposition products of nuclein. The purine substances formed in the body, and their relation to each other, are shown in the following table:

Purine	.....	$\text{C}_5\text{H}_4\text{N}_4$	
Hypoxanthine	..	$\text{C}_5\text{H}_4\text{N}_4\text{O}$	 Monoxypurine
Xanthine	.....	$\text{C}_5\text{H}_4\text{N}_4\text{O}_2$	 Dioxypurine
Uric acid	.....	$\text{C}_5\text{H}_4\text{N}_4\text{O}_3$	 Trioxypurine
Adenine	.....	$\text{C}_5\text{H}_5\text{N}_5$	 Amino-purine
Guanine	.....	$\text{C}_5\text{H}_5\text{N}_5\text{O}$	 Amino-oxypurine

Purine itself is not found in the body. Xanthine is found in the pancreas, spleen, liver, thymus, kidneys and brain; it is eliminated in the urine. Hypoxanthine is found in the same places as xanthine, and is also

eliminated in the urine. Guanine is found in the spleen, liver, pancreas and urine and sometimes in the blood; it is eliminated in the urine. Adenine is found in the thymus, and sometimes in the blood and urine. Uric acid is found in the urine, and is eliminated in the urine.

4. *Urea formation*. The greater part of the urea produced in the body is formed in the liver. The liver cells form the urea from two sources: (1) The larger amount, produced by the liver cells, is derived from the amino-acids which have been absorbed from the small intestine, and which are not required by the tissues; this constitutes the *exogenous urea*. (2) The smaller amount, produced by the liver cells, is derived from the ammonium carbonate, which is the outcome of nitrogenous catabolism, and which is derived from the tissues; some is also produced by the action of the uricolytic enzyme upon uric acid; this constitutes the *endogenous urea*.

Uric acid formation. Uric acid is formed in the liver more abundantly than in other tissues. It is the result of the complete oxidation of certain purine bases, which are derived partly from the nucleo-protein in the tissue (*endogenous uric acid*), and partly from the nucleo-protein of the food (*exogenous uric acid*). Much of the uric acid thus formed is further changed by the uricolytic or uricolytic enzyme, produced by the liver cells, into urea.

Formation of hippuric acid. Hippuric acid is formed by the cells lining the urinary tubules. Here, probably as the result of enzyme action, the benzoic acid of the food is synthesized with glycine produced from protein, or by the renal cells themselves, to form hippuric acid. The benzoic acid is derived almost entirely from the food; the glycine may be derived by the process of either exogenous or endogenous protein metabolism. It is easy to understand, then, that the occurrence of hippuric acid in the urine stands in the most intimate relation to the presence and quantity of benzoic acid in the food. A man fed upon a "benzoic acid free" diet will excrete no hippuric acid; if given a diet containing large amounts of benzoic acid (*i. e.* if fed largely upon fruits) he will eliminate a much larger quantity of this acid.—(From Lyle's *Physiology*.)

The amount of *urea* eliminated in the urine depends largely upon the amount of nitrogen contained in the food, and also upon the extent of protein metabolism going on in the body. It is increased in fevers, in diabetes, pneumonia (during resolution); it is decreased in diseases of the liver. The amount of *uric acid* eliminated in the urine depends largely on the amount of purines in the food, and also on the amount of nitrogen in the food. It is increased in leukemia and in diseases of the liver, gout and rheumatism.

5. The *coloring matter of the blood* is hemoglobin; this is a protein which consists of globin and hematin; it contains iron, and is the oxygen-carrier of the blood. Among its derivatives are the bile-pigments, biliverdin and bilirubin; the urinary pigments, such as urobilin, and some abnormal derivatives found in certain pathological conditions. The *coloring matter of the urine* is due to urochrome (whose origin is not settled), urobilin, uroerythrin, and hematoporphyrin. Urobilin is formed in the digestive tract from bilirubin; it occurs in the urine in excess when there is an excess of bile pigment due to excessive breaking down of the red blood corpuscles, as in pernicious anemia, also in fevers. Uroerythrin is found with the urates in a urinary sediment. Hematoporphyrin occurs in excess in cases of sulphonal (and other drug) poisoning. Indoxyl is also found in the urine; it is formed in the intestines as a putrid decomposition product. Hemoglobin is found in the urine when there is an active hemacytolysis going on in the body, as in case of severe burns. Bilirubin is found in the urine when icterus is present.

(To be continued.)

Diabetes Insipidus and Pituitrin Therapy.—Kraemer treated a fireman aged 26, who suffered from polyuria, failing libido and cracking of the voice, with pituitrin. The polyuria was promptly reduced from 10 to 5 liters daily. The patient slept much better.—*Münchener medizinische Wochenschrift*.

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MALNUTRITION AMONG SCHOOL CHILDREN. A STUDY

BY THE PUBLIC HEALTH COMMITTEE OF THE NEW
YORK ACADEMY OF MEDICINE.*

1. *Statement of the Problem.*—The proper physiological, mental, and moral development of children is one of the most vital concerns of the nation. Stunted physical growth retards the normal unfolding of facultative functions and is a danger signal to the body politic.

Malnutrition is one of the most potent factors hindering the normal course of a child's development. Although distinctly a pathological entity, malnutrition is not a disease but a morbid physical condition. It may be symptomatic of definite systemic disease such as tuberculosis, cardiovascular or digestive disturbances or it may be the only evidence or result of defective metabolism or of complex and divers physiological and environmental conditions.

Insanitary surroundings, improper habits of life, lack of sleep and unsuitable food, all oftentimes due solely to ignorance, may be responsible for just as much malnutrition as is caused by poverty and disease.

Whatever its causes, malnutrition is a social menace as it hampers the natural development of the functions of mind and body and predisposes its victims to permanent life handicap.

Insofar as malnutrition is due to environmental causes it invariably lends itself to successful treatment. Every effort should be made to combat it among children. The prevention of malnutrition is a distinct public health function.

2. *Statistics of Malnutrition.*—Various studies have been made in an endeavor to gauge the prevalence of malnutrition. Some were based on the relation of weight and height of the children with-

out reference to age; others took the age factor into consideration; and still other estimates are based on purely symptomatic evidence without relation to weight. The various studies made in this country and in England indicate that on the average at least 10 per cent. of our boys and girls in the elementary and grammar schools show the well recognized symptoms of malnutrition.

The following table,¹ embodying the results of physical examinations of 2,169 children of England, outside of the City of London, shows that 16.3 per cent. of the children examined were found to be subnormal with regard to the state of their nutrition. The high percentage of malnutrition is the more striking since the larger proportion of the children examined came from rural districts where the standard of nutrition among children is, on the average, higher than in cities.

TABLE 1.

Local Education Authority	Excellent	Normal	Below Normal	Very Bad
Counties.....	6,745—11.7%	45,176—78.7%	5,268—9.2%	237—0.4%
County boroughs....	12,168—10.8%	78,475—69.4%	20,083—17.8%	224—2.0%
Boroughs.....	2,311—14.0%	11,817—71.5%	2,211—13.4%	187—1.1%
Urban districts.....	2,163—14.7%	10,036—68.1%	2,272—15.4%	262—1.8%
	23,387—11.6%	145,504—72.1%	29,834—14.8%	2970—1.5%

The problem of malnutrition among school children has received very serious consideration on the part of the school medical authorities of England. Since 1907 the school medical inspection in England has been carried on in a systematic way. The procedure as well as the reports is uniform, in this way facilitating comparative studies. A summary of the physical examinations is given annually in the report of the Medical Officer of the Board of Education.

Many cities in Great Britain also have made intensive studies of the problem of malnutrition in its various bearings. Dunfermline, Scotland, was the pioneer in the movement and the practice of recording the nutritional condition of each child upon examination has been followed throughout England. The classification adopted is rather arbitrary and lacks precision. It segregates the children into four groups as given in the headings of the above table and designates their nutritional state as: 1. Excellent, 2. Normal, 3. Below Normal, and 4. Very Bad. The application of this scale, imperfect though it be, has helped to bring out certain important aspects of the problem and to center the attention of the medical inspectors on the nutrition of the school children.

In his comprehensive analytical study of the "Health and Physique of School Children," which

*The report was prepared by E. H. Lewinski-Corwin, Ph.D., and approved by the Public Health Committee. The membership is as follows: Charles Loomis Dana, M.D., Chairman; James Alexander Miller, M.D., Secretary; John S. Billings, M.D., Nathan E. Brill, M.D., Robert J. Carlisle, M.D., Floyd M. Crandall, M.D., Lewis Fox Frissell, M.D., Arpad G. Gerster, M.D., S. S. Goldwater, M.D., John A. Hartwell, M.D., Thomas W. Hastings, M.D., L. Emmett Holt, M.D., Abraham Jacobi, M.D., Howard Lilienthal, M.D., Walter L. Niles, M.D., Bernard Sachs, M.D., Thomas W. Salmon, M.D., Frederic E. Sondern, M.D., W. Gilman Thompson, M.D., Frederick Tilney, M.D., Philip Van Ingen, M.D., Karl M. Vogel, M.D., George B. Wallace, M.D., Herbert B. Wilcox, M.D., E. H. Lewinski-Corwin, Ph.D., Executive Secretary.

comprises 800,000 English children, Arthur Greenwood, of the School of Economics of the University of London, points out that the estimated 10 per cent. of the school children of England suffering from malnutrition is undoubtedly a very conservative figure. From one-sixth to one-fifth of the children would probably be found to be suffering from some degree of malnutrition if a uniform standard of gauging the condition were established. "Where the percentage of ill-nourished scholars is very low, it seems that the standard of nutrition adopted has been somewhat low, and that, taking the country as a whole, not merely 10 per cent., but probably a number approaching 20 per cent. show perceptible signs of malnutrition."

3. *Conditions in New York City.*—The condition of malnutrition among the school children of New York City is not different from that prevailing in England as far as the available data indicate. The following table shows that the proportion of children discovered to be suffering from malnutrition has increased as the attention given to that condition by the medical inspectors has become more pronounced.

Beginning in December, 1915, the Dunfermline classification was applied to New York City and the nutritional condition of each child was recorded upon physical examination. Immediately the percentage of cases falling into groups 3 and 4 of the Dunfermline scale increased almost threefold. About 16 per cent. of the children were found to need either supervision or medical treatment. For the first nine months of the present year the per cent. of malnourished was put down as 10. On the basis of this lower figure there are, in New York City, over 100,000 elementary school children in need of attention on the score of under-nourishment.

TABLE II.—MALNUTRITION AMONG NEW YORK CITY SCHOOL CHILDREN.

Year	Number Found to be Suffering From Malnutrition.	Number of Physical Examinations Made During Year.	Per Cent. of Malnourished.
1909.	7,249	231,081	3.1
1910.	5,691	266,426	3.3
1911.	5,845	230,243	2.5
1912.	8,363	287,469	2.9
1913.	13,991	330,179	4.2
1914.	16,181	308,595	5.2
1915.	17,800	278,174	6.4
1916, Queens excluded	31,791	203,366	15.6
1917, first nine months	21,269	224,963	9.9

Both the Health Department and the Association for Improving the Condition of the Poor of New York City consider 10 per cent. an underestimated and very conservative figure by which to be guided. Here, as in England, it is a common practice among school physicians to consider malnutrition as a relative condition. That is to say, in examining children of a certain school the physicians consciously or unconsciously take the average of the school as a standard and accordingly divide the children into four groups. In the schools located in the poorer districts of the city it may happen that virtually all the children suffer from some degree of malnutrition. Yet grades 1 and 2 show relatively the same percentage as in the schools in the better sections of the city where the majority of the children are fairly robust and well nourished.

The diagnosis of malnutrition in the New York

public schools is made entirely without reference to the relation of weight to age of the children. The rules of the Bureau of Child Hygiene specify that in recording health conditions of school children weight should be taken into account, but with few exceptions our public schools are not equipped with scales. The only schools supplied with scales are those which maintain fresh air classes. The scales are invariably located in the open air classrooms and are not readily accessible. Moreover, they have not been adjusted for many years and are not used in conjunction with the routine physical examinations. All malnutrition records, therefore, must of necessity be based exclusively on the well recognizable clinical symptoms. In this connection it may be of interest to quote from a recent article by Mr. Frank A. Manny of the Association for Improving the Condition of the Poor, relating to a series of examinations of the same group of children made independently by three physicians. He says that although "ordinarily nutrition is one of the least agreed upon of defects, the results showed greater agreement than in the case of bad teeth even, and much greater unanimity than was given to tonsil and nasal breathing defects." As was to have been expected, the agreement was more pronounced in the cases of defective nutrition than in the superior nutrition group.

It is a pity that the lack of equipment prevents the school medical inspectors from registering the weight and height of the school children. These measurements, when properly and scientifically correlated with age, nutritional and other conditions, would supply us with a vast amount of instructive and valuable knowledge. The existing tables of the relation of weight and height to age are either obsolete, as is the Bowditch scale, or based on measurements of children of certain social groups, such as Baldwin's study of pupils in private schools. The Boas scale is, for the time being, the most serviceable as it is a combination of several scales. It is based on a larger number of measurements than any other scale and is more adapted to a cosmopolitan community like New York City, for it takes account of various racial stocks.

4. *Causes of Malnutrition.*—The causes of the large prevalence of malnutrition among school children can be divided into two groups: external and intrinsic. In the first group would come unpropitious environment, poverty, ignorance and bad domestic management; in the second would fall digestive, respiratory and circulatory disablenents and also those arising from bad heredity.

A. *Environmental Causes.*—The unhygienic mode of living in many of the families among the uneducated classes, together with an utter ignorance of proper dietetics, are in a large measure responsible for the devitalization of the children. In many homes the children are given tea, coffee and beer and the general diet is not properly balanced. They eat at irregular hours and do not masticate the food properly. They do not have proper supervision, getting to bed late and sleeping in ill-ventilated rooms. In the 1916 Report the General Medical Officer of the Board of Education of England draws attention to "the ill effect of too little sleep on the nutrition of the child," and states that some school doctors consider that "the Daylight Saving Act has

operated injuriously in this respect by reducing the sleep of children in some places by approximately one hour."

Usually, but by no means always, these conditions are associated with poverty which is thus alone held responsible for the phenomenon of malnutrition, while in reality malnutrition has many more than this one origin. It is undoubtedly true, however, as the various careful studies of workingmen's budgets and standards of living show, that the average earnings in the large majority of these families are insufficient to insure a proper standard of life. Robert Coit Chapin's study of 287 typical New York workingmen's families with from two to four children under sixteen years of age, the earning capacity of which varied from \$600 to \$1,000 per annum, showed that 24 per cent. of these families were underfed, 53 per cent. were overcrowded and 15 per cent. were both underfed and overcrowded. A recent and comprehensive study by Streighthoff showed that only 30 per cent. of the male workers over sixteen years of age, employed in manufacturing, mining, trade and transportation, were earning between \$626 and \$1,044, while 60 per cent. fell below it and 10 per cent. rose above it. Assuming that the nutritional conditions in families with an income of less than \$626 are not worse than those found in the Chapin group earning from \$600 to \$1,000, the number of children who, because of economic conditions, fall below the normal nutrition standard must be very considerable. Wages have risen since the data for the above studies were gathered, but the rate of increase of the cost of food and other necessities has measurably outrun the rise of the wage schedule. However plausible the connection between low economic status and undernourishment may be, scientifically established proof is lacking of the casual relation between the two.

TABLE III.

	Number of Children.	Per Cent.
Influence and reaction of disease.	49	37.1
Strong evidence of neglect, dirt or drink	26	19.8
Defective feeding, due to ignorance or poverty	25	19.1
Overwork and insufficient sleep	11	8.4
Convalescing from recent disease	9	6.9
Defective heredity	6	4.6
Pampering	4	3.0
Excessive growth	1	0.8
	131	100.0

Several years ago at the International Congress on School Hygiene, Dr. I. O. Woodruff presented the results of a careful study of the problem in connection with the children in the fresh air classes of New York City, which was undertaken in co-operation with the Committee on the Prevention of Tuberculosis of the Charity Organization Society. "The study of the home conditions," to quote the report, "has failed to show that either poor economic or hygienic conditions are a potent factor in determining either the degree of malnutrition and anemia or the progress of the child in the fresh air class." The conclusion of the study was that until more scientific evidence has been established malnutrition will have to be considered "as due either to individual susceptibility or to some other factor not yet determined." Families having the same income and the same number of children vary greatly in their nutritional state. Ignorance and

bad domestic management, which frequently prevail among those having low incomes, as well as bad habits of living, have indubitably a great deal to do with the existing nutritional debilities.

Dr. Badger of Wolverhampton, England, classified the factors that caused malnutrition in 131 cases, with the following results*:

On the other hand, within the last few years England has shown an appreciable improvement in the degree of nutrition of the children, as indicated in the diminished need of school feeding, which is accounted for by the improvement in the economic status of the wage-earning population. The following table shows the decline in the extent of school feeding:

TABLE IV. STATISTICS OF MEALS SERVED TO SCHOOL CHILDREN IN ENGLAND AND WALES.

School Year.	Total Number of Children Fed During Year.	Total Number of Meals Provided During Year	Cost per Meal in Pence.
1912-1913	358,306*	19,001,729	2 32
1913-1914	156,531	11,525,593	2 43
1914-1915	422,401	29,560,316	2 47
1915-1916	117,901	9,930,074	4 10
1916-1917	63,939	5,781,589	5 48

*This large number was partly accounted for by the coal strike of 1912.
†This increase is due to the needs which arose at the outbreak of the war.

The Chief Medical Officer of the Board of Education of England and Wales attributes this decline to the fact that "there was a great increase in wages associated with the rapid increase in employment. In due time this pronounced social change reflected itself in the homes of the people and in the feeding and clothing of the children. The evidence from school doctors and the Board's medical inspectors in all parts of the country is to the effect that in 1916 the children were, on the whole, better fed and better clothed than at any time since medical inspection was introduced." This would argue that poverty has a very distinct and direct bearing upon the malnutrition of children. The good showing for the last two years in England is still more striking when one considers that there has been a shortage of foodstuffs in the country, and also that a very large number of mothers have been engaged in industrial and other pursuits. Jointly with the possibilities of education in hygiene, it holds out great hopes for future successful results in combatting the evils of malnutrition among school children.

Housing.—Housing is another physical element which is frequently spoken of as having a bearing on the growth of children. It is exceedingly difficult to establish a direct correlation between housing and malnutrition, as the housing influence cannot easily be separated from the other conditions which accompany it. Congestion is usually associated with a number of other unpropitious circumstances. Similarly, spaciousness of home usually means higher economic and other standards. The factor of housing cannot be dissociated from the accompanying conditions and it is therefore impossible to gauge its single influence accurately.

Dr. William Leslie Mackenzie and Captain A. Foster, in their study of the physical condition of 72,857 children attending the public schools of Glasgow, Scotland, made a number of interesting observations regarding the effect of housing on the physique of the children, which throws a light on

the possible relationship. They found, for instance, that the average weight and height of children between the ages of five and eighteen years varied with the spaciousness of the home, as can be seen from the following table:

Number of Rooms in House.	Boys.		Girls.	
	Weight, Lbs.	Height, In.	Weight, Lbs.	Height, In.
1 room	52.6	46.6	51.5	46.3
2 rooms	56.1	48.1	54.8	47.8
3 rooms	60.6	50.0	59.4	49.6
4 rooms	64.3	51.3	65.5	57.6

B. Intrinsic Causes.—The second group of causes—intrinsic—are either entirely unrelated to or only partially dependent upon the external causes. Some of the debilitating factors, such as chronic absorption from diseased tonsils, decayed teeth or obstructed nasal breathing, can easily be remedied, as can also some respiratory or digestive disturbances.

There is however another group of factors arising from some obscure disease or physical defect which cannot readily be alleviated. Then, too, the influence of heredity must be considered in making provisions and plans for meeting the malnutrition problem in a medical way.

5. Agencies Dealing with the Problem of Malnutrition.—**A. Clinics for Malnourished Children.**—The group of children who suffer from malnutrition as a result of bad habits of living or a deficiency of proper food is of considerable size. The children in this group present all the symptoms of malnutrition and yet suffer from no definite clinically recognized disease. With them diet is the main thing at fault. Several of the clinics in New York have recognized this fact and endeavored to deal with these children in the way best fitted to meet their condition, namely, through the education of the parents or guardians as to their needs. The results of the educational efforts have been very encouraging.*

In the Bellevue Clinic, Dr. Charles Hendee Smith has been able to report that 66.5 per cent. of the children have gained two and a half times the expected weight rate for their ages during the first six months of treatment. The children are given repeated physical examinations at certain intervals, and carefully prepared charts are kept to indicate their progress under certain prescribed conditions of diet and routine of living. In order to follow up the cases in their homes to see that the rules are observed, a social worker is attached to the clinic. Upon the interest of the physicians and the frequency of home visits and the tact of the social worker depend the success of the treatment. The children are assembled in groups at the clinic and are stimulated to an active interest in the charts marking the progress or retrogression in their weight. A healthy concern in their own welfare has been awakened, and no tendency toward introspection has been observed among the children.

The group method of handling these cases seems

*The five malnutrition clinics in the City of New York are in connection with Bellevue Hospital, Post-Graduate Hospital, Cornell University Clinic, the Bowling Green Neighborhood Association, and the Brooklyn Association for Improving the Condition of the Poor.

to be the most successful and economical, and by a more general extension of it in the dispensaries of the city beneficial results can be obtained in a very large number of cases. By exhibits and spoken word the parents are instructed in the proper care of children and in their dietary needs and the response is gratifying in the majority of instances. This suggests the desirability of having parents present at the schools when the school medical inspectors make the physical examinations of the children. The educational value of the physicians' instructions cannot be overestimated and the success of such a procedure has been fully demonstrated in England in connection with medical school inspection. In England, where from 70 to 80 per cent. of the parents attend the physical examinations, this practice has been one of the most effective means of health education and has brought the desired results in many instances. A similar practice of insisting upon the parent's presence during the examination by the school doctor would be very desirable in our school medical system.

The successful experiment in group treatment of malnutrites in special classes might to advantage be more generally extended and should be carried on in conjunction with the pediatric departments, although the attention of other departments of the dispensaries might also profitably be directed toward these efforts.

In addition to the five special nutrition clinics, there are other agencies in the field, which have been dealing with this problem for sometime in other ways. Conspicuous among these activities are the special fresh-air classes for sub-normal children, and school lunches.

B. Fresh-Air Classes.—The fresh-air classes have been going through the experimental stage for a number of years and received special impetus in 1915. While there were 726 children receiving instruction in these classes in 1914-1915, the number increased to 1830 in the following year, 1915-1916. In view of the fact, however, that there are only about 75 of these classes in the greater city, the number of children receiving treatment at the present time constitute only a small percentage of those whose condition would warrant instruction in such classes. The further extension of these facilities was hampered for a time by the difficulty of securing arrangements for the provision of meals which were given to the children. To expedite the development of the movement, the Committee on the Prevention of Tuberculosis of the Charity Organization Society has recently abandoned the practice of providing the children with food in the morning. Another reason which prompted the Tuberculosis Committee to do away with feeding was the high cost of the service and the discovery that many parents neglected to provide the children with breakfast when they knew that the children would be given a meal at school.

The classification of cases in the fresh air classes is shown in Table V.*

It will be noticed that the cases of malnutrition in the fresh-air classes constitute a very large percentage of the total number of children thus being

*Eighteenth Annual Report of the New York City Superintendent of Schools on Special Classes, 1915-1916, p. 21.

cared for. In 1914-1915 there were 312 malnutrites out of a total of 726 children; the following year the percentage was still larger as there were 819 out of an enrollment of 1,830. In view of the large prevalence of malnutrition in our school population it is evident that the number of fresh-air classes should be multiplied a hundred fold and should be established in connection with every public and parochial school.

TABLE V.—TYPES OF CHILDREN IN THE FRESH AIR CLASSES.

	1914-5.	1915-6.
Exposed to tuberculosis at home.....	234	356
Healed and arrested tuberculosis.....	60	190
Cardiac lesions.....	79	246
Chorea.....	41	148
Malnutrition.....	312	890
	726	1830

B. Tuberculosis Preventorium.—A very efficient means of upbuilding the vitality of children coming from families in which there is tuberculosis has been established through the agency of the Tuberculosis Preventorium for Children. Hundreds of debilitated children with tuberculous diathesis are cared for annually in the preventorium situated at Farmingdale, New Jersey, where they are kept for about six months on the average, and where they are given medical, educational, and nutritional care of a very high order. There are a few other minor institutions of that character, mainly denominational. There is undoubtedly a need for further extension of this movement either in connection with Farmingdale or independently.

C. School Lunches.—Another remedial measure of established usefulness is the lunch service in the public schools. The service was inaugurated several years ago in one or two schools in Manhattan by a small group of interested persons and afterward taken over by the Association for Improving the Condition of the Poor with the distinct intention of getting the service well organized and later inducing the city to undertake it as a part of the regular school program. This is still the policy of the association. The New York School Lunch Committee exercises control over the lunches in the public schools of Manhattan and the Bronx, and there is another committee to take care of the school lunches in Brooklyn.

The "school lunch" has its interesting history and philosophy and its own administrative problems. The practice of feeding children at school is not a new venture in the educational world. It has been known in Germany since the end of the eighteenth century, and it was introduced in France in 1849 and in England in 1866.⁴ The difficulty of instructing children who suffer from inanition has been recognized by schoolmasters, and arrangements have been made to provide gratuitous meals at school, paid for from public funds.

From the very start the American practice has been different in principle. Emphasis has been laid on the fact that the school lunch service should not smack of charity. Many children, even those of the very poor, bring several coppers with them to spend during the lunch recess. In the absence of a lunch service at the school, they spend their pennies in purchasing candies and other eatables of the pushcart vendors outside the schools. The same

coppers can buy wholesome and nutritious food at the school if the service is properly organized. From the very outset it was planned that the service should not be limited to indigent children, but should be open to all on equal terms. The malnourished, indigent children receive meal tickets from the teachers, the cost of the gratuitous meals being covered by a special fund.

The theoretical one-hour lunch recess, which in practice amounts probably to not more than 45 minutes, in view of the time lost in leaving school and waiting in line on return, is too short to enable many children to go home for lunch, and eat it without injurious haste. In many homes the mothers are engaged in outside work, and the children stay around the school building during the lunch recess. Frequently inclement weather keeps children from going home. All these causes combined create a demand for lunches at school on the part of a large number of children. The originators of the movement in New York counted on this large demand for establishing the service on a democratic and nearly, if not fully, self-supporting basis.

The same principles underlie the school lunch systems in the other American cities. The service has been widely introduced in all parts of the country. In Philadelphia the experiment has been tried out very successfully, and in 1915 the service was taken over by the Department of Education. At that time the School Lunch Committee of Philadelphia published an elaborate report⁵ setting forth the results of their experience. That "more lunches are served at the ten o'clock recess than at any other time" is one of the findings of the study. The superintendent of schools of Philadelphia is of the opinion that it is advisable to institute a lunch system which would give the children an opportunity to have mid-morning lunches, as many come to school without breakfast, or have eaten so early in the morning that they want something to eat at about ten o'clock. In a recent investigation made by the Department of Superintendence in one section of Philadelphia, it was found that 8 per cent. of the children came to school with no breakfast and 60 per cent. with insufficient breakfast.

The other findings of the Philadelphia committee are likewise very instructive. One of them is that the *a la carte* plan is more popular than the *table d'hôte*. That is, the children prefer a choice of three one-cent units to a three-cent combination. The average expenditure of a child at the school lunch counter was one dollar and twenty cents per year. The other finding was that the lunch sales are greatly affected by the weather and the season of the year, and do not follow the curve of school attendance. During the winter months the sales are high, regardless of school attendance. The five-year experiment fully established the fact that "children will buy wholesome food at school if given the opportunity," and that the service can be put on an almost self-supporting basis."

Since the Philadelphia Board of Education assumed control over the lunches in elementary schools it has opened 25 additional counters in as many schools, and placed them under the same supervision as the lunch services in the high schools. The director of the Department of School Luncheons reports that during 1916 the sales at one cent a portion cov-

ered only the cost of food and the services of the workers. The deficit was met with the profits realized from the lunches in the high schools. During the year approximately 33,000 children in the elementary schools and 15,000 pupils in the high schools availed themselves of the 50 school lunch counters at either the morning recess or during the noon lunch hour. They paid in \$150,000, of which 66 per cent. was expended for food, 32 per cent. for supervision and wages, and 2 per cent. for repairs and replacing of equipment.

The New York School Lunch Committee maintains the lunch service in 35 elementary schools situated in the more congested parts of Manhattan and the Bronx, and proposes to enlarge it as soon as additional funds are raised for the purpose. About 20 per cent. of the children in the schools where the services have been instituted avail themselves of the lunches. The service is operated at a loss. The money paid by the children covers only the cost of food. The deficit is met partly by an allowance from the fund donated to the Association for Improving the Condition of the Poor by Mrs. E. M. Anderson for social welfare, and in part by voluntary contributions of persons interested. The city contributes the necessary space, and also the equipment. Formerly each school had its own kitchen, but it has been found more economical to prepare the food in central kitchens and distribute it by trucks. At the present time there are four central kitchens, one capable of supplying fifty schools, located in an abandoned school building at Delancey and Tompkins Streets, and three small ones located in other sections of the city. Two automobile trucks distribute the food.

The lunch service in each school is in the charge of two women, one serving the soup and washing the dishes, and the other helping to serve and acting as cashier. Usually one or two of the school children assist in selling. In schools where the attendance is very large an extra paid helper is added. The women workers, who work eight hours a day, receive \$7 per week. Their time is frequently divided between different schools. The cashiers receive from \$3.50 to \$5 a week, and work from 10 A. M. until 2 P. M. The rate of compensation and the hours of service depend upon the conditions in the various schools.

The food served to the children is examined as to its quality, and is prepared under carefully supervised sanitary conditions. The menus are prepared by a trained dietitian. Before a dish is authorized the dietitian must be satisfied that it does not offend religious or racial prejudices, that it is not below the desired standard of food value, and that the essentials of proper balance of constituents is maintained in the preparation of the food. The children are free to select the foods, but all must buy a bowl of soup before they can obtain anything else.

In Table VI are some of the combinations of food which the children were able to purchase several years ago at a cost of three cents.⁷ Now the same combinations cost six cents.

The school-lunch experiment in New York has fully demonstrated the value and possibilities of a rationally organized service for the benefit of school children. It has been successful as far as it has gone, but owing to the limitations imposed by the lack

of adequate funds it has not been extended to as many schools as it should have been, in the best interests of the children. The selection of the schools could, perhaps, have been improved in some instances, and more emphasis laid on the educational side than has been done. The New York School Lunch Committee clearly realize the limitations of their work, and are desirous of having the city take it over and expand it in accordance with the well-recognized needs. The school authorities have always favored the school lunch, and regarded it as a desirable adjunct to the school organization. They appreciate that inadequate nourishment retards the educative process. The cost of reeducating children who fail in their studies because of undernourishment will undoubtedly more than cover the possible deficit which the city may incur by maintaining a lunch service in the public schools which demand it. In principle, selling food at cost to school children who are in need of it does not differ from providing milk at cost for children registered in the municipal Babies' Welfare Stations. A study⁸ made by Miss M. E. Bulkley in England shows that the effect of the school luncheon on the school children was most beneficial. "Whether we consider the improvement in physique, mental capacity, or manners, there is no doubt that the provision of school meals has proved of the greatest benefit."

TABLE VI.

	Calories per Portion.		Calories per Portion.
Green pea soup.....	128.31	Vegetable soup.....	85.00
Bread, 2 slices.....	200.00	Egg sandwich.....	236.00
Apple sauce.....	108.57	Rice pudding.....	108.76
	436.88		429.76
Cream of barley.....	120.47	Clam chowder.....	82.00
Cheese sandwich.....	250.17	Butter sandwich.....	247.25
Chocolate pudding.....	101.50	Jelly tarts.....	83.85
	472.14		413.10
Macaroni and tomato....	105.29	Bean soup.....	111.27
Apple jelly sandwich....	240.17	Bread, 2 slices.....	200.00
Cocoa.....	100.00	Prunes.....	180.00
	445.46		491.27

There is a need of maintaining the lunch service in 100 of the 248 public schools of Manhattan and The Bronx. This would mean providing equipment for 65 additional schools. The cost of such equipment is about \$500 per school. In addition, four new central kitchens would probably be required and at least two additional automobile trucks. Funds would have to be provided to pay the wages of the 250 lunch and kitchen attendants, cooks, drivers, and overseers. The installation of the lunch services in the additional schools, the equipment of the new central kitchens, and the buying of two new trucks would probably mean an outlay of \$80,000. The cost of personal service would amount to over \$100,000 annually. To this should be added the cost of upkeep and repairs and the rental charges for the central kitchens. It is highly improbable that with the present high prices of foodstuffs the penny contributions of the children could do more than cover the cost of food. All the other expenditures of the service will have to be met by tax funds, if the city decide to make it a part of the school organization.

D. Baby Welfare Stations.—Realizing that a

great deal of malnutrition is due to ignorance, early in 1917 the Health Department of the city determined to furnish the mothers registered in the Baby Welfare Stations with practical instructions in cooking cereals and other foods and with advice as to how best to utilize a dollar's worth in buying wholesome and nutritious food. The nurses of the Baby Welfare Stations were given preliminary instruction by dietitians, and afternoon classes were started in the Milk Stations. The response is reported to be very encouraging. The women come regularly, and contribute small amounts to a fund for the purchase of the materials. The cooked foods are divided among them and taken home. Through these classes many women learned for the first time the taste of cereals, as well as the method of preparing these foods. The demonstration cooking classes in other cities are reported to have gained similar success in enlarging the dietary of the people by introducing cereals.

E. Diet Kitchens.—To meet the demand for cheap cooked food in the poorer districts of the city, kitchens have been opened in connection with settlements and other organizations. The People's Kitchen at Twenty-eighth Street and Tenth Avenue is serving several hundred meals daily. Many women employed during the day purchase the food for their households at these kitchens.

F. Fresh Air Funds.—Another important agency which aims at upbuilding the children is the fresh air funds and camps. Thousands of children are taken to the country or seashore during the summer for short periods, usually about twelve days. This excellent charity is doing very effective work in giving the children an opportunity to enjoy the benefits of fresh air and good food. The period of stay, however, is very short, especially for the children who are very much run down. It seems desirable that arrangements should be made for a longer stay for those children whose condition is considerably below normal. In addition to the extension of time at these camps, more control should be exercised over the diet and hours of sleep of the children than is being done in some of the camps.

G. Education.—The importance of proper instruction in personal hygiene and right living as a powerful counterforce to malnutrition has been well recognized, and educational campaigns have been carried on along these lines by public and private agencies. Their efforts have thus far failed of tangible accomplishment in view of the inertia and strongly entrenched habits of the various groups composing our population. A great deal remains to be done in the educational field.

In this connection it may be of interest to refer to a study made by Mr. Frank A. Manny of a number of malnutrition cases in the Gramercy District. The study revealed the fact that malnutrition is more prevalent among children of native than among children of foreign-born parents. It might be worth while to follow up these findings with a more extensive study and ascertain the reasons for the condition if it obtain generally.

3. *Need of Coordination.*—If the various efforts which have been put forth to remedy the malnutrition condition among school children were properly correlated and directed, and if the cases were segregated according to a well-devised plan and the

children of the wasting type eliminated for treatment in hospitals, a maximum of result could be accomplished with a minimum of expenditure. At present the various efforts being put forth lack a proper measure of coordination. A representative committee of the most important organizations interested in the problem could probably undertake such a task to advantage.

RECOMMENDATIONS.

1. That a wide educational campaign including practical instruction in cooking be instituted by the various agencies interested in the promotion of welfare of children.

2. That special lectures on proper nutrition and general hygiene be given frequently in the elementary and high schools, public and parochial. Printed dietetic instruction might to advantage be given to school children in connection with the lectures.

3. That the Health Department be urged to concentrate the attention of the Division of School Medical Inspection on the problem of malnutrition.

4. That school nurses be instructed to make frequent and careful follow-up visits to malnutrition cases and to co-operate with the special clinics.

5. That the schools be provided with easily accessible scales for use in connection with the periodic medical inspections as well as the reexaminations.

6. That the Bureau of Child Hygiene publish annually the data bearing on the physical growth of the school children.

7. That the useful work done at some of the clinics of the city, where special classes have been formed for undernourished children, be extended to the general dispensaries of the city. Such classes should be organized in connection with the pediatric departments of the dispensaries and the hours arranged to meet the convenience of the school children as far as possible.

8. That effort be made on the part of the health authorities to cooperate systematically with the various civic and social service agencies, as well as clinics, to reach the children of pre-school age between two and six years.

9. That the school authorities be impressed with the need of the further extension of the fresh air classes, and that effort should be made to bring all the children in these classes in relation with the nutrition clinics.

10. That the midday recess be made long enough to allow the children to eat their luncheons with less haste.

11. That the school lunches be extended. If private means are not available to assure the desired extension, it should be taken over by the municipality.

12. The service should be placed under the control of a special division of the Department of Education and be made self-supporting, at least as far as the cost of food is concerned.

13. Control should be exercised in connection with the sale of the lunches so as to insure a proper selection of foods and the attendants should make note of children who appear to be poorly nourished and refer them to the school nurses.

14. That the teachers should be impressed with the prevalence of malnutrition and be instructed

to observe the children with reference to their nutritional condition. Children with pronounced malnutrition symptoms should be referred to the school doctors and nurses.

15. That the number of community and demonstration kitchens be increased, and that special cereal kitchens be established in connection with them.

16. That an effort be made to send all the children suffering from malnutrition to camps and fresh air homes during the summer, to be kept there for longer periods of time than are usually allowed. Efforts should be made also to secure an adequate control of the feeding and the sleeping accommodations in the camps.

17. That a special committee representing the various civic and public health agencies of the city be organized to promote a movement for the proper nutritional care of children, and to correlate the various endeavors being made along these lines in the city.

REFERENCES.

1. Annual Report for 1915 of the Chief Medical Officer of the Board of Education, London, 1916, p. 31.
 2. "Fresh Air Schools in New York City. A Comparative Study." Transactions, Fourth International Congress on School Hygiene, Vol. II, pp. 88-89, 1913.
 3. Arthur Greenwood, "The Health and Physique of School Children," London, 1913, p. 51.
 4. Louise S. Bryant, "School Feeding," Philadelphia, J. B. Lippincott Co., 1913, pp. 14-16.
 5. Emma Smedley: "The Co-operative School Lunch-eon System of the Philadelphia Board of Public Education," published in *The Modern Hospital* of February, 1917. Vol. VIII. No. 2.
 6. "School Lunches in Philadelphia." Report published by the Home and School League, Philadelphia, May, 1915.
 7. Edward F. Brown, "The School Lunch Service in New York City," pub. by Dept. of Education, N. Y., 1914, p. 12.
 8. Bulkley: "The Feeding of School Children," London, G. Bell & Sons, 1914, p. 201.
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THE PSYCHOPATHOLOGY OF SELECTIONS OF VOCATIONS;*

PRELIMINARY COMMUNICATION.

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THE reason why I object to certain types of fairy tales is because fairy tales are offshoots of archaic thinking originating in antiquity, and because they are products of unconscious wishes symbolically representing those primitive impulses which the cultured being must learn to repress and sublimate in order to fit himself for modern life.¹ Progressive civilization depends on the harnessing and controlling of the forces of nature as well as the forces of the individual, and in directing these forces into useful channels. A fairy tale, or a story that stimulates any of the partial impulses or components of sex in children, may impede or arrest the normal control of the individual's energy. Sooner or later every normal human being must give up many of his natural prerogatives and be-

come part of the society he lives in. He must renounce many of his individual desires and must exert continuous effort for the common weal. That is, every individual must contribute something to the society he lives in by adding something useful to it. We may designate such contributions as work.

In the progressive development of culture this mode of activity became more and more complex. At first there were almost as many vocations as men, but as time went on it was found necessary that many persons perform the same kind of work. Instead of one tailor or doctor or musician there had to be many tailors, many doctors, and many musicians. In other words, every individual has been allowed by society to live through some of the pleasure principles, but he has been forced to adapt himself to the principle of reality. From our psychoanalytic knowledge we recognize this process as sublimation. Every activity or vocation not directed to sex in the broadest sense, no matter under what guise, is a form of sublimation.

Now, is the form of sublimation followed by the individual a matter of accident; in other words, is the selection of vocation a matter of chance, or is it governed by definite laws? The average person seems to consider the selection of a vocation accidental or at least something that is quite impersonal. He usually assumes that given certain qualifications, physical or mental, or both, a person could undertake any kind of work or vocation. This view is evidently held by parents who usually think they are best qualified to select their children's vocation, and by professional vocational guides who have reduced it all to a sort of mathematical formula. They examine the person, discover some of his attributes, and then feel presumptuous enough to tell him what he is fitted for.

Such procedure may be good enough for defective persons whose power of sublimation is poor in any case and whom a certain amount of suggestion can influence at least for a time. But does a normal person need such advice and does such advice help him? Investigation shows that the normal individual needs no advice or suggestion in the selection of a vocation, he usually senses best what activity to follow, and, what is more, he is invariably harmed if advice is thrust upon him by a person of authority. For it is known that all our actions are psychically determined by unconscious motives, that there is no psychic activity which does not follow definite paths formed in the individual since his childhood, and as work or profession is nothing but a sublimating process in the service of hunger and love we may assume that it also must be guided by the individual's unconscious motives. Investigation has convinced me of the truth of these assumptions.

When we ask a person why he follows a certain vocation he usually answers that he does not know, that he just drifted into it accidentally. Occasionally he answers that his grandfather and his father performed the same line of work and that he followed it. On applying the psychoanalytic method, however, one usually finds some hidden reasons for the particular activity. For years I had investigated in this manner among patients, friends, and strangers, and though my findings are not com-

*Read before the New York Psychoanalytic Society on March 27, 1917.

plete I feel that I can furnish a preliminary report.

The motives which actuate one to take up a certain vocation vary with the person, that is, every vocation is individually determined. My first investigation naturally began with physicians. I asked of my confrères why they took up the practice of medicine as a vocation and from the many answers obtained I shall mention some.

Dr. W. stated that since his early childhood he had been surrounded with doctors who were endeavoring to cure him of a paralyzed limb, the effects of infantile paralysis, and as they could not help him he decided to become a physician and cure himself.

Dr. A. recalled that as a child he suffered from boils or carbuncles and was taken to the doctor by his father. The doctor was very brutal to him, and very inconsiderate and almost insulting to his poor father. As a child he could not understand his father's humility in the presence of the brutal doctor, as his father's behavior was quite different in his own home. This impression remained permanently fixed on his mind. Whenever he was punished by his father he thought of the doctor before whom his father trembled, and as a small boy he secretly wished he were a doctor. When he became of age he realized his wish.

Dr. B. had no idea why he chose medicine as his profession, but finally recalled a scene from his early childhood. He overheard a conversation between his mother and another woman; the latter looking at him asked his mother the month of his birth, and when told that it was the month of October she dryly remarked, "Poor boy, he will be either a doctor, a butcher, or a murderer. He will have to shed blood." As he did not care to adopt the last two vocations, he became a physician.

Dr. C. told me that as a boy he lived near a slaughter house, and often witnessed the killing and skinning of animals, which greatly fascinated him. Since the age of eight years he had not seen the slaughter house, and these scenes entirely vanished from his mind, but when at the age of sixteen the teacher of physiology demonstrated the circulation of the blood in the frog he became very interested and decided to study medicine.

Dr. D. was the son of a horse dealer who was also interested in veterinary surgery. His father urged him to become a veterinary surgeon, which he set out to do, but changed later to human beings.

Dr. E. was the son of a butcher whose ambition it was that the son should follow his vocation. The latter, however, insisted upon studying medicine and became a learned anatomist.

In all these cases the sado-masochistic components were first accentuated—in *Dr. W.* through his own suffering, and in the others through early impressions—and later sublimated in the profession.

The woman who associated the doctor (surgeon) with the butcher and murderer was not so far from the mark. All these activities are based on the sado-masochistic components, it is only a question of adjustment. The surgeon and the butcher have both conquered their sadistic impulses and sublimate the same for useful purposes. The former representing a higher state of mental evolution becomes a direct savior of human beings, while the latter, not so much endowed mentally or perhaps having lacked the opportunities for further mental development, still helps mankind by butchering the animals which furnish its meat supply.

Barbers, too, are often dominated by a strong sadistic trend. Not so long ago the barber used to pull teeth, perform venesection, cupping, and other minor surgical operations. The barber's pole was originally a white pole sprinkled with blood.

The professions of prize fighters, wrestlers, bull-

fighters, warriors, and mighty hunters are direct descendants of pure sadism, and the need for the sadistic outlet is well shown by the popularity of these vocations. Those who witness a prize fight soon observe that the whole audience, and particularly the votaries of the manly art, actually participate in the fight. One of my patients told me that whenever he goes to a prize fight he has to sit apart from everyone, for when the prize fighter, who is his favorite, strikes he has to imitate him. He got himself into trouble many a time for hitting his neighbors, he simply could not control himself, and to avoid this he has to sit away from the other spectators. Others do not actually strike their neighbors but they shout, yell, and mimic the actors; in other words, they identify themselves with the fighter and in this way give vent to their own sadistic feelings.

Some of the mechanisms are quite different, thus I know three physicians who selected this profession because as children they were jealous of the family doctor, who, they imagined stood in greater favor with their mothers than their own fathers. Quite a number of the sons of my lady patients whom I treated successfully have announced their intention to study medicine and take up my specialty. There is a tendency on the part of the sons to rival their fathers or any other man whom their mother admires. The last mechanism is also observed in other vocations. I know two sons who became real estate agents in order to outdo the man with whom their mother was in love.

The profession of law is often taken up as a reaction to a dishonest act committed in childhood or early boyhood by oneself, by parents, or by some immediate member of the family, as brother or sister. Such persons are usually scrupulously honest lawyers and judges, as unconsciously they always feel that they are suspected and that they have something to atone for. Quite often it is an unconscious effort to obtain justice for oneself as a result of an injustice experienced in childhood.

Mr. C., a very prominent jurist, had no idea why he took up the study of law, but examination revealed the following facts: He was brought up in a religious New England atmosphere. His mother was rather nervous, and kept her husband and children in a very repressive state. The Mayflower spirit hovered over everything. She particularly objected to smoking, and for years quarreled with her husband about it, until he was forced to give up this luxury. Her two boys were constantly subjected to all sorts of restrictions. One day, while waiting with other children in the dressing room of a dancing school, they noticed a burning cigarette left by the dancing master. The older brother, noticing the burning cigarette, which stood for one of the strongest taboos in his home, conceived the temptation to violate it, and not having the courage to do it himself, he turned to his younger brother and said, "Charles, I dare you to take a puff from this cigarette." "I will take one if you will," answered Charles, and on being assured that the older brother would follow him in this transgression, he bravely inserted the cigarette into his mouth and took the puff. His older brother thereupon lost his courage and refused to follow suit. And what was more, in order to atone for his evil thought, he told his parents of what Charles was guilty. One can hardly picture the fear, remorse, mortification, and last, but not least, the sense of injustice experienced by the little boy when he was denounced to his parents. The mother was terrified at her son's crime, and called him to account for it. Charles experienced a double feeling; to confess would be facing his mother's terrible wrath, and to lie would

be facing the wrath of heaven. He chose the latter and stoutly denied his guilt. To settle the matter the parents asked him whether he would take an oath on the Bible that he did not commit this crime. Charles hesitated just a few seconds and then stood ready to take the oath. It seems that the parents suspected that he was guilty, or they feared to use the holy Bible in vain, so that instead of bringing in the holy book they brought in the Bible stories, upon which Charles swore that he did not take the puff. The parents probably soon forgot the episode, but Charles retained an everlasting impression of it. For a long time he felt like a person guilty of an enormous crime against God and his parents, and constantly anticipated some terrible retribution; on the other hand, he felt that a great injustice was done to him by his brother, who first inveigled him into committing this evil act, and then betrayed him. In time this episode was forgotten, but the small boy became thoughtful and serious minded; as he grew older he became a champion of his oppressed classmates and gradually decided to become a judge. When he graduated from college he took up the study of law and realized his wish.

What was just enumerated was discovered during the analysis of a stereotyped dream which appeared on two occasions while the dreamer was under an anesthetic, the second time after an interval of twenty years. The dreamer imagined that it was the Day of Judgment, and that he stood before God, who asked him questions; although he knew the answers he refused to give them and was jeered by the multitude. God in the dream was his father, and being examined on the Day of Judgment referred to the episode just related. The father in the dream as well as in daily life is often substituted by the Governor, the Mayor, and by God himself.² Mr. C., who is now about fifty-five years old, had no conscious knowledge of the cigarette episode and the part it played in his life until his dream was analyzed. When he finished his story I remarked that there was one other vocation that he might have taken up, the ministry, because in my experience this vocation is often followed by persons who unconsciously feel remorse for some crime committed in childhood or as a reaction to temptations in later life. He confirmed my statement by telling me that he was in doubt as to which of the two vocations to take up, and if it were not for the fact that his religious feelings underwent a great change during his college years he would have become a minister of the gospel. He was undecided about it until he graduated from college—it was always a question between the ministry or the law.

Unconscious and sometimes conscious feelings of guilt and remorse as a reaction to real or imaginary sins are often the basis of theological callings. This mechanism is clearly seen in such religious groups as the Salvation Army and some Missions. If one attends such religious meetings one invariably hears confessions such as, "I was a thief and a low sinner until I saw the light of the Lord; two years later I was a backslider but again I found Him," etc. Some of the converts fluctuate all the time between heaven and hell. Here the maladjustment is so marked that sublimation is imperfect or almost impossible; this accounts for the chronic backsliding and the repeated changes from one religion to another. Only a few months ago the daily press reported the case of a clergyman who changed for the third time from one denomination to another.

I know a similar case of a man who fluctuates

between fervent Evangelism and extreme Atheism. He is a morbidly religious person who is making desperate efforts to adjust himself, and depending on the reaction of the time he either preaches the gospel or the non-existence of God. I was also impressed by the number of dissatisfied and struggling homosexuals who follow religious callings.

Sublimation of infantile exhibitionism³ often impels one to follow the stage, the army, or the vocation of life saver. The actor and the professional soldier are sublimated exhibitionists *par excellence*; the latter is also unconsciously dominated by a strong aggressive component. The aggressive component which under certain conditions changes to sadism is found in the sexuality of most men. "It is a propensity to subdue, the biological significance of which lies in the necessity of overcoming the resistance of the sexual object by actions other than mere courting." This component is seen throughout life in its sublimated form, one notes it in the aggressive business man, in the lawyer, in the satirical speaker and in its accentuated form in the soldier. Among the first games of boys one invariably finds the playing of soldier, and the need for such outlets is readily seen in the popularity of the Boy Scout movement, and the admiration that has been bestowed on soldiers from time immemorial.

Acting also belongs to the earliest games of children. In fact most playing of children is acting. It is known that a great many nervous people are good actors; they are natural actors. Hysterical persons can imitate almost anything; they are the best tragedians as well as the best comedians. And if we consider the nature and mechanism, namely, the inability to adjust or fix properly one's libido, we can readily understand the psychology of the actor. The actor utilizes this very inferiority as a sublimation. Actors are persons who are usually unable to fix properly their libido. Due to some unconscious disturbance their emotional transference is more or less inhibited, so that they are unable to develop fixed characteristics; they remain more or less infantile and are therefore able to identify themselves with the different characters they represent on the stage; they are still mouldable, as it were. That accounts for some of the characteristic traits of the actor. I refer to the sexual maladjustment as evinced in uninhibited morality and marital unsteadiness which have been attributed to stage folks in all lands and at all ages. To be rigid or at least regular in the sense of following the dictum of society in one's sex life presupposes a well adjusted and fixed libido. Now I do not wish to imply that the actor is to be considered inferior because he manifests this maladjustment of his love life; on the contrary he has the courage to put in operation what the average person secretly desires. That is why we admire the actor, and that accounts for the popularity of plays which deal with the primitive impulses. They offer us a mental catharsis, we cry and laugh at the play because we identify ourselves with the actor, to wit, with the hounded rogue or ideal hero, whom he represents. The actor's identification with the stage character is well illustrated by the following story. An admirer of the great actor Booth, after witnessing his wonderful performance of King Lear,

asked the famous tragedian to explain the secret of his skilful rendition of this character. Booth turning very abruptly responded, "Sir, I am Lear."

It is due to the same mechanism that only few great actors have ever produced original works that could lay claim to individuality. They are so used to identify themselves with their stage characters that they find no time to develop a steady and fixed character of their own. For the character of a person is nothing but the sum total of one's past impressions.

My own investigation with life savers convinces me that most of them take genuine delight in their vocations mainly because they love to display their well developed muscles. Professional athletes and "sports" are dominated by the same exhibitionistic impulse, most of the latter, however, unable to exhibit themselves, gain pleasure by identifying themselves with the actors (ball players, fighters, etc.).

Some of the vocations can be traced to very early infantile sexual traits. Thus I know of a maker of optical instruments, a successful manager of a big camera department, and three photographers who were punished in childhood for evincing a strong curiosity for sexual looking, and although they did not become *voyeurs*, they all manifested a strong tendency for looking. I have reported the case of a man who displayed in early childhood a strong perverted impulse for odors,⁶ who became a successful perfume dealer, after he was a failure in two other vocations. Unconsciously such people take up the vocations that gratify them in a sublimated form. The reader need not be surprised and shocked merely because some people who are doing useful work merged into it through sexual impressions of childhood. There is nothing wrong about it. Some of the most sublime institutions in this world had their origin in sex.

In analyzing a man who became rich from an invention, or rather an improvement of patterns for ladies' apparel, I found the following facts: He was brought up in a small settlement in very poor surroundings. His father was unambitious, apparently not a very strong character, while his mother, to whom he was very much attached, was a very hard working woman who had a constant struggle to keep the wolf from the door. She was rarely able to save enough money to buy new clothes for the children and herself, and as a little boy he was often moved to tears when she bewailed her sad lot. It was the strong wish to grow up and work for his mother which later guided him unconsciously to occupy himself so assiduously with things relating to women's apparel through which he made his fortune.

Some selections of professions are quite puzzling. One wonders why some people take up the heavy brass instruments or the bass-drum in music. For the information of some it may be said that the players on these instruments usually have as much knowledge of music as any member of the band. One might therefore ask why they prefer instruments that can be used only in conjunction with a band and which offer little if any outlet in any other way. I have not had the opportunity to study many such people, so that I am not offering anything conclusive. I know two drum players and two saxhorn players.

Mr. T., a drummer in an orchestra, told me that as a little boy of 4, 5, or 6 years he was very anxious to have a drum; the neighbor's boy received one for Christmas and he begged his father for one and cried for it, but the latter either did not wish to buy it for him or was perhaps too poor to do so. One evening the neighbor's door was open and no one seemed to be home; he walked quietly into the house and stole the drum. He hid it for a while, but as he could not resist the temptation to beat on it he was soon caught with the goods. The punishment was severe and produced a very strong impression. At the age of seventeen years he began to study the violin, and a few years later he joined an amateur orchestra, playing second violin. A vacancy for the drummer's place then occurred and he volunteered to fill it. In a very short time he became such an accomplished player on this instrument that he obtained a lucrative position in a big orchestra.

Mr. X., the other kettle drum player, was very fond of music and studied it for years. He, too, volunteered to take the position of drummer in a band and has played on this instrument ever since. Mr. X. came to me for treatment because of bashfulness. He had always been a very seclusive and reserved person afraid to speak to people. It was impossible for him to put himself *en rapport* with anybody. He became tongue-tied whenever he came in contact with people, men or women. When he first came to this city he refused to live in a boarding house because he was afraid he would have to sit at the same table with people who might talk to him. Before taking up music as a profession he lost his position in an office because he was unable to talk to the manager of his department. Here the drum fits in well with his nature; the drum is not an instrument that talks along fluently with the other instruments, as, *e.g.* the violin or clarinet; though it is a part of the band it is nevertheless more or less aloof in its behavior and it can always be heard when it speaks. In the case of Mr. X. it served as a compensation for his enforced quietude.

The players on the heavy brass instruments showed similar mechanisms to the one found in X. One observes that people playing on drums, basses, or heavy brass instruments are not of the same type as those who play the first violin, and are altogether different in makeup from those who lead the band. They are often people who for some reason or other must stand away from the crowd, who are not very good "mixers" but would like to be.

I have spoken to a number of people who were rubbers in Turkish baths. I found that in some cases the vocation went back to the infantile desires for touching, in others it was distinctly pathological, and still others have taken up this vocation because it alleviates their own physical ailments. I have in mind one man who has been a "rubber" for about twenty years. He told me that he suffered from rheumatism, and was told that Turkish baths would help him; as his aches diminished through the baths he decided to take up some occupation in the baths and became a rubber.

A few street cleaners have also been examined. Some were seen by me, and a few by former patients who kindly volunteered to assist me. There seem to be two types of street cleaners, some who

are quite old or incapacitated to an extent that they are unable to follow their former vocations, and others who select street cleaning as a vocation of preference. The latter are usually clean-cut men of about 35 years and one wonders why they should be attracted to street cleaning. Of the few examined, some seemed to have retained the infantile coprophilia and, like children, liked to wallow in dirt. One of my friends brought me a report of a man of about 35 years, a street cleaner, who described the difficulties he had to encounter to obtain this position; that he had to pass examinations and had to get some political influence, etc., etc. This man distinctly stated that he "loved" his work because "I love to see the water flush the streets and clean them through and through." His whole life seemed to be in his work, as he described it. This man recalls Boitelle by Maupassant, who "made a specialty of undertaking dirty jobs all through the countryside. Whenever there was a ditch or a cesspool to be cleaned out, a dunghill removed, a sewer cleansed, or any dirt hole whatever, he was always employed to do it." Dr. Karpas, from whose interesting paper I am quoting,⁶ states: "Boitelle was disappointed in love—he was not allowed to marry a negress with whom he was deeply in love. Thus his ungratified wish—to marry a negress who was forbidden him by his parents and by society—found a substitute in the selection of a particular vocation which was likewise dirty and disagreeable to society."

One of the street cleaners who came under my observation presented almost a similar mechanism. He was an able-bodied man of about 40 years who could give no reason for selecting this vocation. When asked about it, he said it was "as rotten and dirty as any other—what does it matter what you do?" He was an avowed anarchist and took every occasion to decry the rottenness of our social system. I heard him first a few years ago at a public meeting where he protested against being forced by the Street Cleaning Department to march with a dirty broom on his shoulder. He was fiery in his denunciation, to the extent of advocating violence. I was unable to enter into his intimate life, but may we not assume that his vocation was an unconscious effort to clean up the rottenness of society which seemed to trouble him so much? I have no doubt that had we been able to enter into this man's life we would have found besides some infantile determinant.

Besides the specific forms of sublimation, as seen in special vocations, one also notices certain modes of sublimation of a more or less general nature. "Only" children and first-borns, who, by virtue of their positions in the family, become domineering and officious,⁷ usually select the vocations requiring leadership, such as teachers, religious and political leaders, while the youngest child, who was bullied and intimidated by his older brothers, is generally satisfied with a subordinate position in life. I have mentioned only very few examples of the mechanism of selection of vocation that have come under my observation, but these suffice to show the forces that one generally finds behind selected vocations. There is always some psychic determinant which laid the foundation for the later vocation, and if not interfered with the individual is unconsciously

guided to express his sublimation in that particular form. It makes no difference whether a man is a financier, preacher, actor, physician, cook, or shoemaker, provided he himself has selected this vocation and was not forced into it by home environments or social conditions; he will find his proper outlet in his work and under normal conditions he will never become fatigued by it or wearied of it. Most of the failures in life are due to the fact that one tries to do what one is unfit for or unwilling to accomplish. Incidentally, I wish to say that no one ever suffers a nervous breakdown from overwork. Of course, I am not referring to breakdowns as a result of physical factors which are seen among workers in factories under unsanitary conditions, but to the so-called nervous breakdowns as a result of overwork. Strictly speaking, these maladies do not exist. When one investigates such nervous breakdowns one invariably finds that many of them belong to the psychoses; others represent well-developed neuroses which were brought to the surface by any of the provoking agents one always encounters in such maladies, and in still others one finds that the work or vocation was always accompanied by severe resistances, and that instead of representing a natural outlet it was monotonous drudgery. When one takes the history of such persons one finds that they were always more or less discontented, that they were in constant need of vacations, and were always ailing. Contented workers have to be forced to take vacations. Vacations as commonly understood are neurotic fads which adjusted persons don't want and which are of no benefit to those who clamor for them. The fact that most vacations really cause fatigue shows that their alleged purpose is just a blind. The adjusted person works for work's sake—his vocation represents a part of his "cosmic urge" and hence he is unable to stop. That answers those who are puzzled why some of our multimillionaires continue to work untiringly. It is surely not for the love of money, as most think. On the other hand, there are cases on record of men who died soon after giving up lifelong vocations.

There are also a great many failures due to the fact that people follow certain vocations for which they are mentally unfit. Such persons are usually defectives who have not enough insight into their own ability and cannot at any time sublimate properly; this is clearly seen in their love-life wherein they evince rapid attachments and just as ready detachments of their libido. They are unable to fix on either the love object or vocation; they are pathological flirts. The other failures are due to exogenous factors; not a few among those were forced into their vocations by some authority, and were then prevented by conscious or unconscious circumstances from changing to something else. Such persons merge in time into a neurosis, which is nothing but a manifestation of their inadequate adjustment, and often enough forces them to give up their work and take up something else. Unconsciously physicians have always sensed this mechanism, and for years it was customary to advise nervous patients to take up another vocation which they selected for them. Such selections were invariably doomed to failure, as no person of normal mind, even though neurotic, should be advised as to

the selection of a vocation. As in the selection of a mate, a sensible person needs no advice and wants none, and fools will fail in spite of the best guidance, for we can only do well those things that we do with our hearts, with our whole souls. The people who themselves selected their vocations, whose cases I cited, were all successful in their various callings, because their vocations supplemented or substituted their primitive components. The German expression, "Arbeit macht das Leben süß," is literally true in cases where the work represents an outlet for the individual. This is true of all vocations. Those of you who have lived abroad and frequented the less pretentious restaurants remember how proud a French or Italian cook is of his or her special dish, and how pleased the host is when his guest enjoys his meal. One can see they derive genuine pleasure from their work. I feel that the restlessness and dissatisfaction among our working classes, which often result in strikes, is not altogether due to the causes generally attributed to them. It is not so much a question of money as of emotion. Owing to the many inventions which have gradually transformed manual labor into machine work, the laborer no longer finds the same interest in his work. The shoemaker no longer makes a shoe, but as a hand in the shoe factory he constantly performs one simple thing which is of no interest to him and which soon becomes drudgery. When one compares this factory worker to the shoemaker of yore who took the measurements, selected the leather, and then put his whole personality into the making of the shoe, one can understand why the latter, as we still find him in some parts of Europe, is a much happier man.

On the other hand, I have seen many perfectly normal people who were failures in life simply because they were not allowed to follow their own inclinations. Instead of being prepared for life in general, their parents felt it necessary to accompany and guide them through every detail. Some of them struggled for 20 and 30 years with vocations which their fathers imposed upon them and stopped being failures only after their fathers' death, when they took up something which they really liked.

REFERENCES.

1. Brill: Psychoanalysis: Its Theories and Application, p. 293. Saunders, Philadelphia.
2. Freud: The Interpretation of Dreams, translated by A. A. Brill, The Macmillan Company, New York.
3. Freud: Three Contributions to the Theory of Sex, p. 53. Monograph Series, Journal of Nervous & Mental Diseases Pub. Co.
4. —: *Ibid.*, p. 22.
5. Brill: Psychoanalysis: Its Theories and Application, p. 135.
6. Karpas: Freud's Psychology, *New York Medical Journal*, June 14, 1913.
7. Brill: Psychoanalysis: Its Theories and Application, p. 279.

1 WEST SEVENTIETH STREET.

Carbolic Acid Injections in Meningitis.—Godlievski and Ducas tested Baccelli's method, as used in tetanus, in cerebrospinal meningitis of diplococcus origin. This treatment is followed by some relaxation of the rigidity and contractures and, in fact, the results are at times superior to those which follow lumbar puncture and serotherapy.—*Marseille Médicale*.

SOME OBSERVATIONS ON THE USE OF CARREL-DAKIN SOLUTION ON THE SERVICE OF DR. JOHN B. DEAVER, IN THE LANKENAU HOSPITAL, PHILADELPHIA.

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EVER since Carrel and Dakin brought forth the results of their experiments in the use of the hypochlorite solution in the treatment of war injuries there has been much controversy regarding its value. Recognizing from reports that the solution must have some value, its use was instituted in the Lankenau Hospital of Philadelphia.

First it was used only in small infected wounds, and later in every type of infected case. The intra-abdominal use of this solution was begun with some care. Although it has not been introduced freely into the peritoneal cavity, there has been no hesitancy in its use in walled-off abscesses, even though the walls are formed partly by bowel.

We are indebted to Dr. John Jay Reilly, Chief Surgeon of the American International Shipbuilding Corporation, for the introduction and instruction in the use of the Carrel-Dakin solution in the Lankenau Hospital. We also wish to express our appreciation to Dr. John B. Deaver for his co-operation and suggestions, and for the privilege of carrying out a series of experiments which have brought forth the following conclusions.

Understanding that the use of the Carrel-Dakin solution is still largely in the experimental stage, and finding nothing in the literature as to the use of the solution intraabdominally, these observations are submitted for whatever value they may have.

Preparation of the Solution.—In the preparation of the Carrel-Dakin solution it is of paramount importance that the available chlorine in the chlorinated lime be accurately determined. This substance, chlorinated lime, is a product resulting from the action of chlorine upon calcium hydroxide and, according to the United States Pharmacopeia, should contain not less than 30 per cent. of available chlorine. It frequently happens, however, that many of the brands of chlorinated lime on the market are well over this official requirement for available chlorine and sometimes also below it. For this reason it is absolutely necessary that each lot of chlorinated lime be estimated by volumetric analysis for its chlorine. When this is done, and it is always important that it should be done, and the ingredients are adjusted to the proper proportions, the solution will always be uniform and give uniform results.

The procedure for making the solution is very simple. If the chlorine contents of the chlorinated lime be 30 per cent. the formula should be as follows:

Chlorinated lime (30 per cent.)	154 gm.
Sodium carbonate, dried	77 gm.
Sodium bicarbonate	64 gm.

Into a 12-liter bottle put the chlorinated lime and five liters of water and shake frequently during a period of six hours; dissolve the two sodium salts in

five liters of water and after six hours add this solution to the mixture of chlorinated lime and water and shake well for several minutes. Allow to stand for at least half an hour until reaction is complete and then siphon off the supernatant liquor and filter through paper. The solution, undiluted, is then ready for use.

When the chlorine content of the chlorinated lime is above or below 30 per cent., the proportions of the three ingredients entering into this solution must be increased or reduced accordingly. To avoid the necessary calculation that this entails, Daufresne has prepared the following table:

QUANTITIES OF INGREDIENTS FOR TEN LITERS OF DAKIN'S SOLUTION.

Titer of Chlorinated Lime.	Chlorinated Lime, Gm.	Anhydrous Sodium Carbonate, Gm.	Sodium Bicarbonate, Gm.
20	230	115	96
21	220	110	92
22	210	105	88
23	200	100	84
24	192	96	80
25	184	92	76
26	177	89	72
27	170	85	70
28	164	82	68
29	159	80	66
30	154	77	64
31	148	74	62
32	141	72	60
33	140	70	59
34	135	68	57
35	132	66	55
36	128	64	53
37	121	62	52

It would be well to take the titer of this solution occasionally. The same substances that are used for determining the activity of the chlorine in the lime are used for this purpose.

To 10 mils of the finished solution add 20 mils of a 10 per cent. solution of potassium iodide and 2 mils of acetic or hydrochloric acid. Measure into this mixture, drop by drop, from a burette, a decinormal solution of sodium thiosulphate until decoloration is complete. The number of mils used multiplied by 0.03725 will give the weight of the sodium hypochlorite in 100 mils of the preparation.

In order to determine the alkalinity of the Carrel-Dakin solution, or note its freedom from caustic sodium, add to 20 mils of the solution 0.02 of phenolphthalein; if correctly prepared no red coloration should appear.

Estimation of the amount of chlorine in the chlorinated lime is of the utmost importance, and the method of doing this is simplicity itself. One may use the method given in the U. S. P. or the following, which is the one published by Carrel (*Journal A. M. A.*, Dec. 9, 1916; *American Journal of Pharmacy*, February, 1917). "Weigh out 20 grams of the average sample, mix it as completely as possible with 1 liter of ordinary water and leave it in contact for a few hours, agitating it from time to time. Filter. Measure exactly with the gauged pipette 10 mils of the clear fluid; add to it 20 mils of a 1:10 solution of potassium iodide and 2 mils of acetic or hydrochloric acid. Drop a drop at a time into this mixture a decinormal solution of sodium thiosulphate until decoloration is complete. The number of mils of the thiosulphate solution required for complete decoloration, multiplied by 1.775, gives the weight of the active chlorine contained in 100 grams of the chlorinated lime."

If the method described above is rigidly adhered

to, the concentration of sodium hypochlorite in the finished solution will always be exactly between 0.45 and 0.50 per cent. According to Dr. Carrel, if it is below 0.45 per cent. of hypochlorite the solution is not sufficiently active; above 0.50 per cent. it becomes irritating.

Technique.—Our method of using the Carrel-Dakin solution varies according to the type of wound to be treated. We make it a practice, however, in all cases to irrigate the wound thoroughly, removing any sloughs with forceps and scissors wherever this can be done without the risk of too great trauma. This irrigation is of value in washing out pus, loosening and dissolving sloughs.

When the Carrel tubes are used they are prepared as follows: Ordinary thin rubber tubing with a lumen of 7 mm. is cut into the desired lengths, tied at one end with silk, and for a distance of from 2.5 cm. to 7.5 cm. from the tied end fine holes are punched into the tube about 1 cm. apart. In tying the tubes care should be taken that the rubber tubing is trimmed off close to the ligature, for any superfluous tubing beyond this may cause trouble by acting as a foreign body. For the same reason long loose ends of silk should be avoided. Some of the tubes are provided with only one large perforation near the closed end, thus allowing the solution to flow directly to the bottom of the wound and there to become puddled. In some types of wounds the tubes may be covered. This covering acts as an anchor to keep the tube in a fixed position, and at the same time serving as a wet compress. The covering is made of fine Turkish toweling cut just long enough to cover the perforations in the Carrel tubes, and wide enough to be sewed around a glass tube of somewhat larger caliber than the rubber tube, over which it is then slipped. Strips of gauze wrapped around the tube answer the same purpose.

In deep wounds the tubes may be used either covered or uncovered, the wound being also lightly packed with gauze moistened with the Carrel-Dakin solution. Covered tubes should not be used in narrow wounds, where drainage is a matter of primary importance, nor where there is danger of pressure and consequent interference with the nutrition of the tissues.

When the tubes are used the solution is instilled every two hours. This is done by means of reservoirs, distributing tubes, etc., as first devised by Carrel, or by means of an ordinary glass syringe. The advantage of the latter is the simplicity and low cost.

In certain cases gauze moistened at regular intervals with the Carrel-Dakin solution may also be used. We have also used the solution as an immersion, a vaginal douche, as a mouth wash, and as a constant drip.

In all cases a daily bacterial count is made in order to observe the diminution in the number of infective or putrefactive organisms. The smears for the count are carefully taken with the aid of a uniform platinum loop and special attention is paid to have the smears of uniform thickness.

At each dressing the same preparation of the hands, instruments, etc., is employed as in a major operation.

Types of Cases.—Intraabdominal abscess constitutes the most common group of cases in which we

use the Carrel-Dakin solution, whether the abscess be appendiceal or in the uterine appendages, sub-diaphragmatic, or the result of rupture of the gall-bladder, secondary collections, etc. The method of dressing the wound at operation in these cases depends on the degree of localization of the abscess formation. In a minority of cases the abscess cavities are walled off, and in these the dressing is made at once with the Carrel tubes and the instillation of the solution is begun. On the other hand, where the walling-off process has not taken place or where it is incomplete, nature is aided by the use of the gauze packing, and sometimes by rubber coffer dams which can generally be removed in from 4 to 6 days. The abscess cavity itself is packed with gauze which is allowed to remain in place 24 to 48 hours, after which the tubes are placed in the wound and the irrigation with the solution begun. It is important when removing the gauze packing to irrigate the cavity with the Carrel-Dakin solution, as this dissolves the clotted blood and exudate, and softens and loosens the gauze from the surrounding tissues.

When the gauze is removed and before the wound is dressed, a smear is made from the pus or secretion obtained by means of the uniform platinum loop, from the dependent portions of the wound or any of its recesses. The drop is placed on a sterile slide, a thin even smear is made by drawing the edge of the second slide over the first, and the specimen is sent to the laboratory for the bacterial count.

As already indicated, Carrel tubes are now inserted, from two to twenty c.c. of the solution, according to the size of the cavity, being introduced into each tube by means either of the reservoir and distributors or of a glass piston syringe. At first the wound is dressed daily, the tubes being removed and the wound irrigated, all slough and dead tissues being carefully cut away with scissors. The tubes, after having been cleaned and boiled, are replaced; two sets of tubes are kept on hand in order to save time. The number and size of the tubes, of course, vary with the size of the wound; they should be selected so as to insure adequate and proper distribution of the fluid throughout the wound. The covering of Turkish toweling or gauze is found useful in wide or superficial wounds where there is no danger of pressure or when it is needed as an anchor. In small and deep wounds the gauze is carried to and lightly distributed on all sides of the tubes, so as to bring the solution in contact with all parts of the wall of the cavity without causing any pressure. As the sides of the cavity begin to close in the covering is removed and the uncovered perforated tube is introduced, and finally, as the wound becomes more and more superficial, the gauze alone is used saturated with the solution.

Under this treatment wounds are usually free from pus at the end of from 24 to 72 hours. The bacterial count begins to drop after 24 hours, and at the end of from five to nine days the count has usually fallen to about one organism to five or ten fields. The wound may then be closed either by suture or by drawing the edges together with sterile adhesive straps, or by placing the straps mounted with shoe hooks on each side of the incision and drawing the edges together by lacing. If the skin

edges become inverted they should be freshened before the final approximation is made.

As a rule, it is not necessary to protect the skin, but when it is hypersensitive (as a skin highly susceptible to sunburn) a hyperemia may appear and the patient complain of burning. In these cases the surrounding skin may be protected with sterile liquid paraffine.

The value of a given method is best seen when compared with other procedures. We find that in our series of 125 intraabdominal abscess cases the convalescence was shortened by a period of at least one week, as compared to the cases treated by other methods in this hospital in former years. Of this series of abscesses 78 were appendiceal, 34 tubo-ovarian, 6 due to rupture of the gall-bladder, 3 sub-hepatic following removal of the gall-bladder, 3 secondary collections, 1 omental abscess.

Pulmonary Empyema.—With the Carrel-Dakin solution, pulmonary empyemas likewise yield to treatment and recover in considerably shorter time than with the former procedure. The pus, as in the old method, is evacuated by thoracotomy, a large-caliber tube is placed in the incision, which is closed up to the tube. During the first 24 to 48 hours the solution is instilled through this tube, when the large tube is withdrawn, and the cavity then treated in the manner described for abdominal abscesses, except that irrigation is performed in the sitting posture, to facilitate the free return of the solution. Of the acute we had a series of eight cases, one being discharged at the end of seventeen days entirely recovered, secondary suture having been made on the fourteenth day. Five weeks was the longest time required for complete recovery, the average time being three weeks.

Superficial Skin Infections.—In these, or when clean operative wounds have become infected, we remove a few sutures, irrigate the wound with the solution, and insert a strip of gauze moistened with the Dakin fluid; this is repeated three times daily, and in reality represents a return to the old method of treatment with wet compresses. According to the extent of breakdown, these wounds are rendered sterile in from 24 to 60 hours, when they can be closed with a few silkworm gut sutures.

Carbuncles.—The benefits of this solution are particularly well illustrated in the treatment of carbuncles. Healing, formerly so tedious and prolonged over a period of weeks and months, takes place in 10 to 14 days. In the treatment of carbuncles with the Dakin solution the same underlying principles of surgery obtain as in other wound cavities. A free crucial incision is made and all sloughs removed. The wound is packed with gauze moistened and kept constantly moistened with the solution, the dressing being changed once daily or as often as it becomes soiled, the wound being irrigated at each dressing and sloughs at the same time removed. By means of the gauze packing the skin edges are kept free so that they may be approximated as soon as the bacterial count indicates a sufficiently sterile condition of the wound.

Infected Hand or Foot.—In infection of the hand or of the foot with diffuse cellulitis over the corresponding member we have no hesitancy in immersing the affected member in the solution. As in

other cases the infected area should be incised and drainage instituted. The tubes, usually without a covering, are put in place and about 5 to 10 c.c. of the solution instilled every two hours. Once or twice daily the part is immersed directly in the solution for from 15 to 20 minutes, according to the reaction produced. It sometimes happens that this prolonged immersion causes more or less irritation where the skin is more than ordinarily sensitive. In these instances painting the surrounding skin with boric acid ointment (melted over a water bath) or spraying it with sterile paraffin oil will materially lessen the irritation and permit a free use of the immersion treatment, particularly beneficial in this type of case.

Vaginal Douche.—Rapid clearing up and disappearance of the odor of a profuse vaginal discharge results from the use of one liter of the Carrel-Dakin solution as a vaginal douche, repeated one to three times daily. In case of unusual irritation this can be reduced by the use of an alternating douche of saline solution. Care should be used in all cases to prevent any of the Carrel-Dakin solution from remaining within the vagina.

Phagedenic Chancroids.—Marked success has attended the treatment of phagedenic chancroids with the Carrel-Dakin solution. In one case the results were so surprising that we feel justified in reporting it in detail.

The patient, a young man aged 26 years, came to our dispensary with a painful, discharging chancre situated on the frenum. He was immediately put to bed and treatment instituted with 50 per cent. solution of potassium permanganate, 50 per cent. silver nitrate in the form of the caustic stick, pure iodine crystals, and pure carbolic acid. In spite of these energetic measures the condition progressed rapidly from bad to worse, until finally the dorsal surface of the glans with the corpus spongiosum and the overlying skin became involved. At this time amputation of the penis was considered and the operation was consented to. But before resorting to this radical measure an attempt was made to treat the case with Carrel-Dakin solution, owing to Dr. Reilly's marked success in the treatment of this condition in the tropics during the past year. A thick layer of gauze was applied to the parts and held in place with a bandage, and the patient was instructed to keep the gauze constantly moist with the solution which was placed at his bedside. As the dressing became soiled, it was renewed. At the end of 36 hours the discharge had ceased entirely, and at the end of five days the use of the solution was discontinued, and the patient was able to leave the hospital on the seventh day. The process had been arrested, not however, until after the dorsal half of the glans had been sacrificed. The patient stated that at no time had he experienced any irritation from the solution, and when seen four weeks later, the result was really remarkable.

Cystitis.—In severe cases of cystitis we have found that the solution irritates the delicate mucous membrane of the urethra and the bladder, and therefore do not recommend its use in these cases.

Infected Compound Fractures.—The use of the solution in this type of case does not materially differ from the procedure described for abdominal abscesses. It is essential that the seat of infection be widely exposed so that the tubes can be passed down to the base of the wound. When, however, the wound is not so deep as to admit the use of the tubes, covered or uncovered, gauze saturated and kept moist with the solution can be packed loosely

in the cavity. In only one instance did the solution cause skin irritation, and in this, after protecting the skin in the manner already indicated, we were able to use the method with the same success as in other cases.

Crushed Members.—In the case of a badly crushed arm, hand, foot, or leg, if seen within six hours after injury, or during the "period of contamination," if the tubes are placed and irrigation begun at once and repeated every two hours, infection rarely develops, and should it supervene its character is a mild one. In one case which came to us six hours after injury the right hand was almost severed at the palm and filled with dirt and grease. After placing the metacarpal bones in perfect apposition, a Carrel tube was inserted, the wound was closed with silkworm gut, and the Carrel-Dakin solution applied. The hand and arm were placed on splints (short dorsal, long palmar) and the patient was put to bed. Five c.c. of the Dakin solution were instilled into the tube every two hours. No infection appeared and the patient left the hospital three weeks later, able to move all the fingers. He was referred to the dispensary for baking and massage and has every prospect of having a useful hand.

Observations.—Our experience with Dichloramin T has been unsatisfactory in the treatment of abdominal wounds and empyemas of the character we have described. There is reason to believe that the removal of pus and slough is very important and that this cannot be properly accomplished without irrigations, which is contraindicated in the use of Dichloramin T. In the treatment of minor infections of the extremities and superficial wounds we have seen good results and feel that it has an important place in dispensary practice.

Contrary to many observers we believe that the Carrel technique is not a complicated one. It certainly requires no more time, labor, or material than the method of treating purulent collections with drainage tubes and irrigations of saline, bichloride, or carbolic solutions. Nor is the Carrel-Dakin solution more difficult to apply than Dichloramin T. The technique of the latter antiseptic requires the careful mopping out of pus from a cavity with dry gauze and the instillation of the oil through pipettes, cannulas, or a catheter, and by sprays.

Furthermore, it requires very little extra effort on the part of the nurse while attending to her regular duties to instill a few cubic centimeters of the Carrel-Dakin solution into the tubes or on top of the gauze. The deodorizing effect of this solution is very important. Our wards since the use of this antiseptic have been free from the all-pervading colon-bacillus stench. This has a psychological effect in aiding the patients' convalescence.

Much has been said about the irritating effect of the solution on skin surfaces. This in our experience has been very slight. We have abandoned the use of gauze strips saturated with vaseline and use no protection at all except when the skin appears hypersensitive, in which case a spray of liquid paraffin is used.

The mucous surfaces appear to suffer no more than the skin, as instanced by the use of the solution as a vaginal douche.

Emphasis must be laid on the contraindication to

the use of the solution in cases where there is much hemorrhage. This is controlled as well as possible at time of operation and the solution not used until 24 to 48 hours have elapsed.

Other contraindications to the use of the solution are in infections due to the *Bacillus pyocyaneus*, upon which it seems to have no effect, and in all classes of wounds after the infection has been controlled, when it is unnecessary and has a retarding influence on granulations.

In fecal fistulæ the solution is not used, because it has been noticed that patients with this condition suffer with a great deal of discomfort, and at times pain, for three to four hours after the dressing.

From the foregoing it is plainly seen that it is essential for the success of the Carrel-Dakin solution to practise wide, open surgery. The large preliminary incision and the subsequent closing after infection has been controlled render convalescence shorter than would be the case with a more conservative method. Many users of the solution have forgotten the underlying principles of surgery and expected the solution to take the place of the aseptic scalpel.

Another cause of failure is no doubt attributable to poorly prepared solutions which do not retain their chlorine content. A well-prepared solution if kept in a dark-colored bottle should be as useful and of the same strength after three weeks as when it was freshly made.

The signal advantage of a reduced period of convalescence resulting from the use of the solution has already been emphasized. This is particularly true of cases of acute pulmonary empyema, which formerly required several months' hospital treatment, and even after that time were often dismissed with sinuses draining pus, but which to-day become pus free in ten to fourteen days, and leave the hospital in from two to four weeks. Likewise cases of carbuncle clear up more rapidly and can be discharged with a closed wound instead of a granulating one.

In not a few instances we are certain that a limb and often a life has been saved by this treatment. Although still in its early stages and no doubt amenable to modification and improvement as experience increases, we feel safe in predicting for the solution an ever widening field of usefulness, and that the names of Dakin and especially of Carrel are destined to find a place with those of Pasteur and Lister in the annals of surgery.

THE TEETH ACCORDING TO RABELAIS.

By DOUGLASS W. MONTGOMERY, M.D.

SAN FRANCISCO, CAL.

RABELAIS was a monk, a physician, and a writer, and his writings are colored, as those of every good writer are, by his station in life, even as the dyer's hand is subdued to what it works in. In a detail such as the teeth this is true in the eminently objective and realistic Rabelais.

Some of these references are the usual trite ones commonly found in literature, such as breaking four of Lucifer's teeth during a visit Pantagruel paid

to Hell,¹ or knocking the teeth down the throat in describing a fight.²

Rabelais also used the same metaphor as indicating a difficult matter, as "the devil himself could not get his teeth into it,"³ or as headlong running away, as when he speaks of controversialists as taking the bit in their teeth,⁴ or as indicating great strength, as when Panurge tells Pantagruel that he has more strength in his teeth than Hercules.⁵

Many other references to the teeth are, however, very interesting, as throwing into relief some custom of the Middle Ages, or for their medical interest, or for the fun that is in them, as Panurge's remark that there is no greater pain of the teeth than when the dogs are after you. Panurge made this remark in relating his escape from Constantinople, where he was pursued by the scavenger dogs of the city.⁶ This was a good piece of local color, for these dogs were a regular institution in medieval cities, and were a vicious lot. They went about in bands, and acted as scavengers and general freebooters. Sir Michael Foster, in his charming book, "The History of Physiology," relates an amusing incident in the life of Vesalius, the great anatomist, which occurred about the year 1533, and therefore just about the time Rabelais wrote this story about Panurge. Vesalius, with another student, used to go out to the burial ground, now called "Les Buttes Chaumont," near Paris, to get material. Here they were attacked and were nearly devoured by savage and hungry dogs.⁷

Infant's Teeth Called Treasures.—When Panurge asked Friar John if he should get married, the good priest told him he should, and indicated that it was no use for him to reserve himself, as the end of the world was fast approaching. He therefore urged him to seek out a wife, publish the banns, and purchase a bed. As an assurance that the day of judgment was near at hand he said that Antichrist, one of the chief personages preceding the great event, was already born, but as yet did no more than scratch his nurse and his governesses, and his treasures did not yet show, because he was still very small.⁸

Pliny, from whom Rabelais got so many references, both true and false, in natural history, speaks of the thesauri maxillarum, the treasures of the jaws, and any physician who has much to do with children knows what a great event in the family the first tooth or treasure is, and in fact each succeeding milk tooth. There is even an old legend, referred to by Shakespeare, that sometimes children are born with teeth.⁹

How Gargantua Cleaned His Teeth on a Pig's Foot.—Before arising from the table, Gargantua mumbled a few words of grace, washed his hands in cool wine, cleaned his teeth on a pig's foot, and conversed cheerfully with his comrades.¹⁰ It is usually translated that "he picked his teeth with a pig's foot." This I think incorrect. One of the most Rabelaisian men I ever knew used often to say that the best way to clean the teeth was to exercise them on a beefsteak. And Rabelais himself speaks of not having a crumb of bread wherewith to scour his grinders, and is so translated by W. F. Smith.¹¹

That exercise of the teeth, even if it does not clean them, tends to keep them in good condition,

is an old observation. Mercurial gingivitis, for example, appears more readily on the side not used in chewing, and inactivity of the teeth favors the formation of tartar, and predisposes to gingivitis, and so to the loss of the teeth.

How Agreeable to the Teeth Is the Tender Beef, Boiled Long and Slowly in the Soup!—Rabelais was a monk from his early youth until his death, and his remarks on cloistral life are very entertaining. They were remarks on the world in which he lived, and he was very much alive, and his genius lay in the way of setting down what he actually saw or experienced. For instance, the monks arose very early in the morning, and lit the fire under the great soup kettle in the community kitchen. The earlier they arose and the longer and slower the fire burnt under the pot, the softer and more tender the piece of beef would be. Rabelais tells us that it would become so soft and tender that it would melt in the mouth, and would not in the least wear down the teeth. Under such circumstances also the extracts would escape from the meat, and diffuse themselves in the soup, and lend it a delightful savor. These qualities in a soup would be particularly appreciated by the more elderly monks, whose palate, a little dulled by age, needed the stimulation of these savors, and whose teeth were not so good, and were apt to be sensitive both from caries and from gingivitis, at a time in the world's history when there were no dentists to set a delaying hand on Time's advance in this direction.

The monasterial masses were very long in winter, and the stone cloisters were chill. The monks arose long before the sun and clattered down the drafty passageways in their sandaled feet, with their hands clasping their arms in their ample sleeves. The chapels were as cold as the cloisters, and young Rabelais, with his vigorous body and youthful stomach, must have sung the psalm: *Vanum est vobis ante lucem surgere*. It is in vain to arise early in the morning, with a more than usual vigor, and with an apt appreciation of that steaming hot soup, which was awaiting him and his fellow monks in the refectory after mass.¹² Oh, la bonne soupe!

As another bit of monasterial color, Rabelais says that Friar John was a clerk to the very teeth in matter of breviary,¹³ indicating his punctiliousness in carrying out the ceremonies of the church.

The Feeling of the Teeth Being Whetted as a Symptom of Hunger.—When the good Pantagruel first saw Panurge, to whom he remained attached ever after, he found him in rags and starving. Panurge, immediately upon Pantagruel's expression of friendship, exposed to him the urgent necessity that was on him to feed. He said he had whetted teeth (*dents aiguës*, literally sharpened teeth), an empty belly, a parched throat, and a ravenous appetite, and that if he would only give him the opportunity to set to work, it would be a treat to see him at it, and urged him quickly to order the victuals. He ate soul satisfyingly, went to bed like a capon, and slept till dinner time of the following day. Then to show that one meal did not fill his emptiness, he made three steps and one jump from the bed to the table.¹⁴

Although modern physiologists do not seem to take cognizance of it, there is undoubtedly an eager

sensation in the teeth in hunger, and this Rabelais, so open to all such sensations, knew perfectly well. This eager feeling to get the teeth into something when anhungered is expressed by Shakespeare, also as a feeling of sharpness.¹⁵

Pulling the Teeth to Decrease the Appetite.—Pulling the teeth to decrease the appetite is only mentioned once by Rabelais. When Toucquedillon was threatened by a siege, he proposed to pull the teeth of his garrison, leaving to each soldier only three. He said that even with these they would lower their stock of food only too quickly. This, however, was likely only a picturesque way this eccentric general had of expressing himself, as a little farther on he says that when hunger reigns strength vanishes.¹⁶

Panurge's Account of Pantagruel's Teeth After He Had Journeyed a While in That Giant's Mouth.—Pantagruel put out his tongue, and Panurge jumped upon its back, and by diligently walking along, at length entered his mouth, where he said the teeth appeared as great white rocks like mountains, so huge that there were cis-dentine and trans-dentine peoples. At length Panurge climbed on the teeth, and found there playgrounds, tennis courts, galleries, and in fact all the amenities of life, so much so that he dwelt there for fully four months. After this he journeyed along to the back teeth, where he was more easily able to step down to the gums, and so attain the fold or valley between the lower gums and the cheek, in his journey toward the lips. Here, however, in the parotid region (the side toward the ears, *vers la partie des oreilles*), he ran into a nest of brigands in a great forest. I suppose it is only natural that a lawless lot of microbes should dwell here, seeing that this region is so difficult to reach with the tooth brush. Finally Panurge gained his master's mouth, and slid down by his beard to his shoulder, and thence to the ground.¹⁷

Toothache, Its Cause and Treatment.—On another occasion Gargantua the father of Pantagruel, wishing to refresh his stomach, went out into the garden and, gathering up some lettuce, washed it in a fountain of cool running water, and proceeded to eat it. Unknown to him some friars had hidden in the lettuce leaves, and he put them into his mouth with the leaves. In walking around the inside of his mouth and over his teeth in the dark, the pilgrim's staff of one of the friars stumbled into a cavity, and, striking a twig of the mandibular nerve (the inferior maxillary branch of the fifth pair), gave rise to an exceeding sharp pain. After considerable trouble Gargantua succeeded in picking out the pilgrim, and at first he thought he was a snail, as he mistook the staff for a snail's horn.

In the Middle Ages the toothache was a widely prevalent and much feared malady, and its etiology was as fantastically considered as the instance given above, and its treatment was equally fantastic. Rabelais recommends placing a copy of "the Great and inestimable Chronicles of the enormous Giant Gargantua between two fine linen cloths very hot and sinapised, and to apply this over the part affected."¹⁸ This was a joke, but founded on a well-known and much-employed practice.

I myself remember, as a little fellow, having a severe toothache, and being bundled up and taken to

an old farmer in the neighborhood, who had the reputation of steaming the worms out of aching teeth with herbs. By the time I arrived my toothache was over, and instead of being steamed, a bottle of toothache cure, costing twenty-five cents, was purchased for me.

The Idol of the Gastrolaters.—The gastrolaters, or those whose belly was their god, literally belly worshipers, had for an image a statue of wood, ill carved and clumsily painted. Its eyes were bigger than its belly, and its head was bigger than the rest of its body. It had an ample pair of wide and frightful jaws, with a huge set of teeth above as well as below, which by the device of a little cord, concealed within the gilt stick on which the image was borne, were made to rattle dreadfully against one another.¹⁹ Here we have the eyes large to signify greediness—as children characterize a greedy companion by saying that his eyes are bigger than his stomach. The huge teeth signify a ravenous appetite.

The above image, borne in procession, was an institution in the city of Metz, where Rabelais was for a time an exile. In San Francisco we are accustomed to a similar ceremony of the Chinese bearing in procession their picturesque and horrifying dragon. Sometimes the Chinese form part of our American processions. Our part consists of ugly floats with miners' cabins and set pieces, each uglier and more commonplace than its neighbor; the Chinese part, on the contrary, is all color, spriteliness and fun.

The Molars and Masticators.—It was desired to give a warm reception to some objectionable officers of the law, who were serving papers on a debtor. These people could not be thrashed openly, so under the guise of a jolly, frolicsome ceremony at a wedding, and according to an old custom, gauntlets were drawn on, and they proceeded to break the bones of those officers of the law in a most scandalous fashion, and all under the guise of good fellowship. One of the victims had his upper jaw dislocated, so that it fell down over his chin, exposed his uvula and caused him a notable loss of his teeth, molars, masticators, and canines.²⁰ Our nomenclature of the teeth runs: incisors, canine, bicuspid, and molars—I do not know what distinction Rabelais drew between molars and masticators.

Loss of the Teeth Due to Contagious Disease.—Teeth are mentioned as having fallen out after wearing a mask made of leaves torn from an old book of the decretals. The decretals were compilations of papal decrees or laws, and the inference was that the sacrilege committed by making a mask of the leaves was punished by the teeth of the wearer falling out.²¹

Loosening of the Teeth in Mercurial Ptyalism.—Rabelais, also, in speaking of his doleful luetic and gouty patients, says that, after being well anointed and thoroughly greased, their faces shine like the metal plate on a meat safe, and their teeth rattle like the keys of an organ when played upon.²² This serves to indicate the extreme symptoms of mercurial ptyalism usually obtained in the treatment of syphilis in his day, and also the bad adjustment of the organ keys in an age not distinguished by its mechanical perfections.

The Use of the Teeth as a Surgical Instrument.

—In one situation, Rabelais mentions the use of the teeth as a kind of surgical instrument.²³ This is not original with him. Down to quite recent times ritualistic circumcision was performed with the teeth, the rabbi biting off the foreskin. Many cases of infant syphilis have been reported contracted from this practice.

In referring to the teeth, as to almost everything personal to the human being, Rabelais exhibits a realism and a vividness nowhere else encountered. Anatole France is the only author I am acquainted with who can make anything like such rich and striking use of medical facts for example.

Another interesting feature brought out in a study of the references to the teeth in Rabelais is the infrequent mention of them as weapons, so usual in our own literature, as "showing one's teeth," "fighting tooth and nail," and the employment of the word "cynical," indicating a slight uplift of the right upper lip to expose the canine or dog tooth in fighting. Snarling and biting was contrary to the light-hearted, Gallic humor of Rabelais. Its insistent recurrence in our literature harks back to a time before the Marquis of Queensbury reigned, and when the teeth were well recognized and frequently employed weapons of offense, as they naturally should be in all carnivorous animals.

REFERENCES.

1. Book II., Chapter XXXIV.
2. *Enfonçoyt les dens en la gueule.* Gargantua, Chapter XXVIII.
3. Book II., Chapter IX.
4. Book II., Chapter X.
5. Book II., Chapter XXIX.
6. Pantagruel, Book II., Chapter XIV.
7. *The History of Physiology*, by Sir. Michael Foster, 1901, p. 7.
8. Pantagruel, Book III., Chapter XXVI.
9. And the women cried 'O, Jesus bless us, he is born with teeth!' 3 Henry VI., V., 6, 75.
10. Gargantua, Book I., Chapter XXII.
11. *Le Quart-Livre.* Prologue de l'auteur. The original reads "Et au diable le bussin de pain pour s'escurer les dents."
12. Pantagruel, Book III., Chapter XV.
13. . . . au reste clerc jusque es dents en matière de brèvière. Gargantua, Chapter XXVII.
14. Pantagruel, Book II., Chapter IX.
15. So sharp are hunger's teeth that man and wife draw lots, who first shall die to lengthen life. *Pericles* I., 4, 45.
16. Gargantua. Book I., Chapter XXXII.
17. Pantagruel. Book II., Chapter XXXII.
18. Prologue to Book II.
19. Pantagruel. Book IV., Chapter LIX, Rabelais was in Metz in 1547. W. F. Smith's translation Vol. II., p. 236, Note 5.
20. Pantagruel. *Le Quart-Livre*, Chapter XV.
21. *Le Quart-Livre*, Chapter LII.
22. Prologue to Book II.
23. Gargantua. Book I., Chapter VI.

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Four Errors in Diagnosis.—Roqueta gives the following: Swallowed blood from epistaxis mistaken for hematemesis from swallowing raw alcohol by error; urethral obstruction by a huge mass of feces in the rectum mistaken for ordinary urinary retention; fibroma of the uterus of many years standing with metrorrhagia had been mistaken for bleeding from the cervix; radiograph of thorax which indicated a thickened area of tuberculous pleurisy had long been interpreted as an enlarged lymph-node plaque.—*Revista Médica de Sevilla.*

PRIMITIVE TREATMENT OF DISEASE.

BY J. BARKLEY PERCIVAL, M.D.,

PARAMARIBO, DUTCH GUIANA.

PRIMITIVE man suffered much from wounds, bites and stings of carnivorous animals, snakes, and insects. Necessity drove him to search for remedies with the result that he found many useful dressings.

He saw animals licking their wounds, and no doubt found that it assisted in the cure. Children who are nearer to the primordial stage, still put a cut finger in their mouths with good results. Sucking a snake bite as a remedy is known all over the world and still used, although rarely beneficial. Beasts also bite at their feet when they suffer from thorns, and use teeth and paws to catch parasites. Monkeys are particularly noted for picking their fur and eating what they capture. Primitive man had similar feelings to those of the other animals, and no doubt in the same way.

We may go back to a time before the uses of fire had been discovered. The man went out to hunt and was mauled by a beast either with teeth or claws. If the wound was small he licked it; if large he would go to the nearest stream and wash it with cold water. In some cases this would fail and the bleeding be continued. He pressed the edges together with his fingers and found that the bleeding stopped so long as the pressure continued. But he could not stop here all day with perhaps both hands employed; he must go home. He might be able to walk, or on the other hand be faint from loss of blood. His hands were weary through holding them in a cramped position. Our children run to their mothers and get their cuts tied up with clean rags. There were, however, leaves of trees, and he tied them tightly with a bush rope, so as to be able to carry his weapons and crawl home. He could not move without a weapon, even were it only a club, and therefore must have the wound secure without interfering with the use of his hands.

Experience led to the discovery that certain leaves stopped bleeding. I find that the silver fern is still used, and also a tree fern. The first has white and powdery and the other brown line-like scales. Both can be easily obtained in the forests of tropical America. This is very important, for the remedy must be at hand in an emergency. We might know of a better remedy, but if we have to go miles to fetch it, we must put up with something inferior.

One of the most widespread of our plants here in Guiana, South America, is the moka-moka. It is everywhere in the shallows of our creeks and rivers and is, therefore, more easily available than many other remedies. It is one of the best applications to wounds, and may be applied raw or after wilting over the fire. The usual dressing is a slice of the growing stem, but it is also applied as parings or shavings. Wonderful cures have been reported where serious wounds have been dressed with the warm slices, and I have every reason to believe them true.

An early voyager spoke very kindly of the prickly pear, a plant well known to the creoles or natives of these countries, and used as a dressing for almost everything. He said that it was used for

broken and dislocated limbs; after warming over the fire, the branch was split open and the succulent part applied as a kind of splint, with such good results that Europeans had their limbs dressed by the Indians. In the islands of the Caribbean Sea the prickly pear was common, but we can hardly say it is a native of Guiana. However, the moka-moka was used here in the same way, and when split open and wilted could be applied for similar purposes.

A broken limb was an accident from which few could recover; if the primitive man were helpless he might be considered as dead. A rather pathetic story is told by an African traveler. He went out hunting with the chief, and noticed one of the men with a broken back actively running about on all fours. Remarking that the man was so very active, he praised him, on which the chief quietly hinted that had not this been the case, and had the man been helpless, he would have died long before. There were no places for incurables in primordial society.

Men who lived under natural conditions suffered less from wounds because they generally healed, like those of animals, without festering. If one leg is broken, the dog runs on three, but the man of the forest is helpless, and dies. We never find crutches or peg-legs among wild tribes. Common dressings for wounds and ulcers are barks of trees containing tannin. They are scraped into a sort of tow, thus providing lint and lotion in one. They are certainly useful, and may be compared to gall ointment or tannin preparations. These are used without cooking in any way, but there are also decoctions of such barks used as washes. The wounds are always tied up with leaves and thus protected, but I do not find that cotton was ever used as lint.

For swellings there are many kinds of leaves employed; some are counterirritants like dumb-cane, others soothing like tobacco, and a host that appear to be inert, such as cophalic leaf.

Bleeding is recorded as having been practised by the West Indians, and I have seen an Indian boy here whose ankle was sprained by his stumbling when carrying a load. His father washed the ankle with water and then pricked it with the point of a knife until it bled; in an hour he took up his load and marched on.

Snake bites were hardly considered curable, but there was a preventive in the shape of the Laburia plant, which was used as a beena or charm to prevent the attacks of the snake. Whether the form of inoculation against snake bites now used by some natives here was originally got from the Indians is doubtful, but we may say that the process of inoculation is primitive in the case of beenas.

As may be supposed, the jiggers were always a pest, and the Indians must have learned to extract them with a palm needle or pointed stick long before they came in contact with Europeans. The simple dressing with wood or tobacco ashes was also well known. But there have always been lazy people, and we may suppose they were not unknown here, or the mode of treating bad cases of jigger penetration could not have been discovered. Strangers often suffered much from these fleas; the following extract from Leigh's voyage to Guiana (1604) brings the matter home to us:

"We were mighty vexed with a kind of worme, which at first was like a flea, and would creepe into

the feet especially, and under the nuyles, and would exceedingly torment us, the time it was in, and more in the pulling out with a pinne or needle, if they were but few. But one of our men having his feete overgrowne with them, for want of hose and shoes was fain to submit himself to the Indians' care, who trying one of his legges first with his feete upward poured hot melted wax, which is blacke, upon it, and letting it lye upon it till it was thoroughly cold, they forcibly pulled it off and therewithall the wormes came out sticking in the same, seven or eight hundred in number."

There is a fly pest known as the mosquito worm which can be extracted after covering its tiny breathing pore with a bit of wax, pitch, or plaster. Only a very lazy person need suffer from these, but they can, if neglected, give much trouble. The same may be said of bush ticks, which can be dislodged after dropping oil upon them or by bringing a fire-stick close enough to warm their backs.

Mosquitos are repelled somewhat by crab oil, as are also caburi flies and sand flies, but no real protective measures have ever been discovered. The smoke of green leaves was no doubt an old preventive, as was also the round hut of the savannah with its closed sides. But even with the smother in a savannah, the Indians have to migrate during the height of the mosquito season.

Indians have always suffered from sore eyes, which they attribute to a tiny fly sucking the edges of the eyelids. Quite a large number of herbs are used in the treatment, some of which are succulent, their juices being squeezed into the eyes. Among them are wallaha leaves, congo cane blossom, and the tree of life. Bancroft said the Indians tied a leaf of moka-moka over the eyelids, with the result that a plentiful discharge from the glands took place, and a reduction of the inflammation. He also said that Europeans followed their example with good results. No means of protection from these flies has been discovered, notwithstanding the drawbacks to a huntsman when anything affects his sight. It may be understood that this is a somewhat heroic remedy, for the same leaves were once used by malingering slaves to cause swellings in the legs so that they might lie down for a day or two. When the reader sees moka-moka again he may perhaps recognize in it a cure-all of great potency, possibly rivaling the advertised pain killers. For external use it appears safe, but it is certainly poisonous.

Ground itch is one of the troubles due to insects, and is very common in Guiana. Several cures are mentioned, but all have not been effectual in curing this malady.

In concluding this article, I must call attention to the fact that no attempt has been made to give a full list of the remedies; this may be done in the near future. The point to which I draw attention is the fact that the native Indian has learned by long experience to treat the results of his accidents and to repel his pests. Like the European he has failed to find specifics. What he has done is to recognize that certain plants growing near at hand are useful and also that they must be applied in certain ways.

There is nothing here to take the place of anti-septic dressings, and not a single remedy that can be introduced into our hospitals. Nevertheless,

they are good in their way and useful in places where there are no medical men. The most we can say is that they are fair substitutes.

There is one great drawback to the adoption of bush "medicines." They cannot be preserved in any way to retain their properties. Take moka-moka, for example; it is everywhere except in the cities. We can have a piece of sticking plaster in the house or get it in a few minutes, but it might take hours for a person to leave the city to find a piece of moka-moka.

Some may object to my statement that moka-moka cannot be preserved in a way to be available. The answer is connected with our knowledge of the natural orders of plants. The order to which this belongs is Arvideae, which includes such plants as tania and scratch odoes. All have acrid secretions which are dangerous, but so far as is known none retains its properties after cooking or drying. The dumb-cane is probably the most virulent of the order, but even this loses its properties when dried. Other plants that are virulent poisons when fresh become edible when cooked. It is hardly necessary to mention cassava in this connection, but it is a good example.

Medicolegal Notes.

Expert Opinion as to Permanency of Injury.—In an action for injury resulting from the negligent operation of an elevator it was held that the opinion of an expert physician as to the permanence of the injury, based upon sufficient evidence of the facts, was competent and relevant to show that the injury was permanent. The court quoted *Parrish v. Railroad Co.*, 146 N. C. 125, where it was said: "It was necessarily assumed by the very form of the question that the jury might find that whatever injury the plaintiff had suffered was directly caused by the fall, and the witness was called upon to state what the physical conditions produced by the fall indicated to his trained and experienced mind as a medical practitioner. We think the evidence comes strictly within the rule admitting expert testimony, or that which is given by a witness having special or peculiar knowledge and skill in the particular calling to which the inquiry relates; and the competency of the question, as predicated on the hypothetical facts stated, is sustained by the best-considered authorities."—*Taylor v. Tallassee Power Co.*, North Carolina Supreme Court, 94 S. E. 432.

Validity and Infringement of X-Ray Machine Patent.—The Circuit Court of Appeals, Third Circuit, holds that the Snook patent, No. 954,056, for an x-ray machine, covers an invention of a novel character and a high order of merit, in which, by discarding the use of induction coils and using an alternating current, the inventor greatly increased the intensity of the rays and prevented inverse discharge through the tube, adding greatly to the utility of the machine. Prior to this patent the x-ray machine in common use was called an induction machine, and its capacity was about 8. Snook, who was a trained electrical engineer and manufacturer of such machines, after repeated efforts to increase current intensity and eliminate inverse current tendency in the field of induction coils and high-peak contacts, abandoned it and turned to two other factors, namely, the use of substantially the whole of the sinusoidal curve as a contact element; and, second, the employment of an alternating current by a suitable switch or rectifier connection. The testimony of physicians satisfied the court that while the best results of former machines, expressed in milliamperes, was about 8, with the Snook apparatus they were able to obtain 120; in other words, virtually 15 times as great light-exciting power. This ray intensity brought about higher penetrating power, and therefore sharper and more definite photographic reproduction. The patent was also held infringed.—*Stetson Hospital v. Snook-Roentgen Mfg. Co.*, 245 Fed. 654.

Military Medicine.

The Medical Aspects of Aeroplane Accidents.—H. Graeme Anderson, Temporary Surgeon, R.N., attached Royal Naval Air Service, treats of the causes of aeroplane accidents and the method of emergency treatment of the injured cases in an article in the *Journal of Royal Medical Service*, from which an abstract was published in the *British Medical Journal*, January 191, 1918.

With the slow, sure method of teaching fliers before the war accidents were comparatively few; but as the war advanced and the importance of aviation was recognized more pilots were needed and the methods of teaching had to be accelerated, and pupils were sent off to do their first solo flights after a few hours' dual-control instruction. This naturally has increased the number of accidents, together with aerial duels or anti-aircraft fire from the ground.

Anderson classifies accidents at his station covering a period of six months, which he calls the "V" series. In this series 4,000 hours' flying were done consisting of 9,000 flights, in which 58 aeroplanes were wrecked or crashed. The suggested definition of a crash is an aeroplane so damaged in a flying accident that it has to be deleted or sent into the workshops for repair or rebuilding. This is in contradistinction to the effects of a bad landing or get-off where the ensuing damage is small and can be repaired by the flight mechanics. Fifty-eight crashes in 9,000 flights represents one crash in every 155 flights. In these 58 crashes 16 airmen were injured, which is equivalent to 28 injuries in every 100 crashes, or one pupil injured in every 560 flights.

These figures show that school flying is fairly safe and compares favorably with other high velocity forms of transit. There was a greater frequency of crashes on the first and second solos, then a diminution from the third to the sixth inclusive, and a rapid rise again in the seventh, indicating a too-sureness on the part of the pupil with overconfidence and carelessness exhibited.

The causes of aeroplane accidents given are: (1) Defect in the aeroplane; (2) error in judgment in flying; (3) "loss of head"; (4) brain fatigue or lethargy; (5) fear; (6) physical illness; (7) unavoidable causes. In this total of 58 cases but one crash came through a defect in the aeroplane, while error of judgment in flying caused 42 of the crashes. Here, the commonest error is made on landing, when the pupil misjudges his distance from the ground, and either "flattens out" too soon and "pancakes," with a possible crash, depending on the height, or else "flattens out" too late, and strikes the ground at a varying angle, usually overturning and wrecking the machine.

It is difficult to estimate and account for these errors of judgment. In some cases Anderson attributes it to underinstruction, while in others even after prolonged instruction the pupil may still misjudge distance. This may be due to the flier's standard of vision being below normal; or, on the other hand, the vision may be normal and the balancing power good, but the reaction time may be delayed. It is upon this visual reaction

time that the aviator is so dependent, and which normally takes nineteen one-hundredths or twenty one-hundredths of a second. Fatigue, drugs, and excesses may cause it in some individuals, while in others who may be physically fit it may be normally slower. Hence the selection of candidates for aviation should be made with reference to their visual reaction times. The French medical authorities on aviation reject candidates whose reaction times are found to be of the delayed type.

Among the other causes for crashes, loss of head occurs fairly frequently—seven in the series given. Under the sudden strain of emergency the power to reason and act synchronously may momentarily lapse, resulting in this condition. In flying fractions of a second count enormously and may mean all the difference between danger and safety. After loss of head there is seldom time to correct the error made. Brain fatigue caused four of the accidents out of the 58, and is due to repeated stimuli received in rapid succession by the brain of the aviator in his flight. He feels alone; a succession of errors occur in the air; he feels he cannot manage to control the aeroplane; fear does not seize him, but the enormity of the whole thing appals him; he feels helpless, and a state of brain fatigue occurs in which he, in a stupor, awaits events and takes little part in the aeroplane's control. In brain fatigue the pupil fails to flatten out and the aeroplane strikes the ground at its gliding angle and becomes wrecked. Upon questioning these cases it is found that there is very little recollection of what happened during the flight; memory seems to be partially stunned. As a rule the pupil soon gives up flying though he has not been injured. He is not of the temperament suitable for flying. Physical illness occurs occasionally, though rarely. Anderson cites a case of an epileptic who was seized with an attack while flying and who was dismissed from the work.

Strangely, fear does not play an important part as a casual agent in these crashes. The mind is too much occupied with the various details of the mechanism and the running of the machine to allow thought for personal considerations. Many confess to a sense of danger lurking somewhere at the back of the head, but say that it rarely ever asserts itself.

Anderson offers a scheme for first aid at an air station. The sick-bay or dressing station should be in full view of the aerodrome with a lookout man supplied with field glasses always on duty during flying hours. Telephone connection should always be possible with this man, and immediately a crash or false landing is made he should telephone to the sick-bay station notifying the steward of the location of the accident. A wheeled hand stretcher on which is carried a first aid dressing bag and an emergency tool kit must always be on hand. The steward on being notified of the accident dispatches the ambulance, which stands always in readiness by the sick-bay, to the scene of the accident. Two sick berth attendants go with the ambulance, and with them is a bag containing morphine solution and two Willey's hypodermic syringes, a bottle of chloroform and a face

mask, brandy, a bottle of sterilized water, six first-aid field dressings and slings, picric acid dressings, a tourniquet, cloth cutting scissors, and a knife. These articles can easily be packed into a small bag 10 in. by 8 in. by 3 in.

The surgeon on duty is on the aerodrome during flying hours, and proceeds to the scene of action by car or foot, or if any distance is to be covered an aeroplane is used. Flying pupils should not be allowed to come near or to help, except in exceptional circumstances. Often the crash is so severe that the wreckage has to be cut away from the injured aviator. Under no conditions must he be dragged from under the debris, but gently lifted from under when the wrecked plane cannot be moved. The safety belt is cut and the pilot gently slid out of the seat. The aeroplane seat cushion is placed under the injured pilot's head, while his body rests on a flying coat spread out on the ground. A rapid examination determines the extent of the injuries. If he is conscious and in much pain morphine should be injected and he should be quickly conveyed to the dressing station, where clothes are cut away and injuries examined, and treated accordingly. If unconscious, some cutting away of clothing can be done on the field, injuries examined, and perhaps a dislocation reduced or a fracture accurately diagnosed during the unconscious period. The pilot's leather clothing protects him from fire for a length of time, but the face and lower limbs rarely escape, and when the pain is very severe, and also when other injuries are sustained, chloroform should be administered on the field, and this is kept up on the way back to the dressing station. It aids the work before the morphine begins to act.

The injuries sustained are those incident to all high-velocity accidents, but are more severe, due to the enormous speed sustained by the air crafts. Injuries due to crushing, where some part of the body gets crushed between parts of the wrecked aeroplane; injuries due to collision with the ground, as when the pilot is thrown out, falling on his head; injuries due to impact with different parts of the aeroplane, as when the head is jerked forward violently and strikes the edge of the nacelle on the aeroplane's impact with the ground; injuries from fire; drowning and immersion effects in seaplane work, and suspension effects as when the pilot is suspended head downward in an overturned aeroplane and is unable to loosen his safety belt. This impact with the belt often causes abdominal injury. The injuries sustained depend much on the type of aeroplane and the cause and type of accident. The present day aeroplane is much stronger in construction and more powerfully built than in earlier days, thus providing for a greater margin of error on the pupil's part. On the other hand, in a nose dive in this type of machine the engine, being behind, is likely to crush the pilot severely, and usually kills him.

As means of prevention of accidents, Anderson approves certain of the safety belts and safety helmets, especially in the school work. An ideal safety helmet should be light and take its support from the shoulders. Goggles are a necessity to ward off conjunctivitis.

Scurvy in the Army.—Epidemic scurvy may be overlooked, for while we are aware of the individual manifestation, which may in part be commonplace, the total episode escapes observation until some time has elapsed. Such an epidemic has been reported in the *Paris Médical* by Harvier, physician in charge of a medical sector. The first cases to which attention was called were set down as rheumatoid purpura. Then a patient was seen who presented extreme anemia with broad ecchymoses on the thighs, edema of the legs, and fungous, ulcerating gums. An organized inspection of troops brought to light no less than 184 cases which, under one diagnosis or another, had been invalidated temporarily. The diagnosis included edema, rheumatism, and various traumatisms. Closely regarded, every patient was found to have scorbutus. The search was now extended to the nominally sound individual, and, in one group of 285 men, 20 per cent. were found to have bleeding gums. At the completion of the work over 800 men, or 95 per cent. of all suspects, were pronounced scorbutic in some degree. The total number to require internment was 110. The lesions comprised every form of hemorrhage—including peculiar small hematomata in the skin, edema, and scorbutic gingivitis. Prompt recovery followed the use of salad vegetables and lemons (half a lemon daily per man) with aspirine or sodium salicylate for the pains. Prevention was guaranteed by the use of a piece of lemon daily with vegetables (cabbage, onions, carrots, and salads).

Sanitary Work in Areas Around Military Camps. The United States Public Health Service is carrying on an active campaign along sanitary lines in the areas adjacent to 28 military camps and cantonments throughout the country. Complete sanitary organizations, composed of personnel supplied by the Public Health Service, the American Red Cross, and the State and local health authorities, are at work in these areas for the purpose of preventing the spread of disease from the civilian population to the military forces and to protect the civilian population from communicable diseases where they have occurred among troops. The sanitary organizations include physicians, sanitary inspectors, sanitary engineers, public health nurses, attendants, and laborers. The measures undertaken include the medical inspection of school children, inspection of all establishments handling food supplies, inspection of barber shops, purification of unsafe or questionable water supplies, installation of sanitary methods for the disposal of waste, and drainage or filling in of mosquito-breeding places. It is stated that there are engaged in this work about 440 employees of the Public Health Service. The Red Cross has furnished 177 scientific and technical assistants, nurses and inspectors, and over 200 laborers to assist in the campaign.

Additional Hospital Accommodations for Wounded.—The Surgeon General has recommended that the general Government hospitals shall provide 60,000 additional beds before the winter of 1918-19 to care for wounded soldiers and sailors. Under the Surgeon General's plan each general hospital, when completed, would have between 1,000 and 1,500 beds. Recommendations will also be made for the establishment of a general hospital organ-

ized as a colony for the treatment of men suffering from epilepsy.

Government Tuberculosis Hospitals.—A large tract of land has been acquired by the Government adjoining the New York City Department of Health's municipal tuberculosis sanatorium at Otisville, N. Y. The Government intends to erect a hospital to house 800 soldiers suffering from tuberculosis. The New York City Health Department has placed at the disposal of the Government its pavilions on North Brother's Island. It is expected that the new hospital at Otisville will be completed within four months. Other homes for tuberculous soldiers are to be established at New Haven, Conn., at Whipple Barracks, Prescott, Ariz., Asheville, N. C., and Denver, Col. It is understood that they will cost about \$550,000 each.

Addition to Columbia War Hospital Opened.—The new section of the War Hospital of Columbia University was opened for service on February 15. Eighteen new wards have been added, practically doubling the capacity of the hospital, so that some 1,000 patients can now be cared for at the same time. The hospital is intended to care exclusively for those brought back from the Expeditionary Forces in France, although there are at present 200 patients from training camps and 200 from the army in France being cared for. Colonel Edward R. Schreiner, chief surgeon, and commander of the hospital, has been ordered to the Government Hospital at Fort Riley, and has been succeeded by Major W. H. Bishop.

Investigation of Sanitary Conditions at Camp Greene Ordered.—In a report to the Secretary of War, recently made public, Surgeon General Gorgas demands that the unsanitary conditions at Camp Greene, near Charlotte, N. C., be corrected. Following a conference, Secretary Baker has ordered an investigation of the camp. Surgeon General Gorgas has ordered the installation of a new sewer system, and that additional tentage be furnished so that the men can be quartered on the basis of five men to a tent, instead of eight, as is now the case. At the conference the statement was made that the unsanitary conditions found at Camp Greene were not local, but were general throughout the camps in the South. The Surgeon General expects to visit all the camp hospitals in the South and familiarize himself with the conditions there present before returning to Washington.

Doctors Called, to Be Massacred.—A despatch from Stockholm states that as a climax to the massacre of Kerava the Red Guards wired to Helsingfors for surgeons and ambulances. Five surgeons left immediately, on an errand of mercy as they supposed. On their arrival they were murdered by the Red Guards.

American Sanitary Unit Wins Honors.—Surgeon General Gorgas has received word from Col. J. R. Kean, chief of the ambulance service of the American Expeditionary Force, a message stating that the American Sanitary Unit 646, serving with the French forces, has been twice cited in French orders, and has thereby won the award of the Croix de Guerre.

Major Grayson M. P. Murphy, former Red Cross Commissioner to Europe, has reported to General Pershing for duty with the expeditionary forces.

Death in the Service.—Dr. Henry E. Hungerford of Waterbury, Conn., a graduate of Yale University Medical Department, in 1898, died of pneumonia at Fort Oglethorpe, Ga., on February 1, aged 45 years. Dr. Hungerford was commissioned first lieutenant in the Medical Reserve Corps, U. S. Army, and was assigned to duty at Fort Oglethorpe on January 17.

Cerebrospinal Meningitis Spread by Carriers.—Dr. J. Lewis Amster, Commissioner of Health of New York City, announces that the city's research laboratories have been assisting the Government in determining the number of human meningitis carriers in the various camps. It is announced that a new method of making the examinations has been instituted whereby a large number of specimens may be examined in a short time. Within a few days 123 soldiers were examined by the Health Department Laboratories and 31 carriers found.

Campaign to Secure College Girls as Nurses.—Under the auspices of the Red Cross and the Council of National Defense a campaign has been launched to recruit 5,000 college women for the training camp for nurses to be held at Vassar College next summer. The training-camp college will open June 24, under the auspices of the Red Cross and the Council of National Defense. College women who have graduated within the last ten years from universities and colleges recognized by the Association of Collegiate Alumnae may take the course, which consists of three months' intensive training.

Mount Sinai's Contribution to the War.—Mount Sinai Hospital, New York, announces that it has 75 physicians commissioned in the Medical Reserve Corps. In addition, more than 40 members of the Mount Sinai Alumni Association have been commissioned and assigned to active duty. Several of the trustees are also serving in various branches of the service. Sixty-five of the nurses, including the associate superintendent and the night superintendent of the nurses' training school, are in Base Hospital Unit No. 3, now in foreign service.

The Committee on Hospitals of the General Medical Board of the Council of National Defense has been reorganized with the following membership: Drs. S. S. Goldwater, chairman, New York City; Winford Smith, Baltimore; Joseph Marshall Flint, New Haven, Conn.; Shepherd I. Franz, Washington, D. C.; Edward Martin, Philadelphia; F. F. Simpson, Washington, D. C.; Robert E. Noble, Colonel M. C., U. S. A.; and Frederick A. Washburn, Boston, Mass.

Farewell Dinner to Overseas Hospital Staff.—A farewell dinner was given to the staff of the Women's Overseas Hospital, which will sail for France this week, at the Cosmopolitan Club on the evening of February 11. This unit is supported by the National American Woman Suffrage Association.

An American Surgeon Wanted in Serbia.—The Franco-Serbian Field Hospital of America is in need of an experienced surgeon for their hospital, which is located near Bonitsa, just behind the Serbian lines. Dr. Ryan, who gained distinction by his work as head of the American Hospital at Belgrade, is in charge of this hospital. Anyone willing and able to undertake the work may apply at the office of the organization, 25 West Thirtieth Street, New York City.

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INDUSTRIAL EFFICIENCY.

ONE effect of the war has been the stupendous impetus which it has given to manufacturing efficiency, especially in all manufacturing related to the conduct of war. Science has been called upon to further the ends of the warring nations in every direction. Not only is this the case at the front, where scientific methods of every kind for destroying life are employed, but in the hospitals, the camps, the factories and homes. Scientific living is being taught and practised, as it is recognized that in food conservation and transport lie the crux of the problem of how to win the war.

Dr. Frederic S. Lee, writing on industrial efficiency in *Public Health Reports* for January 11, 1918, draws attention to the fact that industry has never been backward in accepting and utilizing scientific discoveries. According to the writer, the phenomenal industrial advances of recent decades have been due chiefly to the achievements of two sciences—mechanical engineering, which has invented and developed automatic machinery, and chemistry, which has discovered new chemical substances and new chemical processes. However, although all these means have greatly reduced the need for manual labor, the human being has not been eliminated. The mode of work has changed, but men and women are as necessary as ever to the performance of industrial work, and the problem nowadays is how to obtain the greatest efficiency from the human material. Sanitation has done much in bettering the conditions of the workman and workwoman and thereby has increased their industrial value. Industrial medicine has done something in the same direction, but the problem has not been really solved, and Lee is of the opinion that in recent years it has become clearer that a good deal of light can be derived from physiological science and that a new application of physiological principles, an industrial physiology, if one desires a specific title, has been gradually appearing.

From this standpoint, it is the human machine that is to be considered, the most delicate and intricate of all the machines employed in industry. If this machine is not in good working order, output diminishes, work is badly done, accidents occur, and efficiency is generally retarded. Nothing is so apt

to impede efficiency as fatigue, and consequently one of the main objects is to keep down fatigue as much as is possible.

British observers before and especially since the beginning of the war have investigated this subject, and in America the Committee on Industrial Fatigue of the Advisory Commission of the Council of National Defense, associated with the Public Health Service, has pursued investigations along similar lines.

The most obvious problem perhaps of industrial efficiency is that of the duration of daily and weekly labor. When the war had been in progress for some little time, the activity in the munition factories was at a feverish height in Great Britain and the hours of labor were greatly increased. Overtime and Sunday labor were resorted to frequently. It was soon found, however, that the burning of the candle at both ends did not pay in the long run. Excessive fatigue was produced, and both quantity and quality of work were greatly diminished. It was discovered that longer hours do not necessarily imply a larger output. While a workman can obviously accomplish more in two hours than he can in one hour, it does not follow that he can do more in 15 hours than in 12, or more in 12 than in 10, or even more in 10 than in 8 hours. In the case of youths, girls, and women it was shown that more work of better quality could be accomplished when the hours were limited to the capacity of the workers. For example, Vernon of the British Committee accumulated statistical evidence of the beneficial results of a reduction of the hours of labor. The following instances will illustrate the point: With a group of 80 to 100 women turning aluminum fuse bodies the reduction of the weekly hours of actual work from 66.2 to 45.6, a saving of more than 20 hours, increased the gross production by 9 per cent. When the actual working hours of 56 men engaged in the very heavy labor of sizing fuse bodies were reduced from 58.2 to 51.2, the gross output was increased by 21 per cent. The American Committee discovered a strikingly suggestive fact in the night work of one of our large munition factories, the duration of the night shift being 12 hours. After 5 A. M. the curve of output showed a rapid decline, and during the last 40 minutes there was very little or absolutely no production.

Thus, as Lee points out, industrial physiology tells us, in the interest of a large output, not only to keep the hours of labor down to what experience has shown to be a reasonable limit, but to choose the limit in accordance with the fatiguing effects of the different specific occupations. The work must be adapted to each one's capacity, or rather the average capacity of workers must be ascertained and must not be exceeded. Also, each worker and each task possesses a specific standard of strength, and industrial physiology indicates in what task each worker will probably prove most efficient.

The scope of industrial physiology is wide, and by the intelligent use of it, industrial output and efficiency can be greatly augmented. In these days

it is essential that both efficiency and output should be at their height and therefore it follows that this is the appropriate time to place this work upon a scientific basis and in accord with the principles of industrial physiology.

SOME MEDICOLEGAL ASPECTS OF THE MANIC-DEPRESSIVE PSYCHOSIS.

WITHOUT going too deeply into the legal conception of insanity—and insanity is, after all, a legal, not a medical concept—it is, perhaps, enough to say that a crazy man, in the eyes of some judges, most lawyers, and practically all jurymen, is a man who sees and hears imaginary things, is excited, tears up things, assaults people, goes nude, and does other things calculated to attract attention. By a great effort of the imagination these people may conceive of a man suffering from fixed delusional ideas, persecution, grandeur, and what not, which influences his conduct to the extent that he takes elaborate precautionary measures, or proclaims himself a great personage.

But a disorder whose episodes are separated by periods of lucidity when the subject appears normal to the layman, a disorder which is sometimes manifested by episodes in which the excitement or the depression is so slight as not to be suspected of being pathological by his friends; and finally a disorder the two phases of which are so exactly opposite, and which exhibits frequently the so-called "mixed states" where depression is associated with flight of ideas and increased psychomotor activity, where exaltation is associated with difficulty of thinking and retardation, and so on *ad infinitum*, such a disorder presents many peculiar problems in its legal aspects. For example, in the prodromal period of a manic excitement, or a depression, the patient may take a drink now and then, in the former case merely because he is restless and exalted, "feels good," and in the latter case because he "feels blue," and has a vague idea of seeking artificial cheer. Suppose then that he is seen several times in an excited condition, the smell of liquor is noticed on his breath, and then he is arrested for some crime. Naturally, witnesses appear who testify that the defendant never acted peculiarly except when he had been drinking, that he was frequently drunk, and so on.

Furthermore, let us suppose that a patient has been in an "interval" for several years; on a certain day it so happens that he is not seen for several hours by any one who knows him; something occurs to precipitate an excitement—and a manic excitement may come on very suddenly, explosively, in fact; during this excitement he commits an overt act and comes within the purview of the law; and immediately following this act he is semi-stuporous for a time, and gradually emerges from that state into an interval during which he is put on trial. Now, it is difficult, almost impossible, to convince a jury that this man who appears before them quiet and composed, about whom wit-

nesses may be found in plenty to testify that he has always seemed sane to them, that they saw him the day before the crime, for example, and he seemed perfectly all right. An effort to show that the prisoner is of a manic-depressive make-up, that he had a mild attack some years since (about which many witnesses will testify that it was due to drink), that a sudden attack was precipitated by an emotional shock of some kind, during which attack he committed the crime, will be regarded with great suspicion by the public. These are but instances of the phases of the problem presented by the manic-depressive. In many other ways the manic-depressive may come into conflict with the law, but the essence of the problem remains the same, and depends on three chief things—the lucid interval, the existence of the slight episodes of excitement and depression, and the alcoholic features.

The average attorney will find it difficult to understand, moreover, how a man may go from normality to excitement in the twinkling of an eye, so to speak; also that such excitement may vary very greatly from day to day, or even from hour to hour, so that such a subject may be seen by witnesses one hour who discern nothing abnormal in his conduct, and others see him the next hour and describe him as a "raving maniac."

SUPPRESSION OF ABORTION.

IN connection with the subjects of low natality and repopulation, European governments naturally pay much attention to the deliberate or facultative abortion because under such circumstances gestation is actually under way, the woman and her husband are physiologically competent, and oftentimes the woman has conceived willingly, the motivation for interruption of pregnancy having been a subsequent development—for example, the pregnant woman has suddenly lost her husband so that the unborn child would be deprived of his protection.

It is evident that propaganda concerning abortion involves the careful study of statistics and in the *Journal de médecine et de chirurgie pratiques* for September 25 is a report made upon this subject before the Paris Medicolegal Society by Tissier, in which it appears that before the war the number of births in Paris per week varied from 1,000 to 1,200, equal to 55,000 per annum. Of this number of mothers from two-thirds to three-fourths required some form of State aid (almost 40,000). There is official cognizance of at least 20,000 annual abortions, so that the number of pregnancies is about 75,000 yearly. But of thousands of silent abortions there is no official record, because the women escaped accident, and Tissier estimates that there is official cognizance of but one abortion out of two or three or somewhere between 50,000 and 60,000 per annum. In other words for every birth an abortion.

These totals do not help much, for we have no means of knowing how many abortions are provoked. Lepage guesses 80 per cent., while others

place the figure much lower. But 25,000 to 30,000 seems a conservative estimate, a frightful picture—for in addition to the lost children hundreds of women die of sepsis and hundreds more become, so to speak, cripples incapable not only of further procreation but of self-support.

The correction of this state of affairs by law with the numerous "musts" and "shoulds" inevitable in an antiabortion propaganda has a more or less hopeless promise, largely because such recommendations cannot be promptly carried out on a small scale to show whether progress can be made. All know that programs of reform are often followed by an aggravation rather than improvement of evils when not backed by public opinion. In February, 1913, recommendations were made by the society to the French Senate and were adopted in the first reading. Last July further recommendations were made to the Senate by the same body for the carrying out of the original repressive measures. These had to do with reporting all stillbirths by parents, immunity to any woman who denounces the person who procured the abortion upon her, privilege of private testimony by medical men in regard to criminal abortion, and the right of direct citation, in connection with criminal abortion, to all societies actively interested in bringing up the birth rate.

TRENCH NEPHRITIS.

ALTHOUGH a good deal has been written concerning trench nephritis, little appears to have been exactly learned regarding it. In the *Medical Press* of December 26, 1917, Dr. I. C. McWalter points out that when trench nephritis is referred to that of the ordinary Flanders variety is meant. The Gallipoli or Salonica type is a different variety. The ordinary characteristic of it is that it is not really a "trench nephritis" at all, that is to say, McWalter is inclined to think that the trench is not essentially concerned in the production of the disease, though possibly there has always been the factor of an exhausted overheated man, subjected to a sudden chilling of the atmosphere, and in close proximity to newly turned earth. One characteristic feature of "trench nephritis" has been a loss of weight, although appetite was good and intake of food more than normal. Depression, restlessness, and indifference are also distinguishing symptoms and a certain mental lethargy is always present. Loss of albumin, which is seldom more than from a quarter to half an ounce daily, will not account for the loss of weight which accompanies the ingestion of a larger amount of food than ordinary. Few of the patients are drinkers, in fact the percentage of the consumers of alcohol in army hospital patients is very much less than one meets with in civil practice. As for treatment, McWalter is by no means in favor of the open-air treatment which is frequently so highly lauded. On the contrary, he has found that patients usually get worse in the open air even when the day is sunny; they prefer to be in a dark tent, and will complain of head-

ache if sent out for exercise. Little is to be said about the therapeutics of trench nephritis. McWalter is of the opinion that there is no specific. As routine treatment, he administers tincture of perchloride of iron, with nitrous ether and solution of acetate of ammonia. *Nux vomica* appears to be useful in other cases.

RECRUDESCENCE OF RABIES IN FRANCE.

THIS phenomenon was noted a year or more ago in the vicinity of Paris and explained by migration of rabid animals from the provinces in which, owing to the war, proper care of dogs was impossible. More recently a graduation thesis by Fiany (Bordeaux, 1917), has dealt with increase of the disease in the Gironde and Southwestern France. In the Gironde, veterinaries report that its incidence has quadrupled since the war began; while in 1916 the number of human beings treated at the Pasteur Institute at Bordeaux showed a three-fold increase, as far as cases from the Gironde are concerned. This increase is not to be found in France as a whole; in fact in some of the departments the disease has been stamped out. Hence it is difficult to determine the causes of this recrudescence, for neglect of animal care due to war must be the same in all localities. An investigation of the conduct of those held responsible for suppression of rabies may be required; and at the same time a general round up of stray dogs with impounding for observation purposes must be instituted. The problem of rabies in man is bound up with the future of the stray dog.

News of the Week.

State Quotas of Babies to be Saved During Children's Year.—The Children's Bureau of the United States Department of Labor which has initiated a campaign to be conducted during the coming year, beginning April 6, to save 100,000 lives of children under five years of age, has announced the quota of this number which each State should aim to save. The assignments are made on the basis of the infant population under five years of age according to the census of 1910. Owing to the fact that the registration of births and deaths is seriously deficient in some States the assignments may not be altogether accurate. The assignments range all the way from 60 in Nevada to 8,455 in New York and 8,318 for Pennsylvania. The number assigned to a large number of States ranges between two and three thousand. It is expected that the 5,000 or more local committees of the Child-Welfare Department of the Women's Committee will be able to carry the campaign to every community in the United States. This is looked on as essential to the success of the movement, for in the last analysis every community must save its own babies if they are to be saved.

City Ordinance Providing for School Lunches.—The Committee on General Welfare of the Board of Aldermen of New York City has proposed an ordinance for the establishment of a bureau to furnish lunches in the public schools. A hearing was held on this ordinance on February 13, at which time it was shown that according to the figures of

the Board of Health there were 218,000 seriously undernourished children in the schools of the city in December, as compared with 110,000 in December of the year before.

Columbia University Adds to Medical College.—The Trustees of Columbia University announce a gift of \$50,000 from an association of women physicians and a sum totaling \$18,000 from other donors which will enable the university to begin the erection of buildings in the Medical Department for the accommodation of women students. The new building will also afford additional laboratories for the college. This year has shown an increase in the registration at the College of Physicians and Surgeons, there being now enrolled 600 students, of whom 10 are women, as compared with 554 last year.

Health Crusade to Enlist Children.—The National Association for the Study and Prevention of Tuberculosis has planned to hold a pennant contest to enroll a million children in the National League of Children's Health Crusaders. Ten pennants have been offered in the local leagues in cities of the various population classes as rewards for the largest per capita membership. It is hoped that one million new members will be obtained by the end of the present school year. The object of the national association is to interest children in matters pertaining to health and in this way to lay better foundations for the health of the coming generation.

Proposed Amendment to State Health Law.—There is now before the Legislature of New York State, under the title "An act to amend the public health law in relation to reports of officials and employees to the State Department of Health which reads as follows: 'The Commissioner of Health shall take cognizance of the interests of the health and life of the people of the State and all matters pertaining thereto.'" The amendment written at the request of the Health Commissioner is as follows: "The written reports of officers and employees of the State Health Department on questions of fact under the public health law, or under the sanitary code, or any local health regulation, shall be presumptive evidence of the facts so stated and shall be received as such in all courts and places. The persons making such reports shall be exempt from personal liability for the statements therein made if they have acted in good faith."

Hospital for Palestine.—Announcement is made by the Women's Zionist organization that Mrs. Peter J. Schweitzer of Brooklyn has donated \$25,000 for building and maintaining a model eye hospital in Palestine, where trachoma and other eye diseases are prevalent. A medical unit is prepared to leave for Jerusalem as soon as passports and transportation can be obtained.

Antipneumococcic and Antimeningococcic Serums of Good Quality.—The Public Health Report, No. 6, February 8, 1918, states that in order that those who use antipneumococcic and antimeningococcic serums shall be assured that such of these serums as are sold in interstate traffic are suitable for therapeutic purposes, each lot of these products made by the various manufacturers is tested at the hygienic laboratory of the United States Public Health Service prior to being placed on the market. The quality of the antipneumo-

coccic serum is judged by its protective value against Type I pneumococci, using mice for test purposes. The antimeningococcic serum is tested by agglutination and complement fixation tests. Those products that prove satisfactory are passed.

Fordham Graduates Doctors.—In order to help fill the gap made by the war in the supply of doctors, Fordham University graduated 61 doctors on February 13, four months ahead of time. The doctors, however, had completed their course, having studied all last summer to make up the time. Those receiving prizes were Dr. Daniel J. Dolan, Dr. Harold T. Joyce, Dr. Augustus Wolf, and Dr. Joseph E. Conroy.

Pneumonia Deaths in New York Continue to Increase.—For the week ended on February 16 the deaths in the five boroughs of Greater New York numbered 1,738 from all causes, 373 resulting from pneumonia, as compared with 1,772 deaths from all causes for the previous week, of which 355 were due to pneumonia, making an increase of eighteen deaths from pneumonia over the previous week.

Health of Paris Improves as Result of Rationing.—Figures quoted from the *Weekly Bulletin of Municipal Statistics of Paris* show that the health of the French capital has distinctly improved under the restrictions in diet imposed by war conditions. For the months of June the deaths in Paris numbered 505, compared with an average of 903; for July, 562, compared with 815; for August, 585, compared with 706; for September, 587, compared with 688. In the winter the number of deaths more nearly approaches the average, owing to the fact that the winter maladies are less affected by food conditions. The *Bulletin* points out that there are other restrictions not of an alimentary nature that must be considered in accounting for the betterment of the general health. The decrease in the means of locomotion has made people walk more, and the reduction in street lighting has kept people at home and away from cafés and restaurants, which means fewer alcoholic excesses and fewer opportunities of contracting contagious diseases such as pneumonia and grippe. Finally, the putting back of the clock one hour during half of the year has helped in improving health in that people were out of doors and in the sunlight for a longer time. It has been noted that many people have grown thinner, owing to the restrictions put on bread, sugar, and pastry, and this has benefited that part of the population which each year furnishes the greatest percentage of deaths attributed to diabetes, arteriosclerosis, heart and kidney troubles. It is also notable that it is many years since so few consumptives died in Paris as during the past year. This class of invalids have not suffered from food restrictions as they are largely in hospitals where sufficient food has been supplied.

Compulsory Health Insurance Killed in Massachusetts.—The Special Recess Commission on Social Insurance appointed by the Massachusetts Legislature to consider Governor McCall's recommendations for compulsory health insurance reported January 15, 1918, in opposition to the establishment of a State system of compulsory health insurance, declaring such a system has few supporters, is opposed by laborers and employers alike, and is distinctly class legislation.

Campaign for Prevention of Insanity Urged.—The New York State Hospital Commission, in its annual report recently submitted to the Legislature, recommends vigorous State-wide efforts to prevent mental disease. The report shows that the insane cost the State \$8,382,000 in the year 1917 and expresses the opinion that nearly one-half the cases of insanity are preventable. Five definite steps for the prevention of insanity are recommended. They are: 1. Checking the excessive use of alcoholic liquors. 2. Checking the ravages of syphilis. 3. Informing the public more fully about mental diseases and teaching mental hygiene. 4. Steps to eliminate extreme poverty. 5. Extension of the out-patient departments of the State hospitals, with more free clinics for mental and nervous disorders and field agents to look after incipient and convalescent cases.

Dr. John A. Harris, who retired from the practice of medicine to undertake several business projects, has been appointed special deputy police commissioner of New York City, without pay, to regulate traffic. He has for some years made a study of traffic conditions and has plans for their improvement.

Dr. William S. O'Brien has been elected chairman of the Board of Health of Springfield, Mass.

Dr. Allan J. McLaughlin, who has been Commissioner of Health of the State of Massachusetts since 1915, has resigned to accept an appointment as assistant surgeon-general in the Federal Bureau of Public Health.

The Portsmouth (N. H.) Medical Society, at its annual meeting, on February 5, elected the following officers: *President*, Dr. A. C. Heffinger; *Secretary*, Dr. H. B. Hannaford; *Treasurer*, Dr. E. B. Eastman.

Dr. William M. Hillegas of Philadelphia has been appointed by Governor Brumbaugh a member of the Pennsylvania State Bureau of Medical Education and Licensure in succession to the late Dr. Daniel P. Maddux.

Congestion in New York State Insane Asylums.—The annual report of the State Charities Aid Association to the State Hospital Commission shows an unprecedented overcrowding in the State institutions for the insane. The total capacity of the thirteen State hospitals is rated at 27,890, and at the end of the fiscal year they contained 34,798 inmates, or an excess of 25 per cent. The overcrowding is reported to be worse in the institutions of the metropolitan district. The Charities Aid Association believed the State ought to appropriate at once \$20,000,000 to provide adequately for the insane and feeble-minded, the expenditure to run over ten years. The parole system has been applied to the State institutions for the care of the insane and has effected a saving of \$330,880 for maintenance, at the same time making room for additional patients. The State at the present time maintains thirty free clinics for nervous and mental diseases, with an average monthly attendance of about 500 persons. All the State hospitals employ field agents to look after paroled or discharged patients.

Amendments to the Sanitary Code of New York State.—The Public Health Council of the New York State Department of Health in reviewing

the amendments to the Sanitary Code made during the year 1917, calls attention to the amendment which adds chancroid, gonorrhea, and syphilis to the list of communicable diseases and makes obligatory upon every physician, when treating a patient affected with any of these diseases, to furnish such persons with a circular of information approved by the State Commissioner of Health and to instruct them in the precautions to be taken to prevent the communication of the disease to others. Other amendments requiring the reporting of acute anterior poliomyelitis and of all persons bitten by dogs suspected of having rabies. In order to inform the local health officers of the occurrence of deaths from communicable diseases other than tuberculosis, it was made the duty of the local registrar of vital statistics to report immediately to the local health officer, the name, age, and address of the deceased, whenever a certificate of a death from a communicable disease was received, also the name of the physician who filed the certificate. A model sanitary code for towns, villages, and third-class cities has been prepared and is recommended for adoption by local authorities. The State Commissioner of Health has been given authority to declare extracantonment zones about military camps and provision has been made for the monthly inspection of such zones by health officers. Regulations were also adopted providing for the inspection by health officers of boarding and lodging houses where people affected with tuberculosis were staying and also for the licensing of boarding houses making a business of boarding children under twelve years of age away from their parents.

Medical Society Elections.—THE ASSOCIATED PHYSICIANS OF LONG ISLAND held their twentieth annual meeting in Brooklyn, on January 26, when the following officers were elected: *President*, Dr. Lefferts A. McClallan of Brooklyn; *Vice-Presidents*, Drs. William A. Hulse of Bayshore, Henry Goodwin Webster of Brooklyn, and Harris J. Houghton of Bayside; *Secretary*, Dr. James Cole Hancock; *Treasurer*, Dr. Edwin B. Moore of Bay Shore.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY, at a stated meeting held January 16, elected the following officers for the ensuing year: *President*, Dr. Frank C. Hammond; *First Vice-President*, Dr. John W. West; *Secretary*, Dr. William S. Wray; *Assistant Secretary*, Dr. Elmer H. Funk; *Treasurer*, Dr. Edward A. Shumway; *Censor*, Dr. William M. Welch; *Directors*, Drs. William E. Parke, George A. Knowles, and F. Hurst Maier.

THE PHYSICIANS' MOTOR CLUB OF PHILADELPHIA, at its annual meeting, held January 21, elected the following officers for the ensuing year: *President*, Dr. S. Leon Gans; *First Vice-President*, Dr. John J. Robrecht; *Second Vice-President*, Dr. Charles A. E. Codman; *Third Vice-President*, Dr. Charles R. Haig; *Secretary*, Dr. Howard A. Sutton; *Treasurer*, Dr. Lewis H. Adler; *Directors*, Drs. Charles H. Harbaugh and Sylvester J. Deehan.

THE UTAH COUNTY MEDICAL SOCIETY at its annual meeting in Provo, on January 31, elected the following officers: *President*, Dr. Andrew J. Stewart of Salt Lake City; *Vice-President*, Dr. Joseph Hughes of Spanish Fork; *Secretary-Treasurer*, Dr. Walter T. Hasler of Lehi.

Charitable Bequests.—Under the will of Mrs. Teresa M. J. O'Donohue, St. Vincent's Hospital, New York, is bequeathed \$2,500 and the Misericordia and St. Joseph's hospitals each \$500.

A benefit opera given recently by the Ladies' Auxiliary of the New York Foundling Hospital netted that institution \$10,000.

By the will of the late William G. Ellis of Philadelphia the sum of \$1,000 is bequeathed to the Samaritan Hospital. By the will of the late Jacob Uditzky of Philadelphia one-fifth of a bequest of \$1,000 goes to the Mount Sinai Hospital and one-fifth to the Sanatorium for Tuberculosis at Eagleville, Pa.

War Industrial Diseases.—The meeting of the Academy of Medicine, to be held under the auspices of the Public Health Committee on March 7, will be devoted to a discussion of "The Prevention of Disease in War Industries." The topics to be presented are: (1) Extent and Importance of the Problem, by Dr. David Linn Edsall, professor of clinical medicine, Harvard University. (2) New Poisons in War Industries (illustrated by lantern slides), by Dr. W. Gilman Thompson, emeritus professor of medicine, Cornell University Medical College, New York City. (3) Methods of Prevention and Control, by Dr. Joseph W. Schereschewsky, director, United States Public Health Laboratory, Pittsburgh, Pa. (4) Aid from the Medical Profession, by Dr. Alfred Stengel, professor of medicine, University of Pennsylvania.

A New Game on the Doctor.—An ingenious scoundrel has devised a new plan for getting into a doctor's office during his absence and relieving him of instruments or other valuables which may be lying handy. A surgeon started out the other day to perform an operation at some distance from his office. After he had been gone a certain time an automobile drew up at his door and a well-dressed man jumped out in haste and told the maid who answered his ring that an instrument which the doctor greatly needed had been left and that he had come to get it. The maid in this instance, with unusual acuteness, refused the man admittance, and after much vain persuasion and threatening her with the doctor's wrath the man went off in his car. The same game has been played in some other cases with better success, and doctors and maids are hereby warned to 'ware the willing messenger.

Medical Staff Changes at Sea View Hospital and Sanatorium, Staten Island.—Dr. G. Kremer, formerly physician-in-charge of the Tuberculosis Admission Bureau, New York City, has been appointed superintendent. Dr. J. Dworetzky, formerly of the resident staff of the New York Municipal Sanatorium, Otisville, N. Y., has been appointed resident physician and designated acting deputy medical superintendent. Dr. M. G. Milan, formerly of the resident staff of the Otisville Sanatorium, has been appointed resident physician. Dr. Stanley D. Wang has resigned as resident physician.

Obituary Notes.—Dr. JOHN ALEXANDER GORDON of Quincy, Mass., a graduate of Harvard Medical School in 1871, died on January 25 at the age of 75 years.

Dr. WILFRED W. BROWNE, a graduate of the Baltimore Medical College in 1891, died at his home in Woonsocket, R. I., on January 28.

Dr. FRANK L. BURR, a graduate of the University of Pennsylvania Medical College in 1871, died of angina pectoris at his home in Rocky Hill, Conn., on January 23, aged 71 years.

Dr. NELSON HOYT CHAMBERLAIN of Oakland, Cal., a graduate of the Michigan Homeopathic Medical College in 1892, died in the Hahnemann Hospital, Chicago, Ill., following a stroke of apoplexy, on January 22, aged 50 years.

Dr. HENRY FLEISCHNER of New Haven, Conn., died of pneumonia at his home in that city, on January 20, aged 73 years. He was graduated from the Yale Medical School in 1878, and was connected with the New Haven and St. Raphael's hospitals.

Dr. CHARLES TAYLOR JEWETT of New York, a graduate of the College of Physicians and Surgeons, New York, in 1868, and for fifty years a practising physician, died on January 18 at the age of 71 years.

Dr. PATRICK J. CASSIDY, a graduate of Johns Hopkins University Medical School, died at his home in Norwich, Conn., on January 28, aged 43 years.

Dr. ALBERT H. VARNEY of Newfields, N. H., a graduate of the Harvard Medical School in 1857, died on January 15 at the age of 82 years. He was formerly assistant surgeon of the Second New Hampshire Regiment, and was elected to the Legislature in 1871.

Dr. REDINGTON STANHOPE, a graduate of the Western Reserve University Medical Department in 1880, died at his home in Lincoln, Neb., on January 19, aged 80 years.

Dr. WILLIAM CHILTON DAY of Danville, Va., died of pneumonia in the Danville Hospital, on January 25, aged 77 years. He was a graduate of the University of Virginia Medical College, and served as a surgeon in the Confederate Army during the Civil War.

Dr. THOMAS L. IRWIN, SR., a graduate of the Cincinnati College of Medicine and Surgery in 1865, died at his home in Jacksonville, Fla., on January 25, aged 81 years.

Dr. EDWARD A. MALSCH, a graduate of the Memphis Hospital Medical College in 1892, died of pneumonia at his home in Victoria, Tex., on January 27, aged 48 years.

Dr. WILLIAM E. RODMAN of Hodgenville, Ky., a graduate of the University of Louisville, medical department, died on January 25, aged 71 years. He was president of the Larue County Medical Association and Health Officer of Larue County.

Dr. JACOB FRANKLIN LEWIS, a graduate of the Eclectic Medical College, Cincinnati, in 1880, died suddenly at his home in Little Rock, Ark., on January 24, aged 65 years. He was an ex-president of the Eclectic Medical Society of the State of Arkansas.

Dr. CHARLES H. WILLIAMS, retired physician, died suddenly at his home in Hamburg, Ill., on January 23, aged 65 years.

Dr. EUGENE HAROLD JAMES died at Harrisburg, Pa., on January 27 at the age of 61 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1879 and he served for twenty years as surgeon to the Pennsylvania Railroad.

Dr. JOHN MARTIN CRAIG died of pneumonia at

Philadelphia on January 26 at the age of 55 years. He was graduated from the medical department of the University of Michigan in the class of 1898. He was a member of the Philadelphia County Medical Society, of the Medical Society of the State of Pennsylvania, of the New Jersey State Medical Society, and of the American Medical Association.

Dr. ANNIE L. CONNER died at Philadelphia on January 29 at the age of 42 years. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1901. She was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. ERNEST FREDERICK LUHRSEN died at his home in Brooklyn, N. Y., on February 3, aged 42 years. He was a graduate of the Long Island College Hospital in 1899, a member of the American Medical Association, and the Associated Physicians of Long Island. He was on the staffs of the Lutheran and Brooklyn hospitals.

Dr. FREDERICK C. ROTH, a graduate of the College of Physicians and Surgeons, New York, in 1891, died at his home in New York on February 3, aged 49 years.

Dr. GEORGE W. CROSBY, a graduate of the New York Homeopathic Medical School in 1878, died at his home in Atlantic City on February 3, aged 66 years.

Dr. A. MILLIKEN of Placerville, Cal., a pioneer physician of California, died January 26, at the age of 85 years.

Dr. WILLIAM E. BUELL, chief surgeon of the San Francisco Iron Works Co., was shot to death by an employee of the company on February 4. He was a graduate of the College of Physicians and Surgeons, San Francisco, in 1900, and was 42 years of age at the time of his death.

Dr. FREDERICK CHILDS JONES of Basking Ridge, N. J., a graduate of the College of Physicians and Surgeons of Columbia University in 1877, died of pneumonia on February 9, aged 63 years.

Dr. ANNA McCULLOUGH died at Philadelphia on February 10 at the age of 86 years. She was a graduate of the Woman's Medical College of Pennsylvania.

Dr. GEORGE W. CROSBY died at Atlantic City, N. J., on February 7, at the age of 66 years. He was graduated from the Homeopathic Medical College and Flower Hospital of New York in the class of 1878.

Dr. DANIEL KARSNER died at Philadelphia on February 8, at the age of 65 years. He was graduated from Jefferson Medical College in the class of 1865, and he served as assistant surgeon in the United States Army during the Civil War.

Dr. ELLA ELIZA SEVERANCE died at Camden, N. J., on February 9 at the age of 61 years. She was graduated from the Boston University School of Medicine in the class of 1901.

Dr. THOMAS HENRY NORTHRIDGE, a graduate of the Long Island College Hospital in 1876, died at his home in Brooklyn, N. Y., on February 10, aged 67 years.

Dr. HOWARD BURHANS BESEMER died at his home in Ithaca, N. Y., February 8, aged 48 years. He was a graduate of New York University in 1891 and a Fellow of the American College of Surgeons.

Obituary.

THOMAS J. MAYS, M.D.

PHILADELPHIA.

DR. THOMAS J. MAYS died of apoplexy on February 14, 1918, at his home in Philadelphia. He was born in Lebanon County, Pennsylvania, on January 10, 1846. He was graduated from the Jefferson Medical College in 1868. After several years spent in general practice he went to Europe to study physiology and also diseases of the chest. Returning in 1885, he resumed practice and three years later was appointed professor of diseases of the chest at the Philadelphia Polyclinic Hospital, holding this position until 1902. In 1890 he assisted in organizing the Rush Hospital for Consumptives and was visiting physician there until he resigned in 1905. In 1908 he organized the Philadelphia Clinic for the Home Treatment of Consumption and was made medical director of the institution, which position he filled until his death. He was also visiting physician to St. Mary's Home for Aged Women and consulting physician to the Institution for the Feeble-minded at Vineland, N. J. He was a member of the American Climatological Association, the American Neurological Association, the Philadelphia College of Physicians, the Philadelphia County Medical Society, the American Medical Association, and the Pennsylvania State Medical Society. Dr. Mays was a voluminous writer, having contributed about 500 articles to medical periodicals and was the author of "Pulmonary Consumption, a Nervous Disease," "Therapeutic Forces," and "Consumption, Pneumonia, and Their Allies."

Correspondence.

THE LIGATURE BODKIN.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Some gentlemen appear to be interested in the author's substitution of a modified bodkin for the customary ligature carrier. In fact, their remarks upon the principle involved are complimentary; yet when it comes to a question of planning and of manufacturing the instrument of which they speak so kindly, it would seem to be a very wise policy indeed to avoid making an article to suit another's needs, but rather to furnish broad and sketchy directions so that each man unhampered may work out his own salvation, or at least may suit his own hand and may embody his own ideas. If this is done then any surgeon may make his own carriers and may find them satisfactory whether he wishes a straight, a $\frac{3}{8}$ curve, a $\frac{1}{2}$ curve, a $\frac{3}{4}$ curve, a long, a short, a slight curve, or an assortment of all, or of different kinds of straights or curves.

A needle holder is indispensable, therefore, when working with such a tool; if a necessity for using a ligature carrier should arise it is an advantage not to be compelled to lay down that holder, to take up a carrier and then to return to the holder again and over again. This advantage will clearly appear when there is something at hand that may be inserted into the needle holder where it will replace a ligature carrier and a something that may be sub-

stituted, changed, or discarded as simply and easily as an empty needle may be removed and may have its place filled with a threaded one.

Nowadays much stress is laid upon portability and cost. This stress would lead to the discarding or elimination of instruments. The bodkin will be found quite in line with this tendency of the times for it goes into the needle case, not among the instruments, and the space occupied by a carrier would be much more than several dozen bodkins could occupy. The cost of the bodkin should be five cents or less, and, in short, the carrier is one more instrument, while from a certain point of view the bodkin is simply one more needle, though the steel bodkin of the domestic needle book is not at all adapted to the end proposed. There is a sort of bodkin well known to the dry goods stores by the name of "Never-Slip." To this reference is made. Should anyone purchase a supply of this article he may make, with a hemostat and his fingers, any desired shape in a few minutes. As the suggestion for a standard type here is a working rule: (1) Cut off $\frac{1}{4}$ inch from each end, with scissors. (2) Bend the remainder into a half circle. Blunt edge, sharp edge, chisel edge, or pointed edge may be formed by rubbing upon a stone.

As for the needle holder probably any sort will do, though an Ermold will crush and bend the bodkin if undue force is used. The Richter has two flat places, just behind the knob and needle grasp, and these serve admirably. The other holders have given no trouble as yet. When in the grip of a holder, forceps, or hemostat, the bent bodkin may be used as a needle is used with following thread, or as a carrier with thread in advance. A figure-of-8 stitch gives but one knot to tie for every two stitches and will perhaps prove as expeditious as any mode of employing the little tool.

Three or more of such bodkins may be threaded by nurse or assistant (as needles usually are) and, in fact, numerous expedients will suggest themselves to the user.

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DEATHS FROM AUTOMOBILE FUMES.

TO THE EDITOR OF MEDICAL RECORD:

SIR:—Four deaths from automobile fumes were reported in the New York newspapers during the last three weeks of December, 1917. The victims were Nat M. Wills, 43, a famous comedian; Dr. Martin G. Benedict, 61, a head school master; John and Vincent Dragone, 29 and 13, two brothers. There is hardly an automobile man who has not heard of other deaths or cases of temporary illness from automobile fumes.

The fumes are generated by the combustion of gasoline and oil, are discharged from the exhaust under the chassis of the automobile and contain poisonous gases. When the combustion of gasoline is incomplete the most dangerous gas given off is carbon monoxide. Incomplete combustion is due to missing fire on account of an inferior quality of gasoline, improper mixture of air ("rich mixture") or defective machinery.

Persons may be overcome by being close to the exhaust or in any part of a garage in which the

fumes are discharged; they may be exposed only a fraction of a minute. It happens most frequently in small garages and in the winter time when the doors and windows are kept shut; but it can also occur in the summer time and in the open air if a person is close to the exhaust—for instance, while working under a car or putting on a back tire. Inexperienced men are more frequently overcome because they let their motors run and discharge fumes unnecessarily.

To prevent poisoning from automobile fumes the following precautions should be taken: Have good ventilation; do not run the motor in a small, insufficiently ventilated garage; do not run it unnecessarily; put alcohol and glycerine or some other non-freezing mixture in the radiator; use good gasoline; do not use too much oil. If you must work in a confined space wear a gas mask or attach a rubber hose to the end of the exhaust to carry the fumes off outside. A warning sign should be posted in every garage. Future improvements in the automobile to prevent sickness and deaths from automobile fumes might be a tank to absorb the poisonous gases or a practical electric battery for out of town use.

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Progress of Medical Science.

Boston Medical and Surgical Journal.

February 7, 1918.

1. Laboratory Methods in Tuberculosis. G. Benjamin White.
2. The Problem of Physical Selection Applied to Large Numbers of Applicants. Andrew F. Downing.
3. Reeducating German War Cripples at Düsseldorf. Douglas C. McMurtrie.
4. Physical Selection in Its Relation to Heart and Lung Conditions. M. J. Cronin.
5. A Study of the Kidney Function in Senility. W. C. Rappleye.

5. A Study of the Kidney Function in Senility.—W. C. Rappleye states that the results of the present study were obtained from a group of patients whose ages ranged from 70 to 88 years. These patients were free from gross evidences of renal insufficiency or other compromising conditions (fever, edema, dyspnea, anemia of note, etc.) and most of them were active workers. Under the conditions of diet and hospital routine at the Foxboro State Hospital the upper normal value of blood urea nitrogen is considered as 15 to 16 mgm. per 100 cc., the blood being drawn before breakfast, 12 to 14 hours after the preceding meal. Fifty per cent. of the cases studied showed a moderate degree of retention, using the blood urea nitrogen figures as a criterion. Fifty per cent. of the cases showed a systolic blood pressure of 160 mm. or over; a higher percentage showed a diastolic pressure of 85-90 mm. or over. The blood pressure readings cannot be said to be related to either the blood urea nitrogen or to the rate of elimination of phenolsulphonethalein. In 27 cases in which the elimination of phenolsulphonethalein was determined, 13 showed a value of 40 per cent. or lower; 9 of these were 35 per cent. or lower. A low value of elimination of the dye is associated for the most part with an elevated blood urea nitrogen. A good excretion is related for the most part with a relatively low blood urea nitrogen. Twenty-five per cent. of the cases showed albumen in the urine. There were no cases of glycosuria or hematuria. Practically all of the cases showed casts—a customary observation. Sixty-six per cent. of the cases showed either an elevated blood urea nitrogen or a depressed value of phenolsulphonethalein elimination (40 per cent. or lower). If one disregards the findings of only a few casts in the urine and disregards the blood pressure also, it can be said that, in the group of patients studied, about 70-75 per cent. show easily demonstrable evidences of kidney

insufficiency. It will be noted that in this group there are several cases showing a relatively low blood urea nitrogen and a good renal function, but which have a considerable elevation of blood pressure, the so-called cases of "essential" hypertension.

New York Medical Journal.

February 9, 1918.

1. Vertigo. Charles Graef.
2. Wandering Dropsical Gallbladder. J. Lewis Amster.
3. Raynaud's Disease. George Rubin.
4. Kidney Infection as a Result of Pyorrhea. Frank S. Crockett.
5. New York and Wilmington, Del., Safeguards in the Manufacture of Explosives. W. G. Hudson.
6. Blood Pressure in Head Injuries. H. M. Armitage.
7. An Analysis of Seven Cases of Friedrich's Ataxia. Michael Osnato.
8. Obstetric Memoranda. Egbert H. Grandin.

6. **Blood Pressure in Head Injuries.**—H. M. Armitage points out that blood pressure readings are only of negative value in head injuries where compression of the brain with medullary involvement has not occurred. In severe fractures of the base with widespread hemorrhage, blood pressure readings are valueless. In all other fractures of the skull with compression and medullary involvement, blood pressure readings form one of our most important symptoms, but, contrary to all teachings, he believes the systolic pressure to be of no value whatever as a diagnostic measure in determining the degree of compression of the brain and aiding in the decision as to the advisability of an operation. These cases show conclusively that the pulse pressure is proportionately high in cases of traumatic compression of the brain and the more serious the compression the higher the pulse pressure until the last stages when vasomotor compensation begins to fail. They also prove that the pulse pressure ascends as the pulse rate descends in each case until finally the pulse pressure becomes greater than the pulse rate and when this has occurred compression has always been present. It would be folly, however, to wait deliberately for this phenomenon to occur before operating in cases where a proportionately high pulse pressure was rising and the pulse rate falling. The choice we make in deciding whether or not a patient should be trephined must be made with a moderation of counsel and temperateness of judgment. Under such circumstances the final decision must always be formed from the study of the entire group of symptoms, but he unhesitatingly asserts that of these symptoms the most important one is the frequent estimation of the pulse pressure in its relation to the pulse rate and systolic and diastolic pressures. In view of the fact that we may be called upon to treat an enormous number of head injuries during the present war and some of these will be borderline cases, it is altogether right that we should now undertake a minute study of the blood pressure findings in these injuries so that we may classify those types of injuries in which we may expect the sphygmomanometer to be of no aid whatever and those in which it will be of use.

Journal of the American Medical Association.

February 9, 1918.

1. Prognosis in Cardiac Affections as Related to the Discovery of Murmurs and to Arrhythmia. Robert H. Babcock.
2. Treatment of the Epileptic, Based on a Study of the Fundamental Make-Up. L. Pierce Clark.
3. Pregnancy and Pulmonary Tuberculosis, with a Report of One Hundred and Three Cases. Charles C. Norris and H. R. M. Landis.
4. Syphilis as a Cause of Diabetes Mellitus: Relations of Wassermann Test and of Lipoidemia. John R. Williams.
5. Bacillus Typhosus Associated with Pyonephrosis. E. H. Ruediger.
6. Childbirth and Tuberculosis. Edward S. McSweeney and Stanley L. Wang.
7. Acquired Genital Syphilis in the Infant: Report of Case. W. H. Haines.
8. Paget's Disease of the Bone: Excellent Repair After Surgical Operations. Robert Abbe.
9. Syphilitic Joint Disease Simulating Tuberculosis. Percy Willard Roberts.
10. Duodeno-Ureteral Fistula of Spontaneous Origin: Report of a Case. Edwin G. Davis.

3. **Pregnancy and Pulmonary Tuberculosis, with a Report of One Hundred and Three Cases.**—Charles C.

Norris and H. R. M. Landis point out that years ago pregnancy was supposed to exert a favorable influence on the course of pulmonary tuberculosis, and that the fact that the cases were not closely followed is probably the chief reason for such a view ever having been held. Their results show that the combination of pregnancy and pulmonary tuberculosis is a frequent one. Pulmonary tuberculosis exerts little or no influence against conception. Pulmonary tuberculosis exerts but little influence on the course of pregnancy, and except in the advanced stages exerts little or no influence toward causing abortion, miscarriage, or premature labor. About 20 per cent. of mild, quiescent pulmonary tuberculosis, and 70 per cent. of more advanced cases exhibit exacerbations during pregnancy or the puerperium. Marriage is worse for tuberculous women than for tuberculous men, owing to the dangers incident to pregnancy. Unless the pulmonary lesions have been quiescent for a moderately prolonged period, tuberculous women should not marry. Tuberculous women should not become pregnant unless the disease is in the first stage, and has been quiescent for a minimum period of two years. It is as yet impossible to determine with certainty which patients will bear the added strain of pregnancy well and which badly. We must individualize our patients. Moderately extensive lesions, recent activity, the development of secondary lesions, especially laryngeal involvement, loss of weight, fever, hemorrhage, sweats, lack of vigor, and inability to obtain proper treatment are ill omens whereas, the reverse are more favorable. Prior to the fifth month of pregnancy, the uterus should be emptied if the disease manifests evidence of becoming active, or if the lesions are extensive ones or laryngeal involvement occurs. Curettage during the first six or eight weeks, and in the latter cases vaginal hysterectomy, are as a rule the preferable methods. Interruption of pregnancy does not insure an amelioration of the pulmonary condition, but does definitely improve the prognosis. About 65 to 70 per cent. of patients, prior to the fifth month of pregnancy, will be definitely improved by the emptying of the uterus as soon as acute symptoms arise, provided proper after-treatment is carried out. Late intervention has given less satisfactory results. Sterilization is rarely justifiable. After the fifth month of pregnancy, it is generally advisable to treat these patients expectantly. Labor should be made as easy as possible. For this end, induction of premature labor two weeks before term is often advisable; rarely, if ever, should they be allowed to go beyond term. At labor, forceps or version is usually indicated. Infants should not be nursed by tuberculous mothers, and should be especially guarded from infection. Hygienic and dietary treatment should be employed at all times. These patients should be kept under close observation and should be examined by a competent internist at regular and frequent intervals. In the great majority of cases the tuberculosis precedes the pregnancy. Even in those cases in which the symptoms are first observed during pregnancy, infection has generally occurred prior to conception, and an exacerbation during pregnancy has directed attention to the pulmonary condition. They especially urge that all pregnant women giving a history at all suggestive of pulmonary tuberculosis be subjected to a thorough examination by a competent internist at the earliest possible date. Only in this way can the proper treatment be instigated at the time when it is most valuable. It is doubly important that tuberculous pregnant women shall be given the same care as the nonpregnant person as far as rest, hygiene, diet, etc., is concerned.

The Lancet

January 19, 1918

1. Cases of Cerebrospinal Fever in the Royal Navy—August 1, 1916—July 31, 1917. H. D. Rolleston.
2. The Grouping of Meningococci into "Types." P. Fildes.
3. A Clinical Contribution to the Study of P. II. O. W. Pasteur and Bernard Hudson.
4. The Localization and Removal of Foreign Bodies by the Combined Method of Radioscopy and Operation, with Suggestions for the Standardization of Methods. Robert Knox.
5. The Treatment of Staphylococcal Infections by Stannoxyl: Furunculosis and Acne. (Method of Grégoire & Frouin.) Arthur Compton.

6. A Case of Splenomegaly Treated by Splenectomy, with Report on Condition of the Blood and Spleen. G. R. Pootner and R. G. Archibald.
7. Muscular Rheumatism: Its Diagnosis and Treatment by Physical Means. Frank Radcliffe.

5. The Treatment of Staphylococcal Infection by Stannoxyl: Furunculosis and Acne (Method of Grégoire and Frouin).—Arthur Compton brings to mind the fact that Frouin, in pursuing his interesting researches on the action in vitro of metals on different bacteria, has investigated the influence of tin and its derivatives on the growth of staphylococci. With Grégoire he has established that this element, its chloride, or its oxide, when added to ordinary bouillon culture-medium, strongly inhibits the growth under anaerobic conditions of staphylococci; while under aerobic conditions the growth of staphylococci is not hindered, but the virulence of the microbe is diminished. That fact, coupled with the observation coming from the district of Beauce that furunculosis is an unknown affection among tin-workers of the region, formed for Frouin and Grégoire the starting point for testing in vivo the therapeutic value of tin in staphylococcal infections. They found that intravenous injection of the chloride or hydroxide of tin in the rabbit, twelve hours after intraperitoneal inoculation of virulent staphylococci, retarded the death of the animal by several days. As a result of these experiments Grégoire and Frouin have given us for the treatment of lesions of staphylococcal origin the preparation stannoxyl, which is a combination of metallic tin and its oxide, entirely free from lead, a drug which, already in France, has given such promising results in the treatment of staphylococcal infections (acne, furunculosis, etc.). Compton gives the history of seven cases, including furunculosis, acne, and infective dermatitis, which he treated with this method of treatment. The following is an account of one of the cases. Private B., aged 21, laboratory attendant. Very troublesome acne on face since the age of 12. Condition showed weekly periodicity, in that about once a week there appeared a widespread crop of papules all over the face, eventually becoming pustular, which was most distressing. Between August, 1916, and April, 1917, patient had continuous course of treatment with autogenous vaccine (*Staphylococcus aureus*) at more or less weekly intervals, the doses ranging progressively from 50 millions to 5000 millions, and that without the least benefit. Vaccine treatment was, therefore, abandoned, and treatment with stannoxyl begun on June 23, 1917, and continued, 8 comprimes per day, till August 6, during which time some 350 comprimes were taken. The condition rapidly improved with stannoxyl treatment, but between July 8 and 14 patient visited his home in Yorkshire, "on leave," and while there he had a more or less full-blown attack. On account of this, on his return Compton continued him on treatment much longer than appeared necessary after his condition had again cleared up. For a month after treatment was suspended, on August 6, there was no return of the weekly attacks, but occasionally a papule would appear on the forehead, which quickly disappeared, the rest of the face remaining quite clear. Owing to the return of some six papules on the forehead, cheeks, and neck on September 26 the patient was again put on stannoxyl, 6 comprimes per day. Anew there was an immediate response to treatment; inside a few days condition quite cleared up. This patient's condition being now so perfectly under control by stannoxyl treatment, it is hoped by successive courses of the drug eventually to completely cure him of his complaint. Up to the present patient has taken in all 410 comprimes, about 100 grains, of stannoxyl.

The results appear to show in these cases that stannoxyl affords a sure and efficient method of general treatment for such staphylococcal infections as furunculosis and acne. The beneficial effects are felt sometimes two days after beginning of the treatment, and in some cases the cure seemed to be obtained within five or six weeks from the beginning of the treatment, and in even a shorter time in furunculosis cases.

British Medical Journal.

January 19, 1918.

1. The Medical Aspects of Aeroplane Accidents. H. Graeme Anderson.

2. Acute Yellow Atrophy in Syphilis. Stuart McDonald.
3. Pericardial Knock. S. Maynard Smith.
4. A Simple Apparatus for Nitrous Oxide-Oxygen Anesthesia. A. S. Wilson.
5. Anesthetics in Military Hospitals. Thomas Clarke.
6. On the Treatment of Gunshot Wounds with a Solution of Soap and Water and Primary Suture. J. B. Haycraft.
7. A Serological Investigation of Vincent's Angina. Frank E. Taylor.

2. Acute Yellow Atrophy in Syphilis.—Stuart McDonald reports the rare experience of having come across five cases of acute yellow atrophy of the liver in syphilitic subjects in the postmortem room, all within two months. These cases had been treated by "salvarsan" preparations and mercury, and practically all had received a full course of intravenous injections of salvarsan, coupled with the usual intramuscular injections of mercury. The diagnosis had previously been made by the Wassermann test and on clinical grounds. These cases were not of undue severity, and showed no special symptom of importance till a sudden onset of jaundice was noticed, without at first any special disturbance, the disease suggesting nothing more than an ordinary catarrhal jaundice. At a varying period of from two to eight days, however, acute symptoms appeared with dramatic suddenness. They were ushered in by a period of wild excitement and increased icterus, with hematemesis. The patient rapidly passed into coma, and death occurred in the five cases at periods of one to four days from the onset of the acute symptoms. The urine was markedly bile-stained, and in each case showed tyrosin; in some leucin was also demonstrated. In four of the cases diminution in the size of the liver was demonstrated during life. Icterus gravis of a degree of acuteness was presented in these cases. The morbid anatomy and histology presented as striking results as the symptoms. Intense necrosis rather than fatty degeneration of the liver parenchyma was found, the bile duct epithelium largely escaping. Though "red" areas were microscopically present in the liver, the condition had been so acute that in most cases the "yellow" areas preponderated. In each case there had been widespread hemorrhages in the serous membranes with a special hemorrhagic infiltration of the lungs. The kidneys showed an intense degree of fatty change, and there was noticed also a varying degree of intestinal catarrh. Bacteriological examination has, in contrast to what has been hitherto found in similar cases, yielded some interesting results which may prove of prime importance in relation to the etiology of the condition. Cultures from the heart blood and lung have given copious growths of organisms apparently of the *coli*-typhoid type, with some definite cultural characteristic features and pathogenic properties. These organisms have not been fully investigated as yet, and a further report will be made. The bacteriology of acute yellow atrophy has so far been very indefinite, on account of the power of the liver for resisting microbial invasion from the alimentary canal. The isolation of the causal organism under these circumstances, if there be one, must not be expected to be an easy matter. That infection of some kind apart from syphilis plays some part in the etiology of acute atrophy has long been held. In a large number of recorded cases some previous intestinal catarrh has been noted. McDonald applies these points to his cases as follows: Here are five typical cases occurring together in a limited period; all have been syphilitic subjects, and all have been treated with salvarsan preparations *plus* mercury. It is remarkable that though similar cases amounting to thousands have been treated by the same methods, such a complication as this one has not been observed until now. This would seem to point to some other factor having been introduced. There is no evidence that the salvarsan has materially altered, at least in the last three years, and the syphilitic toxin and mercury factors may be taken as constant. Also, with this in each case there was found at the post mortem examination microbial infection of a special type. There would appear at least to be a *prima facie* case for regarding this infection as being the new factor which, acting on livers previously damaged by the syphilis, and possibly arsenic *plus* mercury, has completed the damage to the liver cells, and allowed autolysis of the tissue, which appears to be the essential liver change, to occur. Some such combination of circumstances might account for

the rarity of the disease. It should be noted that neither clinically nor pathologically do the cases observed bear any close similarity to cases of spirochetal jaundice.

Berliner klinische Wochenschrift.

November 26, 1917.

Experiments with Malaria in Wartime.—F. Munk informs us that in a typical case of malaria the only certain diagnostic index is the presence of the specific organism in the blood. This should be sought for before the exhibition of quinine. The most common mistake in diagnosis is that with Volhynia fever. The writer prefers to treat these cases with repeated doses of quinine, rather than with massive doses as recommended by Robert Koch. The latter have only been used at the beginning of the treatment. Therefore, Munk prescribes one gram of quinine four hours before the supposed time of the paroxysm and then continues with a daily dose of 1.20 grams in divided doses for the first six days. He alternates the exhibition of the drug every three days—three days with and three days without quinine in cases which will be prolonged. The centralization of malarial patients in the hands of special physicians would offer great advantages from the therapeutic viewpoint. Quinine is to be exhibited in solution as it is thus better tolerated than in compressed tablet form. Salvarsan radically controls the paroxysms of tertian fever but its action is not of any duration. In order to prevent dissemination of malaria, the writer proposes to search out and isolate all germ carriers.

On Tuberculosis.—E. Schloss found that in a ward of nursing babies a large number of positive reactions took place upon the occasion of a general test with tuberculin. A carefully carried out investigation showed that the epidemic was due to a nurse who was in advanced pulmonary tuberculosis and who had hidden her disease. The tuberculin test was positive in all the children of this service with the exception of two babies who were breast fed by their mothers. In a series of babies in a ward where this particular nurse had only temporarily substituted 33 per cent. of the subjects were infected. Finally, in a third series where she had given her care for only the briefest period a single baby presented a positive reaction.

Münchener medizinische Wochenschrift.

November 27, 1917.

Experiments with the Toxins and Antitoxins of an Anaerobic Organism Belonging to the Malignant Edema Group.—T. Klose has injected guinea pigs, rabbits, and mice with a toxin derived from a culture of an anaerobic organism resembling that described by Novy. The picture offered by the writer is that of an extensive edema, either cutaneous or pulmonary, according to the route followed by the infection, and accompanied by symptoms of an acute intoxication. This toxin, a product of the metabolism of the organism under discussion, is thermolabile, as by heating at 58° C. for one hour it is rendered innocuous. Utilized as an antigen, it immunized both guinea pigs and rabbits against a lethal dose of the same toxin. The combination of the toxin and serum of immunized animals follows the law of multiples, and therefore should be looked upon as a true bacteriotoxin. The antibodies obtained from rabbits protected other rabbits from the lethal effect of large amounts of the toxins at the dose of from 2 to 3 c.c. of antitoxic serum.

The Principles of Wound Treatment.—Wederhake offers the following advice after having examined many methods of wound treatment, which he gives to the world as quite original. Free use of tincture of tannic acid for preventing injection of wounds; the use of a concentrated watery solution of potassium permanganate for suppurating cutaneous lesions. Injections of turpentine in the gluteal muscles should be resorted to in streptococcal or staphylococcal injections, and no suppuration arises at the point of injection. Open-air treatment of wounds, they being protected only by a layer of gauze. The use of skin grafts or grafts with hernia sacs in order to accelerate the closure of

large torpid wounds. In gas abscesses and gas gangrene the parts should be covered with a layer of sugar and naphthalene after suitable incisions have been made.

Deutsche medizinische Wochenschrift.

November 29, 1917.

The Etiology of the Weil-Felix Reaction.—G. Wolff found the proteus X19 in the circulating blood. However, he is of the opinion that this organism is not the causal agent of typhus fever, and that when it is present the case is one of mixed infection, symbiotic with the etiological virus. As in the case of Widal's reaction, the Weil-Felix reaction becomes positive at the time when the bacilli circulating in the blood have become fewer. The reaction remains positive a long time after the decline of the disease at the rate of 1/50 to 1/100. This does not imply that there is still an active infection going on, as it may simply indicate the remaining effects of a former infection.

Quinine in the Human Organism.—G. Giemsa and J. Halberkam have experimented with the procedure described by Teichmann and Neuschlotz (*Archiv für Trop. Hygiene*) for urine analysis from the standpoint of its quinine content. The procedure is useful for estimating if the patient has received enough or not enough of the drug. On the other hand, quantitative analysis requires the isolation of the alkaloid. The writers have not observed, as has been maintained by Teichmann and Neuschlotz, that elimination is different in those accustomed to quinine from subjects not used to taking it.

Wiener medizinische Wochenschrift.

December 1, 1917.

An Epidemic of Typhus Fever in Prisoners in Russia.—Petschacher relates his souvenirs of an epidemic of typhus occurring among prisoners of war in oriental Siberia. As he was short on bacteriological implements, his study has been purely clinical. The disease occurred in 2200 men out of a total of 9000 (24 per cent.). Among the physicians the proportion was 65 per cent.; the nurses were more exposed and gave 80 to 90 per cent. of infection. The mortality was in general 34 per cent.; among the doctors only 18 per cent. Petschacher supposes the duration of incubation to be about a fortnight. The disease commences with general symptoms, the appearance of splenic hypertrophy on the third or fourth days, the exanthema on the fourth day. Usually the latter appears on the hands and afterwards extends to the arms and trunk. Hearing is often dulled from the beginning of the disease and continues so well into convalescence. The complications most commonly met with were parotiditis, inflammation of the thyroid gland, occasionally median otitis, and bronchopneumonia. Nervous symptoms were not infrequently noted, these being of various kinds, and even psychoses occur. Typhus fever appears to predispose the patient to other infections, such as erysipelas, smallpox, diphtheria, and typhoid fever. The epidemics related by Petschacher suddenly ended at the beginning of May, this time coinciding with a change of season and with it the disappearance of body lice. [This is an account of one of the very numerous epidemics of typhus occurring in the Austro-German camps since the beginning of the war. The writer of the article neglects to state the number of Russian medical men who died of the disease, the custom so far having been to hand over all epidemics in prisoner's camps to the care of medical men retained as prisoners, as was done at the Wittenberg camp when the Prussian Dr. Aschenbach and his medical colleagues ran away and left the care of the typhus patients to the British physicians.]

Meditsinskoye Obozrenye.

LXXXVII, 1917.

Prognosis of Paratyphoid B. Fever.—Shubert states that since paratyphoid fever is characterized by temperature which is neither very high nor of long dura-

tion the prognosis is comparatively good—much more favorable than in typhoid of the same degree of severity. But this affection can by no means be reckoned as benign, as shown in the author's cases. His general mortality was from 1 to 2 per cent., or if we deduct the vaccinated cases, 2.8 per cent. In the material of certain writers, the mortality has attained 6 per cent., and even in a portion of the author's cases it was 5 per cent. The extensive dissemination of the bacilli of paratyphoid B., its persistence as a noxious influence, its tendency to appear in epidemic incidence, renders the question of wholesale prophylaxis extremely serious. Much interesting information on this subject is to be found in Simont's article on the paratyphoid fevers, published in 1916. This author states that, thanks to systematic inoculation, this disease has been sharply cut down. It has flourished to a threatening extent, especially after the battle of the Marne, when the French armies captured the territory which was formerly held by the Germans; among whom the disease appeared to have been spread by the extensive use of canned provisions and apparently despite the triple vaccinations.

Relapse of Scarlet Fever in an Adult.—Byelenka quotes from literature a large number of cases of relapsing scarlatina and adds one of his own. The patient was a married woman of 23. The fever curve shows that the acme was reached on the second and third days; after which there was a gradual fall, until on the 12th and 13th days the temperature reached below normal. On the 15th day, however, it suddenly shot up to 103.5°, reaching its maximum on the 18th day, with a sudden drop to subnormal on the 20th day. During the next few days there were slight fluctuations until the 26th, when it became permanently normal.

Le Progrès Médical.

January 12, 1918.

The Conception of Somnambulism.—Bernheim states that somnambulism is often an acted dream. As in all dream states sleep is incomplete. The active mental faculties are indeed suppressed, while the passive cerebration which corresponds to imagination holds full sway. In the waking state the imagination also runs riot, but is under censorship. When the latter is removed imagination does not awaken reflection; attention is absent. In a dream a dreamer may be only a spectator or an actual participant. In the latter case emotions enter into the dream, and if these are sufficiently distressing the subject awakens with a nightmare. If the dream is sufficiently personal the dreamer enacts it. Thus the servant girl rises in her sleep and sweeps or cooks. This active somnambulism, however, is no mere dream. The subject, really awake, acts under the suggestion of the dream. The brain is not sleeping, but under domination. Reason and judgment have full play, as in the case of the cleric who rouses himself in his sleep and critically edits his sermon. Somnambulism is only suggestion, with the mental and bodily functions in full activity. The autosuggestion in these cases can usually be traced to some unpleasant mental experience. In some cases the somnambulism is vividly remembered. The subject will not believe that he has fallen asleep before performing these acts. In others there is total amnesia, while in still others a few details of the somnambulist performance may be recalled. When amnesia is complete—and the popular belief has this type in mind—a double consciousness is conceivable. But amnesia is equally attendant on simple "static" dreams—in many of these there is complete oblivion. The difference between the passive and the acted dream is not one of simple recollection. The action of fever is a familiar one—a normal, nonsuggestible person attacked by typhoid or pneumonia may get out of bed and lock the door or windows in connection with a dream of burglars. The author cites the case of a non-hysterical woman whom he treated for dilated stomach and gastralgia with suggestive therapeutics. As she was of the type which readily falls asleep, the author hypnotized her by simply closing her eyes; after which she carried on an animated conversation with him, gossiping about household affairs like a woman fully awake. The author sought in vain to make her do certain things by suggestion, but her reason was awake,

and she told him that such things did not "take" with her. Soon after this he roused her from the "sleep," although as a matter of fact she had never been asleep. Nevertheless, she showed complete amnesia, and cherished an illusion of sleep. In like manner Bernheim repudiates the term "automatic movements" as applied to these subjects. There may be an illusion of automatism, but the mental faculties are all active. Suggestibility is not a pathological but a physiological manifestation.

Revue médicale de la Suisse romande.

December, 1917.

Eosinophilia of the Lymph Nodes After Resection of the Sciatic Nerve.—Loewenthal writes a second paper on this subject, but thus far deals only with experimental pathology of the rabbit, in which resection of a sciatic nerve is followed by hypertrophy of the popliteal ganglia of both sides with local eosinophilia. The blood shows more eosinophiles than normal, and the popliteal gland on the nonoperated side, although notably enlarged, shows fewer eosinophiles than its fellow of the operated side. Blood eosinophilia reaches a maximum on the third postoperative day. The nerve was resected at the level of the coxofemoral joint, and at least 1 cm. of nerve was removed. The immediate consequence to the gland was hyperemia with some extravasation. The sinus of the gland showed dilatation, and the gland was also edematous. Hyperplasia was not in evidence until about the seventh day after resection. Collateral lesions were trophic ulcerations of the paws. Hyperplasia in some cases represented a 24-fold increase of weight over the normal. In some cases, at least, the gland of the operated side enlarged much earlier than its fellow, and its weight was notably in excess of the latter, but in other examples the differences were much less marked. Did the eosinophiles proceed from the extravasated blood? Arguments are given *pro* and *con*; the alternative would mean formation from pre-existing lymphocytes in the gland. Weight of evidence notably favors the blood hypothesis.

Hypertrophic Osteo-Arthropathy of Pulmonary Origin.—Guye reports a case of this affection. Doubtless the majority of practitioners regard "drumstick fingers" as an isolated phenomenon, but radiographers have long known that the affection is more or less generalized. Nevertheless, it is a rare affection, and in one series of 8000 consecutive radiograms but one case was enumerated; despite the fact that 160 articles had been devoted to the subject when Fraügenheim's work on bone diseases in children was published. The author's case was in a man of 42 who came from a tuberculous stock, but who had been healthy until the advent of a peripleuritic abscess. The pus in addition to pyogenics was also tuberculous, as shown by animal inoculation. The abscess cavity, which was associated with empyema, did not close up under drainage, and the general health failed. Within three years from the earliest symptoms patient presented drumstick fingers and an analogous deformity of the toes. Attempts were made to secure improved drainage, and were followed by slight general and local improvement, which, however, was short lived, and followed by implication of the terminal end of the radius, and a similar process was evident in the malleolar region. Patient died of pulmonary infarcts and autopsy was refused. The author regards the lesions as trophic, although the mechanism is still obscure. In 1903 Berent saw in these lesions the result of a toxic neuritis which could be directly or only indirectly responsible for the muscular atrophy present.

Special Form of Melanosis from Deficient Diet.—Riehl believes that he has seen a condition in Austria which is affiliated with pellagra. Numerous subjects in a restricted area exhibited a peculiar bronzing of the skin, accompanied by desquamation and hyperactivity of the skin-glands. The pigmentation was continuous over the face and neck and occurred in spots elsewhere on the skin. No other symptom was present. —*Nederlandsch Tijdschrift voor Geneeskunde.*

Book Reviews.

PLAIES DE LA PLÈVRE ET DU POUMON. By R. GRÉGOIRE, Professeur Agrégé à la Faculté de Paris; Chirurgien des Hôpitaux et A. COURCOUX; Médecin des Hôpitaux de Paris. Avec Figures et Planches hors Texte. Collection Horizon. Prix, 4 francs. Paris: Masson et Cie., 1917.

AN important departure in the literature of thoracic surgery is the complete subdivision into uninfected and infected wounds. Even in the absence of all infection lung wounds present the most serious complications, as hemothorax, pneumothorax, open thorax, hemoptysis, emphysema, aseptic serothorax, absorption fever, fractures, and lesions of neighboring organs. Were there no virulent germs in the world thoracic surgery, in so far as it relates to traumatism, would still constitute a most important object of the surgeon's art. The section on infected wounds deals chiefly with empyema, abscess and gangrene of the lung, bronchopneumonia and suppurations in the mediastinum. Under surgery subjects of primary importance are foreign bodies in various portions of the thorax. In many respects the subject matter is so novel that no brief review can do it justice. Nevertheless, pressure differences, intratracheal insufflation and the like seem to be wholly ignored in operations. The work will undoubtedly be translated into English.

THE CLINICAL PATHOLOGY OF THE BLOOD OF DOMESTICATED ANIMALS. By SAMUEL HOWARD BURNETT, A.B., M.S., D.V.M., Professor in Comparative Pathology, New York State Veterinary College, Cornell University, Ithaca, N. Y. Second Edition, Revised and Enlarged. With Four Colored Plates and 23 Figures. Price, \$2.25. New York: The Macmillan Company, 1917.

THIS book is intended primarily for the veterinarian, but is specially useful to research workers who have occasion to use any of the domestic animals for experimental work. It is a plain statement of the facts, and contains 160 pages, divided into 11 chapters. The first three chapters are concerned with methods of examining the blood in animals, with the morphology of the formed elements, and with the normal blood findings in the horse, cow, sheep, goat, dog, cat, swine, rabbit, guinea-pig and domestic fowl. Chapter four is devoted to a consideration of the pathological variations in red corpuscles and hemoglobin; chapter five to the influences affecting leucocytes. The remaining part of the book deals with the general and special pathology of the blood in the various diseases of the animal. The text impresses one as being thoroughly scientific and up-to-date in every respect. An excellent feature is the comprehensive list of references at the end of each chapter. There are 23 figures in the text and four colored plates. The book is written in clear and concise style and is well printed on good paper.

DIAGNOSTIC SYMPTOMS IN NERVOUS DISEASES. By EDWARD LIVINGSTON HUNT, M.D.; Assistant Professor of Clinical Neurology, College of Physicians and Surgeons, the Medical Department of Columbia University, in the City of New York; Visiting Neurologist, City Hospital; Associate Consulting Neurologist to St. Luke's Hospital; Consulting Neurologist to the Lincoln Hospital, the Workhouse, and Penitentiary; Member of the American Neurological Association, and of the New York Neurological Society, etc. Second edition, revised. Price, \$2.00 net. Philadelphia and London: W. B. Saunders Company, 1917.

THIS book is avowedly a help to the study of nervous diseases, not a complete discussion of them, and the author has accomplished his purpose well. Books like Dr. Hunt's are all too few; it is far easier to compound a weighty tome where the paving-blocks of weighty extracts from other men's books are held together by the thin cement of original comment than it is to write a book that expresses the author's own viewpoint. For the book as a whole we have nothing but praise; we can, therefore, cheerfully take exception to certain details. The chapter called "The Examination of a Nervous Case" might well have been omitted, for it consists of little more under each heading than a reference to the chapter of the book dealing

with the subject in question. The outline of a clinical examination is good, but should come logically at the end of the book. An attempt is made in Chapter VI to discuss diseases of the spinal cord, but the author is cramped for space. In this second edition, among other things, a chapter on the cerebrospinal fluid has been added where, we regret to note, the sitting posture in lumbar puncture is given preference. The weight of authority is unquestionably in favor of the reclining posture, and it is too bad that in a work intended for students this mistake should have been made. However, the book as a whole fulfills its purpose admirably: the chief neurological symptoms are given clearly, many aids to diagnosis are described, there are many good illustrations, and the author has a clear, forceful way of putting things. Altogether a work which the beginner in neurology should not be without.

BUILDING HUMAN INTELLIGENCE. By ARNOLD LORAND, Physician to the Baths, Carlsbad; Author of "Old Age Deferred" and "Health Through Rational Diet." Translated from the German by PHILIPP FISCHER, M.D., Acting Associate Professor of Histology and Embryology, University of Pennsylvania. Price, \$3.00 net. Philadelphia: F. A. Davis Co., 1917.

WHEN, in the preface of this book, we read of insanity "breaking out" as if it were an erythema, we fear the worst, nor are we reassured by the writer's constant allusion to "plain human common sense" and his predilection for the adjective "rational." The book as a whole is a curious mixture of medievalism, materialism, superstition, and fallacy, compounded in a quasi-popular vein. It would be impossible here to illustrate all its faults, but we can quote a few of the statements made in its pages: "Mental diseases may originate from adenoids" (p. 46); "The nose is a protecting organ for the brain" (p. 47); "A milk diet is most favorable to the thyroid" (p. 188); "The actions of the insane are done without thinking" (p. 255), and "Mental disease almost always results as a consequence of great error or negligence in the mode of living" (p. 144). We should be sorry to see the views expressed in this book gain popular credence.

THE SURGICAL CLINICS OF CHICAGO. Volume I, No. 4, August, 1917. Octavo of 207 pages with 71 illustrations. Published bi-monthly. Price per year, paper, \$10.00. Philadelphia and London: W. B. Saunders Company, 1917.

THIS volume contains reports of clinics by fifteen surgeons and covers a wide range of subjects. Beck makes a plea for the employment of the transperitoneal route in certain cases of nephrectomy. Ochsner and Speed each present cases of cranial surgery; Eisendrath gives an instructive talk on the diagnosis and treatment of common-duct calculi, with special reference to overlooked common-duct calculi; while various other surgeons discuss interesting cases in the fields of aural, genitourinary, orthopedic, and general surgery.

The volume shows many evidences of not very careful proofreading. For example, we find that Ochsner uses "knawing" forceps; while the last portion of the legend under Fig. 291 states that the separated anterior end of semilunar cartilage is lying between "fibia" and tibia. However, the book will well repay careful reading as well as proofreading.

A CLINICAL TREATISE ON DISEASES OF THE HEART FOR THE GENERAL PRACTITIONER. By EDWARD E. CORNWALL, Ph.B., M.D.; Attending Physician, Williamsburgh and Norwegian Hospitals; Consulting Physician, Bethany Deaconess Hospital; Formerly Professor of Medicine, Brooklyn Post Graduate Medical School; Fellow of the American College of Physicians, etc. Price, \$1.50. New York: Rebman Company, 1917.

MANY works have been written recently regarding diseases of the heart, and this has been rendered largely necessary not only because such diseases are of great importance, but also on account of the great advances made within the past few years in methods of diagnosis. This book by Dr. Cornwall is a practical clinical treatise and is based on the latest discoveries with regard to modes of diagnosis and treatment. It may be recommended to the attention of practitioners and students.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held January 28, 1918.

DR. FREDERIC E. SONDERN IN THE CHAIR.

AFTER the usual order of business and the reading of the committees appointed to serve for the coming year, the treasurer, Dr. Frederic E. Sondern, read his annual report, which was followed by the report of the auditing committee. These reports were adopted by the Society.

Inaugural Address of the President.—Dr. HOWARD CANNING TAYLOR, after expressing his appreciation and gratitude for the honor conferred upon him in his election as president of one of the largest medical organizations in the country, dwelt upon the responsibility of the Society for the welfare of the community from the standpoint of public health. He stated that of all the affairs that concerned the Society the welfare of the community must come first. When they had given their service in behalf of the public welfare to the full extent of their ability, they would then be in a position to demand proper recognition of the medical profession on the part of the community. As a Society they owed certain duties to the community and to the profession and the time had arrived when they should ask themselves if they were meeting these responsibilities or whether they were simply drifting. As a Society of three thousand members he thought they should ask themselves whether they were doing a definite constructive work. As a member of the Comitia Minora he had formed an idea of the work that the Society should do. They had done much admirable work in the past. They should continue to do the work they had been doing, but they should add to that work. Obviously, with a membership of nearly three thousand members the Society was too large for deliberative work and much of this kind of work would have to be done through committees. He, therefore, advised that the interests of the Society would be better protected if most of the resolutions presented were referred to the Comitia Minora for considerations before being adopted. There were two types of complaints that came before the Comitia Minora; first, those made by a layman against a physician because of supposed wrong treatment or because of improper behavior, and, second, those complaints made by one physician against another because of alleged unprofessional conduct. In the first class of complaints the Comitia Minora had usually been able to explain a course of action that seemed wrong to a layman and to adjust the grievance satisfactorily. During the two years in which the speaker had been a member of the Comitia Minora there had been no case in which a member had needed admonition or censure; this suggested an important function of the Comitia Minora, that of acting in an advisory capacity. Another point brought out by Dr. Taylor was that if as an individual a physician could not advertise his laboratory, it was not right that a group of men should advertise a laboratory. The Comitia Minora should express its disapproval of advertising by a group of men. As it was the function of the Comitia Minora to settle disputes between physicians themselves and between physicians and patients, any plan of action that was contemplated which might involve a dispute or a difference of opinion might better be laid before the Comitia Minora for an expression of their opinion. It was their work to be helpful as advisers and not merely to discipline members. A further point that needed emphasis was that there should be closer cooperation between the Legislative Committee and the Counsel. The Counsel was in a position to know how any proposed law was going to affect the members of the Society, and it might be advisable for the Legislative Committee to seek his advice more frequently. Dr. Taylor commended the activity and efficiency of the Counsel of the Society and recommended that he be treated a little more liberally from the financial standpoint. He recommended that for a body as large as this Society it would be an advantage to have a lay executive head who should be a man familiar with

social and economic questions related to medicine, and who should devote his entire time to the affairs of the Society.

Report of Committee on Drug Addiction.—Dr. FRANK VAN FLEET, chairman of this committee, submitted this report, which was read by the secretary. The purport of the text of this report was to the effect that the present antinarcotic drug law failed to fulfill its purpose, subjected the legitimate practitioner of medicine to much inconvenience and annoyance, and should be amended.

A minority report was then presented by Dr. John Davin which reviewed the findings of the Whitney Legislative Committee and charged that the special committee had not performed the work for which it was appointed. The report charged that the committee made no competent effort. "The testimony at the hearings of the Whitney Committee shows abuses and evils within and without the medical profession. The majority report contains practically nothing specific concerning the matters for the investigation of which the committee was appointed. Events of the last year, climaxed by the Whitney hearing, permit by medical men no further ignoring of the importance of the narcotic drug addict problem and no further evasion of responsibility by our profession." The report recommended that a new special committee be appointed which would give to this problem the attention it deserved.

After a spirited discussion the majority report was adopted.

Recruiting of the Medical Reserve Officer.—Major FREDERICK T. VAN BEUREN spoke on this subject. He stated that the business of recruiting had a past, a present, and a future. Somewhere about a year ago, under the leadership of the medical member of the Advisory Commission, a Medical Section of the Council of National Defense was formed in Washington with the object of assisting the Surgeon General to secure the necessary reserves of medical officers and of co-operating in any other activities desired of him. The Central National Committee at once set about the formation of State Committees and the latter began the formation of County Committees, so that in a comparatively few months a great body of medical men were set to hunting among their professional brethren for prospective medical officers. Some hunted hard, and some did not, but the net result of their labors was that on Jan. 19, 1918, 20,861 physicians had been recommended for commission by the Surgeon General in the Medical Reserve Corps. Although the methods by which this was accomplished varied somewhat, the commonest and most successful were information and exhortation. In New York State a special medical census was taken with a view to ascertaining accurately the resources of medical personnel in the State. For that they had to thank Major Earl Connell whose initiative and persistence gave to the State a scientific classification of the entire profession which had served as a model to a number of similar undertakings. Next, a recruiting tour was undertaken for the purpose of spreading abroad the news that medical officers were needed for the army. Seven officers, assigned to active duty for the purpose, collectively visited 60 counties of the State in three weeks' time at a cost of about ten dollars for each applicant secured. The immediate result was 223 applicants for the commission accepted. Another result of this tour was that the officers who made it returned with the conviction—which later experiences had only hardened—that a form of selective draft, based on a Federal Classification of all physicians and with stated exemption, would be the most desirable, most efficient, and fairest method of securing the enormous numbers of medical officers needed for our prospective armies. It was not considered feasible by the General Committee at Washington to institute such measures at the time and the New York State Committee was directed to secure as many applicants for commissions as rapidly as possible by the individual volunteering method. The faith of the Touring Board in mass volunteering with selective draft was, however, ratified by the New York State Committee in a unanimous resolution, and permission was secured from the Central Committee to agitate for it as a future method while continuing to secure

individual volunteers in the old way. To carry out their plans concerted efforts were made to disseminate information as to the need for medical officers and to secure the acceptance of the principle of universal service among the medical men of the State. The information was disseminated by thirteen serial letters of instruction and exhortation, by hundreds of personal appeals, by thousands of letters to recent graduates of the College of Physicians and Surgeons, and of Cornell Medical College and to young physicians classed by the Medical Census as available and desirable, throughout the entire State. Many open letters, editorials, articles, and news items were published in the daily papers and medical journals. The effort to prepare for a more conservative and efficient mode of recruiting for the future took the form of a petition setting forth the advantages of universal service and selective draft, based on classification with exemption, authorized by the State committee and sent out to county committees and county medical societies, branches of the State Medical Society, and every hospital and medical school in the State. About 8000 copies were also sent to individuals. This petition actually secured the signatures of more than 10 per cent of all the physicians in the State and the movement had the approval of many leaders of the profession in civil life as well as the unofficial commendation of many officers in the medical department of the army and navy. More than 20 other State committees had expressed a belief in the justice of the principle of universal service and about a dozen of them wrote to the central committee in Washington advocating a widespread agitation for its acceptance. As the results of these and other activities 2000 physicians from New York State had joined the medical reserve corps between May 1, 1917, and January 1, 1918, and the medical profession of this State were seriously considering the desirability of a scheme of universal service whereby each man, whether in private practice, hospital, medical school, or in the army, might feel that he was doing his duty by the Government and under the Government, and might feel that others knew that he was doing it.

Up to the present time, 20,861 men had been recommended for commissions from the whole United States, of whom 2,537 were from New York State. But only 16,206 were actually in the reserve corps to-day, 1,264 having declined the commissions offered, 636 having been discharged since being commissioned, and 2,755 being still on the way from recommendation for, to actual acceptance of, commissions. Of the 2,735 recommended from our State probably not more than 2000 were today actually in the corps, and they had not done more than their duty by the first draft, while the second was soon to follow. They had, however, pretty nearly enough in numbers for the present army, although the quality might in certain instances be improved. Consequently, the rather indiscriminate previous efforts to secure the largest number possible in the shortest possible time were giving way to attempts to secure men of known desirability. Lists were being prepared of physicians of recognized ability throughout the United States as well as in this State, and the individuals on such lists were being invited by individual letter to apply for commissions.

No one knew how long this war would last or how many medical officers would be needed. If we eventually required 45,000, as Bloodgood estimated, we should have to take more than one-half the available supply, selection of the most careful and rigid description would be absolutely necessary to protect the integrity of the civil medical structure. The present volunteering system was showing its weakness by slowing up of the number of applicants, by echoes from the camps and cantonments regarding unsuitability of some of the men commissioned, by known individual injustices allowed to occur in certain hospitals, medical schools, and communities, and the formation of the Auxiliary Medical Service Corps intended to receive a large number of men who for sufficient reasons could not apply for distant duty, but who desired to serve. In closing, Dr. Van Beuren declared that mass volunteering of the entire profession with selective draft of those fittest for army service, based upon a classification with stated exemptions, was the rational system to be desired in choosing the medical officers responsible for our troops in war. Was it too much to hope that this

society and the medical profession of this State and of the other great States would soon resolve to declare their belief in universal service, in time of war, for the medical profession and for others, and would set a brave and admirable example by offering as a body, their individual services to the nation in its need?

Surgical Training at Bellevue Hospital.—Dr. JOHN HARTWELL described the course which was being given, more correctly than stated in the title, as a part of the activities of Cornell University Medical School. This was one of ten of such courses established on October 1, 1917, by the Surgeon General in various medical schools throughout the country. These courses had been organized for work by November 1. Hospitals, had been asked to give a course with the view of getting the men trained to the standard of Base Hospital 116, which was supposed to be the standard hospital on the other side. At Cornell they had been asked to give a course in the treatment of fractures. As a result of a conference with a number of the men it was decided that a course in fractures alone would be too much of a special course, so they had asked the privilege of enlarging the course so that it would include all phases of medicine applicable to a military hospital. Of the 16,000 men in the Medical Reserve Corps many had been recruited from country practice and from internal medicine, and many had had no training in a large hospital. Furthermore, there was only about one large hospital in ten at the present time that had a man who had specialized in traumatic surgery, so the idea was to start a course that would give a man an insight, as far as was possible in one month, into modern war hospital methods. They had called in all the men in the faculty who were teaching laboratory studies and the specialists in new antiseptics, particularly the chlorine group, and they had called in the bacteriologists because bacteriology had become the basis upon which the treatment of war wounds depended. Never before had bacteriology had such an application to surgery as during the past three years, as all knew who were familiar with the work of Sir Almroth Wright, Munson, Carrel, and others. It was very interesting to see the way in which the men came from active practice into the laboratory work. The first week of the course was spent almost entirely in the laboratory, and each succeeding week the laboratory work was decreased and the other lines of work increased. During the first week, in addition to the laboratory work, the men were introduced to a knowledge of the new splints and compound fractures. The last week of the course was spent in the wards of the hospital applying the principles they had been learning during the previous three weeks. They had established a course in the Carrel-Dakin method of wound treatment as taught at the Rockefeller War Demonstration Hospital. The course had started with ten members, but later they had been asked to increase it to fifteen or twenty. The first intention was to conduct the course for only three months, as the men who were giving the instruction were all busy men, the heads of departments, and were doing the work at the cost of considerable personal inconvenience and sacrifice, but these men had requested that they be permitted to continue with the work because they said that they had just gotten fairly into it and hated to give it up. The reports that came to them indicated that the medical officers appreciated these courses.

General Training at Fort Benjamin Harrison.—Capt. WATSON LAWRENCE spoke on this subject, by invitation. He told the story of his own arrival at Camp Benjamin Harrison and related his personal experiences in adapting himself to camp life. The medical camp was organized on the basis of 80 to 150 men to a company, though generally there were about 85 men in a company. Each company had two barracks, a mess hall, and a latrine to itself. The barracks were crude and rough, but supplied sufficient protection during the summer and fall, though they had not become entirely accustomed to them in the winter. On their first arrival the men who had had some experience in military affairs, or had been trained earlier in the war, were selected as sergeants and corporals, and the remainder of the new arrivals were like privates and were treated as such. The instruction of the medical men at Fort Benjamin Harrison was entirely military. The men rose at five o'clock, had one-half hour for dressing,

then had setting-up exercises. They then had breakfast, after which they made their beds and then met for a hike. There was nothing in the military routine that a man physically sound could not stand and he had seen no man thus far who was not better physically and mentally for the training. The hike lasted for an hour and they kept going steadily during that time, usually at a gait of 120 steps to the minute. After this they were allowed a few minutes in which to get a drink, and then they had drill for an hour. At eleven o'clock they had a lecture in the barracks or hall and were taught the Army Medical Paper Work. This was very complicated and he had thus far met only one man who seemed to understand it thoroughly. They were also taught equitation. Every week there was a general review of all the troops at the camp, some 4000 or 5000. On these occasions the medical men went to the general parade ground and the doctors made a creditable, showing considering that they had had no military training before. Some of the men claimed that they had not come into the army to be made soldiers and that there was no use trying to make a soldier out of a country doctor. But in spite of the complaints the military training was a good thing for them. Captain Lawrence described the meeting of Military Surgeons of America at Fort Benjamin Harrison and other diversions of camp life and spoke of the spirit of fellowship and comradeship that prevailed. He advised men going into the service not to buy an expensive equipment until they knew what they would need, and said that whatever they might need they could buy wherever they were sent. He emphasized the fact that a military training was very essential for the medical man in the army and that a physician who was thrown with military officers would feel greatly the lack of such training. In closing, he said that he had seen our new draft army and that for the benefit of any one who had doubts as to its efficiency he wanted to say that those men were the finest specimens of manhood he had ever seen, that the Plattsburg officers had gone into the work with a serious purpose, they were mostly graduates of New England universities and he was glad of an opportunity to say that it was the finest army the world had ever seen and that when it got to France we might expect great things to happen.

Training in the Neurosurgical School of New York.—Dr. CHARLES A. ELSBERG told of the work of this school which offered a course of ten weeks. He stated that most of the medical officers who came for instruction were general practitioners and knew little about neurosurgical diseases. If there was anything about which they knew very little it was about the symptoms of nervous diseases, and the symptoms of injuries to the central nervous system. Between 8 and 10 per cent of all injuries were injuries affecting the brain and spinal cord and the main nerve trunks. It was therefore important that a large number of surgeons should have a knowledge of neurological diagnosis and of the indications for treatment in injuries of the nervous system. It was a very far-sighted idea on the part of the Surgeon General to organize in a number of cities in this country neurosurgical schools for the training in this branch of surgery in which few had experience except in fractures of the skull, or an occasional injury to peripheral nerves. Neurosurgical schools had been established in Philadelphia, Chicago, St. Louis, and New York. A regular course of ten weeks was offered for a class of twenty to thirty men. Thirty to forty hours a week were given to the work. They could not, of course, make an expert neurological surgeon of a man in ten weeks—that would take ten years or longer and often even then could not be done, but the men received enough training to be able to think neurologically without the advice of a specialist in neurology, to understand what should be done from the surgical standpoint, and when they made up their minds what should be done, there were a few good neurological surgeons who were able to do the actual work. The Allies had had the experience that a large number of men had been forced to do neurosurgical work who were totally unfitted for it and as a consequence there had been some most unfortunate results. To the neurosurgical school in New York were sent not only the younger men in the profession, but a number of men with a large surgical experience. They felt that with

these older men the course should be clinical as well as theoretical. They had systematized groups of studies which were carried out as far as possible. Everything circled around the anatomical instruction given by Dr. Tilney. The surgeons considered fractures of the skull from every aspect, beginning with the mechanics and going on to a study of the results of hemorrhage, meningitis, etc., complicating fractures. They studied the operative methods, such as decompression, the methods being demonstrated and the operations being performed on the cadaver. Hitherto in the study of medicine very little attention had been paid to the actual course of the nerve fibers in the peripheral nerves. In order to do correct nerve sutures it was necessary to understand the anatomy of the distribution of the peripheral nerve fibers. Each case of injury to the peripheral nerves offered great opportunity for study. The attention of the student officers was directed particularly to this line of work. They had been most fortunate in having the assistance of almost all of the best neurologists in the city. The roster of lectures and demonstrations were made up each week, providing for six or seven hours' work daily. Dr. Elsberg presented the detailed schedule of the course which showed that special emphasis was placed on the surgical anatomy of the nerves, their clinical neurology, and clinical pathology. There was no doubt that these courses would be of the greatest benefit to the men when the war was over as well as during the war.

Training in Plastic Surgery of the Face.—Dr. ROBERT T. FRANK described the training in this branch of surgery which was being given to the medical military officers. He stated that about 20 per cent of those who survived the primary injuries of the present war had injuries of the face. For teaching the plastic repair of injuries to the face there were three schools, in addition to the one in New York, one in Philadelphia, one in Chicago, and one in St. Louis. The courses given in these schools aimed to show the principles upon which to proceed in the repair of injuries to the face. The whole course comprised 112 hours, covering a period of three weeks. Of this time 50 hours were spent in the anatomical laboratory or in the study of the surgical anatomy of the complex region of the face with that of the various sinuses. In this work there had been ready cooperation between the dentists and the medical men. Dr. Frank said that he could best show how this class of injuries was handled by following a soldier from the time he received his injury through until his treatment was completed. The plan for the care of these injuries provided a certain group of surgeons for their care at the first-aid station. If one took a common injury, as for instance one in which the whole jaw was practically torn off, to one not familiar with the treatment of these injuries the situation would look most discouraging. At the first-aid station in the case of such an injury all the tissues that were without vitality were cut away and a first-aid dressing applied. The man was then sent to the next station where the proper dental splints were applied. Then he was sent to a base hospital where the deformities were corrected. When he had finally recovered he was sent to a restoration hospital where further work might be done to lessen disfigurement as far as possible. It was surprising to see what slight deformities remained in the cases in which the injuries had been so extensive and the outlook so discouraging. Restorative plastic surgery in these cases saved the soldier much mental agony and enabled him to chew his food, to talk, and to go about his business again.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

291st Regular Meeting, Held December 7, 1917.

THE PRESIDENT, DR. GORHAM BACON, IN THE CHAIR.

The King's Evil and Its Relation to Psychotherapy.—Dr. M. ALLEN STARR read this paper. He referred to the varied and many types of treatments for the ills of mankind which had met with success for a time and later had fallen into disrepute and been partly abandoned. He called attention especially to one which demonstrated the proof of the personal element in therapeutics, namely the cure of the King's Evil by

the touch of the King. The use of this method of treatment dated back to Pyrrhus, King of Epirus, who lived 300 years before Christ. The early Christian Fathers, following the example of Christ, cured disease by the laying on of hands. In England, from 1050 to 1786, every king touched for the evil with considerable success. It was also extensively practised among the kings of France. This condition known as King's Evil was characterized by swelling of the glands of the neck, commonly called in these days scrofula. This condition arose from a variety of causes. It might be the result of a general infection as in diphtheria, measles, or scarlatina; or secondary to catarrhal conditions of the nasopharynx, adenoids or tonsillitis, or to ulcerations in the mouth, wounds in the scalp, or even lice. Tuberculosis was the most common cause of swollen glands and produced the chronic stage, with much spontaneous variation in size, and sometimes subsiding without suppuration. Hodgkin's disease caused the largest and most persistent swellings without recovery. Lastly a luetic enlargement of the glands might be mentioned which might recover spontaneously. All these conditions were formerly included in the term scrofula. While a spontaneous recovery from this symptom could occur, it was in bygone days attributed to the royal touch, just as at present many spontaneous recoveries were ascribed to methods which a scientific physician regarded with a large degree of skepticism. In these cures of the King's Evil, as in those by the miracle of Lourdes and of St. Anne de Beaupré and other like methods of cure, the element of confidence in the person to be cured is an active agent in the successful result. When it is realized that even a slight passing emotion is sufficient to change the electrical resistance in the hands to such a degree as to be measurable by a galvanometer, it cannot be denied that strong emotions, such as were inevitable in preparation for seeing the King, the excitement of the crowd, the impression made by a ritual service of some length, the actual thrill caused by contact with royalty, and the sustained expectation secured by possession of the angel or amulet, might easily set up chemical changes in the system of a stimulating and possibly beneficial character. The influence of mind on body, of hope and courage and conviction in giving strength was never to be overlooked, and the man would be a poor practitioner who did not utilize this influence in the treatment of his patients. (See also MEDICAL RECORD, December 29, 1917.)

Dr. DANA said that he thought that many of the therapeutic measures referred to by Dr. Starr had still some merit. Blood-letting had a definite position and value in treatment. Hypnotism had also a use, and on the whole had a wider range of value than psychoanalysis which often only furnished morbid interest to the doctor and was at its best suitable only for the intelligent and the not too old. Christian Science had shown that the medical profession ought to pay more attention to the personality and to the soul; osteopathy and chiropractics had shown that their practitioners could live by just paying attention to the back. Just now therapeutics was dominated by surgery and the doctor was impatient if he could not find something objective and cut it out. Dr. Dana thought there should be a special chair in medical colleges for teaching students how to behave and how to study their patient's behavior and personality.

Dr. ABBE said he was surprised to learn that Dr. Starr was inclined to attribute most of the value of the Weir Mitchell cure to Dr. Mitchell. He had thought that the method rested on a sound foundation apart from the great personality of the deviser.

Dr. GILMAN THOMPSON presented a specimen of an "Angel" loaned by the American Numismatic Society. The value of the gold was about \$1.50. It was hammered on a die and had an uneven edge. It was perforated so that it might be used as an amulet. Dr. Thompson quoted remedies and prescriptions from "Boyle's Philosophy," published in 1725, which related amusing methods of treatment of the "King's Evil."

Dr. GIBNEY said he had seen several cases in which harm had been done by chiropractors. One woman of advanced age with pains in legs had been treated by suspension and pounding with the result that after each treatment she developed spasm of the ham-string muscles. When asked why she had gone back the reply

was that she had been obliged to purchase tickets for 25 treatments on the occasion of the first visit.

Dr. STARR said he believed that all cases of actual cure by faith-healers were cases of hysteria, *i. e.* the origin of the condition was exclusively mental. We see similar cases in practice. He had had a patient paralyzed and without sensation below the waist for three years. It was an hysterical paraplegia. He hypnotized her and told her to walk, which she did. Her friends called it a miracle. She was frequently hypnotized at increasing intervals, on each occasion just before the paralysis was due to return. She was under observation four weeks. At last it was suggested during hypnosis that she was perfectly well. She had so remained. In reply to a question, he said that the "King's Evil" seemed to have been a disease of the glands of the neck. This was also called scrofula. Apparently no distinction was made between the various causes of glandular enlargement. It was known that these suppurating glands when licked by dogs caused disease in them. He said he had hoped to bring out in his paper the evolution through which medicine had gone. He had not meant to discredit all the methods of treatment mentioned. Modern Medicine had retained some methods but had discarded others shown to be unfit.

Paget's Disease.—Dr. ROBERT ABBE reported a case in which there was an hypertrophy of the horizontal plate of the upper jaw to 2½ inches. The masses protruded like two buttocks from the roof of the mouth. The general appearance was unsightly. In this case the mucoplate and the gums were stripped back and the mass chiseled and rongueured away. These cases were called Osteofibrosis or Paget's Disease. They had a typical appearance. Sometimes the jaw cases were mistaken for sarcoma. Frequently the fibula or radius was spiral, the clavicle or femora curved, or the ribs sharply bent. Thickening of the skull was practically constant. The sella turcica was normal and the brain function unimpaired. Frequently one single bone was first affected, *i. e.*, it was a "one bone disease" at first. Surgical repair was always good. As to heredity, a brother of one patient had a very advanced identical condition. The patient was therefore questioned and stated that a nephew had the same condition beginning. There had been suggested an origin from tooth socket infection. It might be due to the pineal gland but not to the hypophysis.

Dr. STARR said that a few years ago he had reported a case of so-called leontiasis ossium. Putnam of Boston had described two cases. Dr. Starr described his case under megaloccephaly in the *American Journal of the Medical Sciences*. The bones of the face had not grown as had the remainder of the skull. The patient was under observation for several years, finally developing a neuralgia due to compression of the fifth nerve at the foramen. This was before the days of x-ray. He believed the case would have shown a skull condition similar to Paget's disease.

The Abuse of Tincture of Iodine in the Operating Room.—Dr. V. P. GIBNEY reported these two cases:

CASE I.—A girl, eight years of age, was operated upon in the Hospital for Ruptured and Crippled in December, 1915, for talipes calcaneus resulting from poliomyelitis. The operation, astragalectomy, was done by the house surgeon. The lower part of the leg and the foot were freely painted with tincture of iodine, diluted one-half, immediately before the operation. At the completion of the operation care was not taken to remove the iodine with alcohol as was the custom with most operators. A full dressing was employed and over all of this plaster-of-paris was applied to maintain the foot in the desired position. During the first week there was no reaction, but at the beginning of the second week the temperature rose to 104°, and there was found a bulla on the tarsal aspect of the foot just under the plaster. The toes were swollen and very painful. The plaster-of-paris was cut down at once and there was found an extensive dermatitis extending up to the edge of the wound. Two or three of the bullæ had broken down. The wound, which had already begun to heal, became infected and bichloride dressings were used freely but without any relief. A little later it was found necessary to open the wound throughout and expose every surface of it by turning the foot

toward the outer side at a right angle with the leg. They were thus able to get through drainage and a boric acid drip was employed continuously for a month. The wounds became clean and healing began. They were able to bring the foot gradually around into the normal position about six weeks after. In the latter part of February, 1916, there was noted a large ulcer on the inner side of the foot. The foot had been fully restored to the desired position, but the wounds were not healed until April 13, 1916. A brace was then applied and the patient discharged May 11, practically cured. The patient had been traced and at the Clinic they were delighted to find the foot in good position, very useful, and having a small range of motion, which enabled the patient to walk with scarcely a limp. The end result, therefore, was excellent.

CASE II.—A boy, eight years of age, was admitted to the Hospital for dangle foot on the right side, and slight calcaneus on the left. This was early in December, 1917, and on Dec. 10 an astragalectomy was done with the usual iodine preparation and with the usual dressing and plaster-of-paris, but precaution was not taken to remove the iodine from the foot, especially between the toes. All went well for a week, but then the temperature began to rise and one could see a large bulla under the plaster-of-paris on the dorsum of the foot. On removing the dressing dermatitis was present, but had not quite extended up to the wound and by timely interference this foot was saved from a similar disaster. This child made a good recovery, but there was still a superficial cicatrix on the dorsum of the foot and on the upper third of the leg.

In the earlier days of the use of iodine a stronger solution was employed and the area covered was not nearly so great as at present. Now we used from 2½ to 5 per cent. and usually this strength was enough to produce a dermatitis on a sensitive skin. The surgeon in the operating room and the operating room nurse or her assistant did not know whether the limb was particularly sensitive to iodine or not; it was, therefore, incumbent upon the operator and his assistants to see that the iodine which had been placed on the limb had been thoroughly removed before a full dressing was applied, and especially the one over which plaster-of-paris must go. It was a current report that iodine, as an aseptic, had been discontinued in some of the operating rooms, although it was regarded as one of the best methods of preparing the skin for operation. This communication was not, however, to condemn its use, but merely to call attention to its abuse.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

REAGENTS AND REACTIONS. By EDGARDO TOGNOLI, M.D. 227 pages. Price, \$2.00. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

THERAPEUTIC IMMUNIZATION, THEORY AND PRACTICE. By W. M. CROFTON, M.D. 224 pages. Price, \$2.50 net. Published by P. Blakiston's Son & Co., Philadelphia, Pa.

TREATISE ON APPLIED ANALYTICAL CHEMISTRY, METHODS AND STANDARDS. By Prof. VITTORIO VILLAVECCHIA. Vol. 1. 475 pages. Illustrated. Price, \$6.00. Published by P. Blakiston's Son & Co., Philadelphia.

HYSTERIE-PITHIATISME ET TROUBLES NERVEUX, D'ORDRE REFLEXE. Par J. BABINSKI et J. FROMONT. Second Edition. 295 pages. Illustrated. Price, 4 francs. Published by Masson & Cie, Paris.

TROUBLES LOCOMOTEURS, CONSECUTIFS AUX PLAIES DE GUERRE. Par AUG. BROCA. 155 pages. Illustrated. Price, 4 francs. Published by Masson & Cie, Paris.

LA PROTHÈSE DU MEMBRE INFÉRIEUR. Par Le Dr. F. MARTIN. 101 pages. Illustrated. Price, 5 francs. Published by Masson & Cie, Paris.

TYPHOID FEVER. By FREDERICK P. GAY. 286 pages. Price, \$2.50. Published by The Macmillan Company, New York.

Therapeutic Hints.

Intestinal Indigestion.—A careful study, investigation, and regulation of the diet is necessary. Ferments given with the meals, or predigested food for a certain length of time, gives relief. Pancreatin, given in 5 to 10-grain doses with bicarbonate of soda, and alkaline mineral waters are advisable when the urine is concentrated and acid. Constant abdominal distress may be due to a growth or duodenal ulcer which demands surgical relief. When much flatulence is present the following formula may be prescribed:

R Acidi nitrici diluti...f5ij vel 5iij (80-12.0)

Tinct. cardamomi compositæ,

f5vj (180.0) — M

Sig.—Dessertspoonful (8.0) in water four times a day.

Sometimes flatulence of the large bowel associated with atony of the muscular coats of the gut is present. Then the following proves beneficial:

R Asafœtidæ gr. xl (2.6)

Extracti nucis vomicæ...gr. iv (0.25)

Extracti physostigmatis...gr. iii (0.20)

Oleoresini capsici.....ꝑx (0.60) —M

Ft. pilulæ No. xx.

Sig.—One pill three times a day, two hours after meals.

Or,

R Tinct. belladonnæ foliorum...f5iij (12.0)

Tinct. physostigmatis.....f5iiss (6.0)

Spiritus camphoræ...q.s. ad f5iij (90.0) —M

Sig.—Teaspoonful (4.0) two hours after meals whenever needed.

Abdominal massage is valuable in the treatment of this condition. The patient can procure results by slowly rolling a three-pound cannon ball over the course of the colon, to urge on the intestinal contents and cause secretion. A roller electrode applied with the rapidly interrupted current from a faradic apparatus will strengthen the intestines and produce the above result.

When intestinal indigestion results from lien-tery the treatment is different and effort must be made to increase the action of the glands of the intestinal wall. Often minute doses of mercury bichloride or podophyllin, 1/60 to 1/40 grain (0.001—0.0015) of the first or second respectively. If the liver is torpid the following may be used:

R Ac. nitrohydrochlor. (not dil)...f5ss (2.0)

Tr. gentianæ comp...q.s. ad f5vj (180.0)

M. Sig.—Dessertspoonful (8.0) every four hours or after meals, in water.—Hare, in *Practical Therapeutics*.

Acne.—Hare advises the use of the following formula in cases of young women who suffer from this condition, especially at the menstrual periods:

R Sulphuris præcipitati.....5j (4.0)

Adipis lanæ hydrosi.....5j (30.0)

M. Sig.—Apply once or twice daily.—Practical Therapeutics.

Heartburn.—

R Magnesii sulphatis 5i

Tr. hyoscyami ꝑxv

Aquæ 5ii

M. et ft. haustus.

Sig.: Take three times a day after meals.—Aitken.

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Original Articles.

THE PROBLEM THAT MENTAL DISORDERS PRESENT TO THE MEDICAL PROFES- SION, AND THE PROFESSION'S RESPONSIBILITY.

By WALTER B. JAMES, M.D.,

NEW YORK.

PERHAPS, when one whose professional activities have been limited to Internal Medicine trespasses even upon the edges of the field of Psychiatry, an explanation of his temerity would be in order. Membership on "The State Hospital Development Commission" has in the past eight months required of me a visit to all the State Hospitals for the Insane and to all the State Institutions for the care of the Feeble-minded and Epileptic, and has crystallized certain impressions, heretofore nebulous, on the subject of to-night's discussion.

The Commission was created by act of Legislature last April and is required to study the subject of insanity in New York State, estimate the capacity of the present hospitals, determine the best method of caring for these dependents from the point of view of the patients and of the rest of the State, to formulate a plan for meeting the present overcrowding as well as a plan to meet the conditions that will exist in the coming ten years, and to devise a policy for meeting the problem of feeble-mindedness. All of which evidently constitutes a labor of no small difficulty and complexity.

Among the many interesting collateral questions that have been suggested is, why is the medical profession in general, that is, all but the neurologists and psychiatrists, so little interested in and so little informed about mental disorders.

It is only necessary to look at the more than 39,000 insane cared for by New York State in the public hospitals, to note the little that is known about their maladies and their origin, to see the inadequate efforts that are being made to understand the causes of their insanity, and the little that is being done for their treatment, as compared with what is being done for patients ill of medical and surgical diseases, to make us realize that in this era of the history of the world and of science there is something wrong somewhere.

Perhaps it may be fair, for our present purpose, to divide all the diseases that now and always will afflict mankind, and using disease in its very broad sense, into three groups—Physical disease, Mental disease, and Moral disease or misbehaviour. Originally they were viewed rather collectively, and were regarded alike as being beyond man's power to mate-

rially modify or prevent and so, as witness the Book of Job, among the loftiest virtues and meriting the highest reward was patient submission.

To-day Job's neighbors would insist upon an inquiry by the State Board of Animal Industry into the loss of his cattle, for the malady might be catching, and his boils would be treated by a staphylococcus vaccine. If he insisted upon keeping his troubles, it might result in his commitment to a hospital for the insane. This illustrates the change that has taken place in the world's point of view of physical disease.

Mental and moral disease, we still see much as Job saw them, but perhaps we are merely waiting for a change like that which in a comparatively few years has taken place in our knowledge of diseases of the body, and our attitude towards them.

On October 1, 1917, the number of insane confined in Institutions, that is, legally committed in this State, was 39,404. As the number is increasing we may fairly call it in round numbers 40,000.

This means that there are in the United States about 400,000 insane who either are or ought to be confined in asylums.

The number of feeble-minded roughly equals the insane so that the two groups together number about 800,000.

As a good many persons are cared for in their families and as many also are not confined, who were better so, it is fair to assume that the number of actually insane and the number of actually feeble-minded is probably not far from a million.

If we assume as seems probable that there is an equal number of persons suffering from some milder form of mental disorder, it seems fair to assume that there are in the United States not far from two million persons who are mentally sick.

If we compare these figures with those of other important maladies, as tuberculosis, it becomes evident that mental disorders constitute one of the most important and serious of all the disease groups.

The attitude of the public towards insanity is entirely different from that towards physical maladies. There is a sense of mystery and a feeling of awe and a desire to put these patients away, and indeed it is not long since there was a feeling of some culpability upon their part and which resulted in confining them with criminals.

The public still thinks of the insane in terms of the harm they may do, as witness the violent opposition to building hospitals for them in any neighborhood. Yet it is infinitely rare for an escaped lunatic to do anyone bodily harm, and with modern methods of caring for them escapes are far from infrequent.

Hopelessness on the part of the laity in the pres-

ence of any mental aberration is only natural, when it is shared by and generally originates with the medical profession, very few of whom are capable of distinguishing the hopeless disorders from those whose prognosis is relatively good.

Sometimes one wonders whether the psychiatrists have not surrounded their own special field with an entanglement of difficult words and obscure and bewildering phraseology to describe what are after all rather simple phenomena, and whether this does not discourage efforts at familiarity on the part of other physicians.

This is not peculiar to them, but is met with in many men of science. I believe there is a well known and useful treatise on ornithology in which the author, meaning that "Pigeons always walk, they never hop," says "The progression of the Columbae is always ambulant, never saltatorial." Possibly verbal obscurantism may have something to do with the profession's avoidance of writings on psychiatry. But probably the principal reason for the indifference of the profession is the scanty attention paid to this department of medicine in the medical schools, and the fact that often the exercises in psychiatry in addition to being scanty are optional and hence obviously not necessary to the education of the accomplished physician.

There are under commitment in New York State Institutions for the Insane more than 20,000 cases of dementia praecox, the majority in the advanced stage and constituting one of the most serious and discouraging of all medical problems. To-day we know that this disease manifests itself generally early in life and by insidious and obscure symptoms, and while treatment is far from having reached an effective stage, nevertheless we already know that much can be done towards ameliorating the condition if it is recognized in time, and there is fair reason for hoping that some day physicians will prevent it, or at least, be able to check its progress.

It is impossible to view what has been done already for the improvement of the condition of many of the worst cases of this disease by systematic training as carried out, for example, by Dr. Howard in the Rochester State Hospital without being heartened as to the possibility of a considerable measure of control at least being attained were the medical profession to really apply its collective mind to the problem. Did you ever realize that almost every one of these cases in its early stages passed through the hands of a family practitioner of medicine, who probably entirely failed to recognize or even suspect its existence, and who very likely had never heard of the disease?

In New York State many well educated physicians are unaware of the existence of the State Hospital Commission and of the State Hospitals for the care of the insane. They have never taken note of the problem presented by insanity. Comparatively few physicians know that at a cost of more than \$10,000,000 a year the State provides admirably conducted institutions, hospitals for the care and treatment of upwards of 38,000 insane and administered by a large corps of physicians.

This apathy on the part of the profession probably belongs peculiarly to the present generation, and is to a great extent the result of the very rapid development of the science of medicine, which with-

in a brief space of time has so widened its limits as to make it impossible for any one mind to grasp it all.

Another reason is the preponderance of time and interest in the schools of medicine given to the study of structure in comparison to that given to the study of function. It is pathetic, for instance, to see how much time is devoted in the departments of anatomy, physiology, and neurology to the gross and minute anatomy of the brain and how little time is given to the study of its function and that chiefly as an organ of conduction. It is interesting to see the time and thought that are given to the minute and definite localization of a small apoplexy in a parent, and for which nothing can be done beyond nursing, while a mild mental aberration in a son or daughter is passed over lightly or disregarded entirely. Perhaps one reason for this is that the former is very much simpler and easier than the latter, and makes a more interesting autopsy. The localization of lesions with a verification or otherwise at post mortem has many of the characteristics and charms of an exciting game of chance. This perhaps has something to do with its popularity, though, of course, occasionally it results in disclosing an operable lesion.

Thirty years ago the student of medicine absorbed in the microscopic study of the kidney, liver, lungs, etc., occupied with tangible physical changes, resented being called upon to study the intangible subtle changes in temperament and intelligence that indicate oncoming mental disease. The same condition exists to-day, though probably to a lesser extent. The responsibility for all this rests I am afraid with our profession. We have fallen in passively with the view of the general public, that disorders of the body and disorders of the mind belong essentially in different categories, that the one are susceptible of study, complete understanding, and often of amelioration or cure, but the other not.

Mental disease, however, has remained where it was and perhaps by reason of the difficulties connected with its study it has received a comparatively small portion of the impetus of scientific research. The figures that I gave a little while ago suggest that in its cost to the community in money, in impairment of efficiency, and in distress, mental disease compares very favorably with tuberculosis.

But compare what is being done by the scientific world towards the solution of the problem of tuberculosis with what is being done in mental disease; every State, every large city, and most indeed of the smaller ones, and many counties, have their tuberculosis societies, made up not only of professional but lay membership. Voluntary contributions are obtained, State and local public aid is secured, laboratories are built, foci of intensive study are springing up on every side, and the energies of the public as well as of the profession are bent upon solving this problem. When we come to look at mental disease from the same point of view, we find in the United States a pathetic little group of societies devoted to the study of psychiatric problems; we find very few psychiatric laboratories; we find an output—the result of research, which is insignificant as compared with the output in any one of the other fields of medicine.

Nevertheless the importance of mind in relation

to the problems of the rest of the body is universally admitted and the attempt to practise medicine without either consciously or unconsciously considering the importance of the mental factors would mean disaster and ill success.

What we need in medicine is, first, that the problems of the mind should receive more attention at the hands of teachers. For admission to the higher grade medical schools we now require a knowledge of chemistry, physics, biology, or what might be called a study of the laws of the normal body.

We should require an equally good grounding in psychology or the science of the activity of the mind.

The importance of the mind in disease, which is occasionally referred to in the medical schools, but always as a side issue, should be emphasized by a larger number of hours and every medical student should be required to have a definite amount of practical experience in institutions for the insane and should be examined upon this. I am aware that a certain amount of this is required now but it should be trebled or quadrupled. The hopeful outlook for research into the problems of psychiatry should be emphasized, for only by recruiting a number of men devoting their lives to the study of these problems can we hope to achieve all the progress possible and to realize what lies open before us.

It is unfortunate that psychiatry has always been an appendage to, a sort of a by-product of, neurology, and by a natural process, a following of the line of least resistance, the major part of the energy of the specialist has been given to neurology—only what was left over going into psychiatry. There is really not much more reason for attaching psychiatry to neurology than to any other department of medicine. There is some ground for believing that it were better attached to Internal Medicine. Perhaps a fair index of the interest in any department of medicine is the number of societies devoted to it and the number of laboratories engaged in research in it. Judged by this standard, the interest in mental disorders as compared with other disease must, in this country be judged to be very small. It is, however, growing and the number of medical and semimedical books on psychiatry that are being published indicates an increasing public and medical interest in this branch.

Surely as a field for research mental disease offers much attraction. In the first place much of it is almost virgin soil, which is always alluring. Moreover, the exciting cause of much insanity is known.

In 1915, of all admissions to the New York State Hospitals, in 55.6 per cent. the exciting cause of the trouble was known, and among these cases in 31.7 per cent. the cause was such as to suggest great hopefulness of ultimately finding a means of prevention, or cure.

There are many points of resemblance between the problems presented by insanity and by tuberculosis. It is not very long since the satisfactory solution of the problem was considered as hopeless in one as in the other and from the point of view of therapeutics they were equally discouraging. In tuberculosis we have long known that two elements were necessary for the development of the malady, a suitable soil, that is a predisposition, and an immediately causative agent, the tubercle bacillus.

In mental disease we are beginning to see the existence of two similar elements, and the development of the concept of the psychopathic temperament is one of the encouraging things in modern medicine. For instance, among the admissions to our State hospitals in 1915 in over 2 per cent. the disease followed the death of a near relative. In over 2 per cent. it followed the loss of property.

By a more complete understanding of the tuberculous predisposition and of the nature and behavior and the chemistry and biology of the tubercle bacillus, we are constantly strengthening our forces of prevention and treatment in this disease. May we not hope that similar zeal in studying the elements that enter into the predisposition to insanity may some day lead to equally gratifying results?

A comparatively recent and logical development of the therapeutics of tuberculosis is the preventorium; an institution wisely designed on the ground of modern science, where young people who show a tendency toward or a predisposition to tuberculosis, may have their bodies trained back into a state of normal resistance to the infection to which we must all perforce be from time to time exposed. This predisposition can today be recognized with fair certainty. Is it too much to expect that a more enlightened medical profession than ours, operating in a more enlightened public, will recognize the first subtle manifestations of the psychopathic temperament, and by similar methods of mental training lead the individual back gradually toward a normal plane of mental life, having reached which he will resist as normal men and women do "The slings and arrows of outrageous fortune," and go unscathed through the attacks to which his nervous system must of necessity be a target in this troubled world?

I am aware that wise physicians do in some measure aim at such methods in a few cases, but as yet the profession has no definite plan for meeting such early cases of predisposition to mental disease. Perhaps some day we shall see psychopathic preventoria as we now see them for tuberculosis.

Whatever may be the final fate of psychoanalysis, as we now know it, and I am far from regarding myself competent to express an opinion upon this point, nevertheless we must admit that Freud in any case will have rendered a distinct and valuable service to modern medicine by suggesting another way of analyzing mental problems. Although his way may possibly be abandoned as useless or give place to a better one, none the less will he have been a leader along a path upon which leaders with original ideas have been indeed too few. So that in any case medicine will be in his debt.

Finally it seems, first, that the problem of mental disorders offers no insuperable obstacle to its satisfactory solution, and that such solution is to be found through the awakened interest of the entire profession and through the continued and patient application of such scientific methods as are in process of solving or have already solved some of the most puzzling riddles of the ages. As a step toward this the State Hospital Development Commission is recommending that the Board of Regents take such steps as may be necessary to secure in all the medical colleges of the State an amount of time and interest for the disorders of the mind adequate to the subject's importance.

It is interesting to note that in psychiatry as in some other directions, the urgent war needs have caused a more intensive study of the subject than has been made before and with the promise of good results, not only in the war itself but for science and for all time. It is possible that one of the ultimate benefits to mankind from this melancholy situation will be the impulse given to the study of mental disorders and the advance in our knowledge of them that would have been hard to arrive at under peace conditions. In my summer's study of the State hospitals, it has been my good fortune to spend many nights with the medical superintendents and staffs in their comfortable quarters and I have been struck with the attractiveness of the career that these hospitals offer to ambitious young medical men, and this I confess is quite different from what I had expected. The opportunities for research are unexcelled; the interest of the subject is absorbing and the facilities that are offered to ambitious young men are unsurpassed, and from a material point of view as well these positions are far from unattractive. If these advantages were more widely known throughout the profession, I believe that positions in these hospitals would be in great demand.

Finally the outlook for advancement in our knowledge of the collateral and closely related field which I mentioned at the beginning of this paper—the field of moral disorders or disorders of behavior—is brighter than it has ever been. There are certain indications that a scientific study of crime is beginning to be taken up along the same lines that have guided medicine in its contest with disease. The study of the mentality of juvenile delinquents which has become more and more common in our courts, the general recognition of the value of an institution such as the Juvenile Detention Home in Chicago, and the present intensive study of the admissions to Sing Sing from the point of view of psychiatry by Dr. Bernard Glueck, all point to the awakening of a keener sense of responsibility for these various morbid conditions on the part of the public, and perhaps the day is not far distant when the torch which has been lighted by those who are responsible for the research into physical disease and which has already produced many benefits to mankind, will light up as well the dark places in the allied fields of mental and moral disorder and help us toward what is after all the only logical goal, the approach to the irreducible minimum of human disease, whether it be physical, mental, or moral.

Almost a year spent in the close personal study of mental disease in this State has left me filled with a spirit of optimism, and confident that some day this problem will be solved, as many other apparently hopeless medical problems have been solved, and that this solution will be hastened by interest, confidence, and cooperation on the part of the whole of our profession.

7 EAST 70TH STREET.

Adrenalin in Iodism.—According to Milian a man who was taking an intensive iodide of potassium cure and who became badly iodized was promptly benefited by the administration of adrenalin. His inference was that in severe iodism adrenalin insufficiency is set up.—*Paris Médical*.

"EYES OF YOUTH":

A DRAMA OF PAST INFLUENCES AND FUTURE POSSIBILITIES.

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"THERE is no past or future in time as in space. Each stretches to eternity." So far the Indian sage, the Yogi of this drama, has pointed out the littleness of the present moment of action amid the resistlessness of the entire onward movement which is life. A great quiet sea, yet heaving beneath the calm surface with the whole of gathered experience, such is the past behind each individual. Before loom the impenetrable mists of the unbounded future. The affairs of each moment are no more than a tiny point of rock emerging where the ever-increasing ocean of the past pours its influence over into the instant that breaks at once toward the eluding future. The moment has already joined the past, the unknown future is still ahead, the effort to reach it is continued. Our feet touch the point which is the present moment and it is gone; we are beyond, leaping to the next point of time and experience. Vivid, clear, effulgent with an unknown glow, each momentary halting place is such a small and yet concentrated instant of experience, that we are driven bounding to the next poising place, and still we recoil before the thick mist stretching away before.

Whence comes the glow that warms and delights and inspires this moment so richly filled even as it takes flight? It streams ahead also until the heavy fogs of the future grow warm and radiant with hope and promise or lurid with a deeper, darker play of color within the gloom. It is not strange that man has reached out in every conceivable way to understand the mystery before him, and though he has paid less conscious attention to that behind, has sought nevertheless vaguely to define the influence which pressed upon him from this immeasurable past. He is ceaselessly impelled onward, ruthlessly hurled forward to know only when his path has been taken that it was not of the light. Why then should each instant of choice be so laden with richness of color and tone that present and future alike reveal themselves only to conceal themselves the more? What is the mystery that dissolves itself into so many elements of pleasure and pain, desire and effort, only to perplex and bewilder?

Man's first impulse was to explain it as of some power outside himself, mostly malicious, which came and went upon him according to its own caprice. Or as he felt the force of his own desire and its feeble antagonism to all that pressed upon his life, he conceived a sense of sin toward which the external powers assumed an attitude of punishment. This has not satisfied man, it does not today, as a sufficient interpretation of cause and effect in regard to the mysterious interdependence of present power and past influence and future possibilities of immeasurable good or ill.

Science has searched until it found cause and effect in the external world, and thus released man from his burden of haunting powers in that realm.

The world within remains however to most unfathomable, inexplicable, and still holds thought and vision bound. It is not even called the world within. The effort of the human mind to master the spell of its overwhelming power has always led man to attempt to get around to the outside of it, where he could view it objectively. His ignorance however and the helplessness which this incurs have prevented a clear scientific objectifying of the phenomena as they really are, and have led man to juggle with these things, deceive himself and misconstrue them still as forces and events without himself. He has externally projected his own inner life, unknown to himself, in order to get a better view of it, and thus has only continued to misinterpret and fail of the truth. Partly he has saved himself the keener but perhaps more actually effective agony of self-recognition and self-knowledge, which would have given him a better and more earnest control of inner as well as outer conditions.

This projection of the subjective beyond himself has nevertheless been necessary to his weakness and his slow mode of evolution, growth and the mastery of self and environment, toward which he has been able to make only gradual progress. Partly on the other hand he has, by this method of blinding and defending himself, made the way a slower and more ineffectual one. Moreover in the curious way that satisfies the contradictions of human feeling or affectivity, he has enjoyed the company of the specters he has conjured forth as responsible for these things of his destiny. His innate indolence has moreover taken refuge in them from the straightforward endeavor with which otherwise he must have attacked reality, to win from it his own progress and to utilize it for the progress of the race to which he belongs.

All this misinterpretation, ignorance in the face of the forces playing within and through man, has set his energies so at cross purposes and produced so much social confusion as well as individual pain and suffering, that many have grown impatient with this ancient attitude. Some in sickness and despair, others with a vision cleared and quickened by sympathetic touch with this need of the world, have dared to peer into the mysteries which well up around the human individual and to seek disentanglement of the elements playing there. They would bring them into a light of explanation and interpretation that some control may result. The sickness and despair, and the sympathetic aid too, lie, to be sure, even behind the effort to project them without and seek to understand them thus. This however only removes each factor from the ocean of intermingled elements to which it belongs, and therefore it is neither recognized for what it really is nor brought into control. It explains neither the boundless roll of influence which sweeps into each life, nor does it throw any light within the thick veil of the future.

The scientist, however, who would also understand this internal work and turn an analytical light upon the profound reality of all this mystery, or the helpless victim who craves a fearless knowledge, has been preceded by the artist whose intuition carries him into the heart of these things. Often his conscious intellectual thought has been

hardly aware of the things that he saw and yet his power of intuition and his skill were such that he could present them acceptably to the same intuitive appreciation and thus the help of other struggling souls. The dramatist with his ready appeal to a public mind, which unconsciously or consciously seeks behind its amusement some deeper and more lasting help, has been one of the chief artistic servants here. Yet he too, in his own partial intellectual blindness and also to meet the long obscured understanding of the people, has resort to the current forms of thought and expression. That which perhaps he sees much more truly must still make its appeal couched in objective phrases and in persons and events which still represent the projecting tendency of the subjective mind. He must speak in terms of the external world. Such indeed is the limitation of the means of communication from one individual to another, the intellectual limitation through which greater subjective fluid things must be expressed.

He nevertheless points the way fearlessly into the profound underlying truths. His truer meanings are those which in another way become clear to the analyst, who through close application to the inner thoughts and feelings of the emotional life, of the subjective personality, has come to know the reality and the strength of such subjective life, which has filled the ocean of past experience with the influences out of which mysteries arise. These become known largely through clinical experience, where the souls made sick by the struggle and the uncertainty and the buffeting of the sea of mystery and power come to bring their inner experiences and seek for analysis and adjustment. Such close intercourse with this subjective world gives knowledge of it and understanding of it. It makes one clear visioned also to understand in the artist's presentation certain indications and expressions of the actual truth under his artistic and superficially objective setting forth of these inner realities.

The analyst therefore recognizes in the artistic production something which will touch, even half unaware, the difficulties of those who labor to know themselves in the power of the mysteries. For those who in fear or desire would know the future before them, there is to his insight a better way pointed out to them. More effectual than a knowledge of just what the future may be is a mastery of it through themselves and in meeting it fearlessly and efficiently, whatever it may be. The analyst finds in the drama an opportunity for the awakening also through the artistic appeal of those who walk calmly or evasively content to leave things as they are and deaf to the call for help in universal struggle with these powers. He recognizes opportunity also for clearer understanding of his own work in answering this call, here where these things are presented in the form that subtly touches and releases the truth of this reality even while it entertains.

"Eyes of Youth" is one of those dramas which speaks a deeper language than that which appeals first to the conventional moralist. The serious-minded theater-goer or the lighter-hearted pleasure-seeker may draw certain very obvious lessons for thought from the cleverly presented "episodes." They present such various possibilities as might

offer themselves to the opening life of a talented girl. Yet each contains its bitter, very bitter draught, and their contemplation wins every one to the value of the simple choice of the path of simplicity of desire. Any number of platitudes might crowd about the suggested possibilities and the satisfactory outcome which wipes clean the slate in the end.

The drama is however far more profound than this. In the reality of life the visions are not so easily expunged. The simplicity of the ending is only one of those balancing moments of the present, behind which lies all the influence of the past and before which still looms the thick obscurity of the future. Here stands the heroine upon one of the glittering points of the Now, yearning before this great future and longing to know whither she shall walk to fulfill its best purpose for her. She can only flutteringly guess at the meaning to her young life of the commendation and the promise of her music master. She is however equally staunch to a sense of duty impressed upon her soul by years of training and discipline. Before her open out still other ways of seeming advantage, opulence and comfort on the one hand, the freedom of young love on the other.

No one of these paths nor any other is however free for her, because something in her inmost self determines events upon any of these pathways. This it is which confuses choice and makes the uncertainty in knowing what is best to seek. Unaware of this, yet feeling her helplessness, she takes refuge where human thought has always found escape from the burden and terror of recognizing and acknowledging the forces which lie within to determine each life and its course. The dark quiet form of the Hindu throws out in objective relief her groping within herself after the determined course which shall lead her. There is the mystery and remoteness of his world as well as the strangeness of his philosophy of another land and time to link him with the unfathomable mysteries within. Besides she can actually hold in her hands the crystal ball that burns with mystic splendor. Touching it, grasping it she is close, in her concentration upon it, to the ocean of unknown forces streaming up in fact through her own life, forces which shape themselves into wish and throw themselves forward into the future course. Yet clasping the unyielding glass she can sufficiently objectify the intangible strength of all this mystery to look upon it apart from herself and examine the ways she would take.

For after all what is it but her wish which stirs itself, which presents such a complexity of events upon her pathway, even those which produce confusion among themselves? "How could I," she questions in one of the pauses among these pictured events, "have seen it otherwise? Could I have wished it?"

The confusion of impulse and desire within her, the multiplicity of form and possibility in which her inner wish presents itself to her limited conscious vision, demand some objectifying aid. She is ready, as man has always been, to seize such external forms which circumstance throws into her way. Yet this process, the very cunning of the unconscious wish thus to gain access to her rea-

soning thought, deceives her that it may thus relieve her of any overwhelming sense of responsibility for the creation of such pathways of events as are outlined there. There is a censor that stands out in public gaze, working upon each individual in the form of his or her cultural ideals and the restraints and restrictions thrown out by the society in which he or she moves.

Few are bold or brave enough, nor are they sufficiently skilled in a fearless self-mastery to recognize the mysterious possibilities of action and the events that do take place, as prepared and determined within themselves, and finally given forth with all the color and vitality of the unconscious secret wish. This indeed it is which has set man to calling in the aid of demons first, kinder, wiser spirits later on, gods and devils, then all the continued mysticism of hallucination to satisfy his demand for cause even while it enabled him to fling away all personal responsibility. At the best it has kept him humbly loyal and trusting toward a beneficent divine Spirit of good. But he has shrunk from a more resolute self-control through self-knowledge. He has shunned the acknowledgment of a stern and hard reality, one beset with dangers to his own spirit but best met and attacked by a knowledge of these things as they are in the heart of man, or as the very inner man, his inherent energy, his creative self, acts and reacts upon this reality.

Certain phenomena, mysteriously called "psychic," as if the psychic were a thing apart or unusual to life, seem to some to give him access to a special form of mysticism in which his projections take shape and appearance out of his dominant wishes, hallucinations half in the dark, whisperings of a world of spirits visible to some privileged or specially qualified ones, under peculiar conditions and special circumstances and states of mind.

Others have seen in hypnotic phenomena, automatic writing, crystal gazing, strange revelations which were not of the ordinary clear light of day. Wonder and fear have arisen as if again there were something outside the self playing upon it, or something which certain gifted selves could appropriate peculiarly for themselves and for others. To any or all of these things the Indian Yogi, with his soft air of mystery, his cautious, gentle manner steeped in the ancient introspective philosophy of the Orient, has constituted a most suitable agent. Even the uniform grayness of his garments is suggestive of the calm of death and complete repose, where questions and problems of reality and its perplexing need for choice are stilled in release from all personal endeavor. The background his presence gives is strangely suited for dark mystery. His own brooding acquaintance with the inner subjective things, though he too has still his external terms for them, makes him the bearer of messages from the mystic and ascribes to him the power to penetrate the hidden things of the future. His exaltation of sentiment at the same time both stimulates to a truly spiritual purpose and leads to an idealization of the mystical external powers. For by these man has both projected his progressive ideals through the powers upon which he leaned, even while throwing upon them the responsibility and need for endeavor

which should have been his own. Thus he has both made progress and limited that progress at the same time, making his way a slow and tortuous one.

Gina Ashling, vibrant in her inmost soul with the possibilities and the wish impulses which were harbored within her, could not have tolerated the sudden naked revelation of these before herself. She is overwhelmed when through concentration upon the seemingly mystic object in her hands her gaze penetrates deeper and deeper into the abysses that lie concealed. To her they are only the dizzying, bounding or despairing possibilities of the future. And as such they seem only to come from without, whatever may be her share of conscious choice in following them. Also they are handed to her as visions through the medium of the kindly sympathetic and seemingly wise and noble Yogi. Thus alone has she courage to face them not only, but to acknowledge them as within the scope of her life and range of her experience.

For hers is the immediate inheritance and cultural training of a parentage and social environment which expected and had prepared a careful pathway of circumspection, unselfish service, a devotion, even though a too narrowed one, to the superficial well being of others. Duty loomed large and smote with a note of the New England conscience upon the girl sensitive by nature and training. Yet even duty had become very befogging because it was based upon the limited selfishness of those who surrounded her, and was hedged in by their more immediate needs. Duty at the sacrifice of the normal impulses and functions of life, she has to learn, cannot bring real values to herself or her family.

Behind all this nevertheless lay a deeper inheritance, which reached much further back into the slow development of the girl's full and rich young nature. The elements within it made demands which swept far beyond these narrowed ones which her devoted and dependent family, or her numerous lovers presented to her. Even the prospect of self-realization through the career which thrust its likelihood before her was infused with a power and complexity of impulses and desires which had been gathering strength throughout all the preparation of this individual psychical life.

This heritage had slowly accrued to her through the long line of women stretching away far beyond her immediate ancestors. This ocean of the past which rolls unceasingly behind the present moment of each life contains a record of all the past. "All that we have felt, thought, and willed is there leaning over the present." So has said one of our modern thinkers. This explains the measurelessness of the past behind the present. It affirms the source of the glow which spreads through this present and passes over to color the future for good or for ill. "All we have felt, thought, and willed"—and feeling has kept its full value. Sometimes we have learned a new and better discharge for it, but in its discharge it stores up yet richer affect, the result again of the new experience. Much of it has been denied discharge and has not found transformation into the more cultural ways of expression that the race has learned, so that beaten down, it is rebelliously active there in the unconscious life.

At best traces of its passage over into action, the further emotional response which resulted when such action took place, some remaining imprisoned, denied desire, and the pleasure of phantasy which easily surrounds this, all are there to produce and maintain an effulgence which burns into present and future and also to keep alive and stimulate to new and higher effort wishes which belong to the long history and prehistory of modern life.

This it is which explains the great outpouring of possibilities in the three visions which Gina obtained into the future. No more than the world acknowledges the content of its dreams, which come in such strange, grotesque, inexplicable form, as arising out of wishes, could her conscious thought recognize these startling apparitions of the future possibility in all their diversity, as expressions of her own desire. Yet the wish is within her inmost nature, the long train of unsatisfied or half satisfied desires stealing upon her individual life out of the far depths of the past. She with each individual has much in common with such a line of ancestors reaching back through the ages when wishes took to themselves progressing ways of expression and gratification, which gradually built up life's complexity and entangled its interactions.

These wishes could not always be granted or fulfilled in their direct form because that was crude, too self-seeking and asocial as society grew to a greater culture involving the higher development of the greater number. Elemental desire, informed with the energy of life, was no less alive and forceful but it had to seek less egoistic ways of fulfillment, losing therefore often the immediate pleasure for the sake of a more remote cultural gain and satisfaction. These primitive wishes and their successors, which have however also gradually yielded to cultural demands, remain deep within the heart of every man and woman. They remain to irradiate the later higher attainments of life, spiritualizations, intellectualizations, with an earthy glow that keeps the life true to the nourishing soil at the bottom from which it sprang. Yet in the light of higher attainments and the restrictions they put upon each individual life they dare not stand in the clear light of conscious recognition except in a disguising symbolism or hiding behind some rationalizing explanation of them, such as this of the play.

They appear therefore as the buffetings of the future, from certain ones of which there is no escape on any of the paths that may be chosen. How then can these things be for the heroine from within herself? This inner self, where such wishes are stimulated and out of which they seek such indirect exit, is not like the rational self which we know in our intercourse with one another. Because of the asocial nature of its wishes, the direct self-gratifications which they seek to obtain, they are obliged to hide themselves or express their power in such obscure and devious ways. Their unconscious harborage is notwithstanding intensely emotional and the manner of thought which surrounds them is that of phantasy, different from the clear, logical, purposeful thinking of consciousness. Their logic and purpose lie only in the direct emotional impression of themselves into some manner

of fulfilment, and this in the face of reality must be largely only phantasy and pure wish. Do they escape, thus governed by phantasy, they distort reality to themselves and produce the disorder and distraction, the disappointment, suffering and pain, in which the various "episodes" end. They have a service to perform if they silently, unconsciously contribute their influence to the clearer rational way of life, but escaping its control, they work unrestrained havoc in individual and society.

Such the wishes paint the future before Gina. As the poet Hebbel has said of dreams, they "glide like shadows through the soul, preparing, warning, comforting," but the comfort here turns to fear and pain when she awakens, as do the dreams of the night when at the point of waking they pass over to the inspection of consciousness, and the wishes of which they are made must become unrecognized as such in order to pass this exacting censor. Gina's vision came too close to the wishes as realities for her recognition of them as in any sense her desires. They must be clothed with fear, shrinking, condemnation, and, with the same familiar mechanism of shifting responsibility, as due to environment, the work of those who surrounded her.

Perhaps it might be hardest to admit that the first "episode" contained a pictured wish fulfilment. Surely in the somber and despairing close of the five years of humdrum service for her family, in all the loss and bitterness which were her lot, there seems nothing that could claim the roseate title of wish. The wishes which hide in the unconscious are nevertheless frequently strange to ordinarily recognized ways of thought. They do indeed hide a certain strange pleasure upon which the ego feeds, a negative form of pleasure which extracts nourishment for the pleasure sense from suffering, self-pity and self-immolation which in the depths satisfy the ego sense. This therefore is only a strange disguise for the more positive seeking which desire primarily knows.

Beneath this pathway of Duty, behind even Gina's perplexity, which is the cause of her peering thus into her own unconscious depths, is a race old problem. It is the difficulty and inner reluctance with which the child separates from an innately indolent dependence upon parental love and care. Examination of the effort of both parent and child to make this necessary separation, whether it is observed throughout the history of man's racial development or through investigation into the difficulties of individual life, reveals that this bond is a stronger one than has carelessly been supposed. It is founded in an intense love and desire of the child toward those upon whom it has leaned for earliest absolute comfort, support, care and affection. The parent is the object of childish desire and of that more active aggressive seeking of a love object, which is early awakened, and directed first of all toward those upon whom the child thus leans. Toward these, in its narrowed environment, its feelings take on an intensity, which is not always sufficiently displaced in later life upon more external objects, be they persons or objects for endeavor.

Moreover, since the child is already a sexual being this love has a tendency to go out more posi-

itively toward a parent of the opposite sex. Therefore a certain fixation upon such a parent may manifest itself in later life, or at least it will color and determine later events and later object choice. This too forms a normal guide for the maturing child, only it also forms a source of danger as the normal use of this early tendency is exceeded and too great demands are made therefore upon maturity to conform to the child's early pattern of wishes.

The parent is often no more free than the child in this matter. Thus Gina's father with his almost whining dependence upon her domestic care and affection, as well as his grosser desire to sell his daughter's hand for his own comfort and release from care, blocked the way to his daughter's path of independent self-expression. He complicated the problem which was vexing not only her conscious sense of duty, but more deeply the unconscious struggle she was making to be free from her own inclination toward him. The unconscious impulse to prostitute herself, which fairly shrieks aloud in the second vision which she has of herself, is more quietly and so more distractingly at work even now. It too had precipitated the perplexity and the desire to gain help for her choice.

Prostitution is a trailing into present society of certain ancient elements in a woman's love or sex complex which once in a far more primitive society and on through advancing periods of its history had definite social service to perform. She as a weaker party before male aggressiveness could only demand certain rights for her protection and reward. In the earliest forms of society of which even unwritten record can be found, she was curiously protected in the demand for these rights and in the exercise of them by some male member of her own family, usually her elder brother. She maintained under his protection an exalted right in the tribe over her children, and sometimes their property and succession. Even in ancient civilizations as well as in the more barbarous conditions of many savage tribes, it was her duty and privilege to become the property of a stranger or group of strangers, either before marriage or even, perhaps with a religious sanction, during marriage. Thus was her promiscuity a part of her past history, an affective element which takes its place in the preserved past of emotional experience and uncultural desire, once cultural now no longer so. This is doubtless closely intertwined, since it was her exercised right, function and duty, not only with her mere desire, a past source of exercise and therefore of pleasure for her, but through it she found her source of power, when power avenues were largely closed to her otherwise. She even in earliest times is known to have contributed to the brother's prestige by bearing children by her husband or other lover to count as the brother's own. Her own power and prestige lay therefore for ages in the use of her body. Through it alone she was exalted above man, dominated him. This was not one man, but many men, and yet in most ancient periods at least, for the service of male members of her own family who were thus particularly in her power.

Such light from the remotest depths of the past into which we can peer, shines forth with almost

uncanny brilliancy in the light of Gina's possibilities revealed in her visions. They are the result of these anciently inherited impulses based on ancestral experiences in the past. She strives to break away from father and brother, but even when freedom seems to have been gained, she too utilizes her power over other men, to bring through her rewards, both father and brother into the dominance by which she makes them dependent upon her. Unconsciously she plunders other men while they destroy her, and hurls her plunder at the feet of the father and brother whom she would thus dominate and enslave.

Therefore even in the first vision, clothed in the garment of self-immolation, abandoned to tears of self-torture, she has sacrificed herself to keep them still in her power. Duty is the word with which she covers it all, most securely from herself. Duty is the word impressed upon her by the weak and faithless Louis, faithless throughout all the possibilities of her future. She has adopted his craven word only to find herself in the end its dupe and victim. Her father is dead, beyond her power of support and comfort, the brother Kenneth has grown pitifully weak and inefficient in his dependence upon her. Her sister has been flung into the arms of the unfaithful lover who once prated of duty to her.

She has realized upon herself and those whom she should rather have set free to wrestle with reality for themselves, an unconscious wish to be all to them, to exercise the peculiar power which only a woman has. Unable to escape to an external love, that which for the modern woman can truly lie only in mutual service and mutual freedom, she has remained in the father's house, close to the brother too, and has met only loss and disaster for them all. Still the unconscious is able to extract something for self, the revery of bitter grief and freely shed tears. She awakens however from such an insight into possibilities within herself, repulsed, but assured that here is not the reality of her true path. She will look again.

This is the vision in which her prostitution runs riot. The gleam of power through her voice had led her, but had soon been exchanged for the false brilliancy of love's basest conquest over men. It had been the influence of the man first who had stood in a fatherly relation to the unprotected girl, but who failed in his protective power, rather initiating her into the life which was the expression of the fundamental sexual father complex. She had escaped the unconscious incest bondage at home only to find it confronting her in the mocking disguise of a sexual experience with this older man, which was the beginning of the riotous course of prostitution and domination, up to the last silly exhibition of her power to defy her operative engagement and fling herself more completely to the infantile form of pleasure and power. It is the final culmination of the dominance, gathered in the brother, for whose sake and the father's this state of affairs largely existed, which breaks the destructive spell. When she has flung him to the lowest depth of destruction of the father representative who had been her ruin, and perhaps the brother's own final destruction, then the vision breaks. The girl can bear no more. As in the

dream such wish must be brought to the light of consciousness for denial, rejection, for some other, better way to power.

One more vision however must clear the unconscious atmosphere and give her final freedom of choice to use in a wiser way these powers hidden within her soul. This time she will yield more distinctively, more consciously to the father's wish. As it streams before her out of her own psychical possibilities, it must be her own wish also. Prostitution is decently clothed here in society's sanction, the father's material comfort and freedom from care, with beside the added element of the attention and consideration of a grave gentleman, apparently desirous of her self as well as to make her comfortable and well provided for.

The unconscious slavery, which is that inner fixation upon the father, in the infantile form of demanding the father's love, provision, whatever makes up the child relation to the father in the intense self seeking of the father, this breaks forth in blackest shadow in this episode. The dominance which she has unconsciously sought, providing again through herself for her father and family, turns upon herself. She is the worse than slave. She is scorned and spurned, flung aside without the slightest consideration. Her value as the man's social and sexual bauble is utterly at an end. Perhaps even the despicable manner of her downfall apparently put upon her by the man who despises her, but in fact arising in her own subjective vision, are again a picture of the possibilities which her own wish could project into this pathway of the future. So again it is with the fact of her own inner possibilities and therefore sense of guilt with which she wrestles. No wonder then that morphine becomes a refuge. No wonder also that even in the dream, the vision, she struggles even in the weakened drugged condition against complete downfall again and though poor, in need, friendless, lost to her social world, yet keeps herself here true to the pure ideals of her girlhood home. And this one of the three "episodes" ends through its sorrow in hope and promise of joy and life.

She is prepared for the waking. This is like the so-called "preparing function" of the dream of the night, which after long struggle, yielding to primitive, uncultural wishes, and slow conquest of them, seems at last to take up the path out into light and victory. One who has been submerged in the power of the baser unconscious wishes and the conflict with them, as in a long neurosis, comes after a more decisive and clearer wrestle with them through analysis of them to a new form of wish. The way out into a new adaptation to reality comes at last through an understanding of what the more primitive wishes are and where lies their ancient value and their still present power. A pathway is found to bring that power and value out into a higher cultural life, which is the sublimation of them. To this the dream itself finally points the way.

So has Gina won victory for herself and for those whom she would have made thus blindly dependent upon her, absorbed in her dominating power. Kindly but assuredly she refuses this last wish of her father, as she had refused the other two courses which had presented themselves to her. This time her father seems likewise to have at-

tained a new freedom. This comes about through no mystic subtle influence. It results from Gina's simple matter of fact grasp of reality for him and for the brother. Her sublimation is very real and very complete. A few clear suggestions to the father that he shall simply utilize the reality which is at his hand and take up his own problems, take them up with the cooperation of the active young son, to the advantage and for the opportunity of self-expression for both, breaks the spell of domination and dependence. Then she herself is at last free to turn to the one lover with whom she can meet on free and equal terms of mutual endeavor and enterprise. Eyes of Youth are at last cleared to see their way beyond the confines of inner fixation out into the privilege and possibility of a maturity freed from the bonds of infancy skulking under false names and deluding pretences.

There is no boundary to the past undulating behind us. The future remains dark and impenetrable before. Life's activity finds itself however upon the clear moment that looms up instantaneously between past and future. All that, like this play of the theater, reveals to us more of the actual content and power of that past, releases us from its bondage and gives us a freedom to receive its influence and fit it successfully and constructively into this quickly fleeting present moment. In this way and this alone the future becomes ours. We do not penetrate it. We have no definite visions as to where we shall walk and how. But its possibilities come within the range of our understanding, and we have a better nobler task than walking a clearly defined path. It is ours to grasp the influence of the past, apply it to reality, to opportunity, so that we make, create the future and mold it to progressively constructive ends.

64 WEST FIFTY-SIXTH STREET.

CANCER DEATH RATE IN NEW YORK CITY DURING 1917.

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IN 1914 the New York Board of Health in its Monthly Bulletin for April presented a long article from the American Society for the Control of Cancer on "Cancer as a Public Health Problem." From this some data may be quoted.

Based on the statistics from the United States Registration area up to 1912, it showed very clearly and indisputably the steady and great increase in the mortality from cancer from the year 1900, when it was 63 per 100,000 to 77 per 100,000 in 1912, or 22.22 per cent. In New York State the increase had been from 66 in 1900 to 86.5 per 100,000 in 1913, or over 30 per cent. In New York City it had risen from 63.3 in 1898 to 81.7 per 100,000 in 1913, or over 29 per cent. Throughout the world the cancer death rate from 1900 to 1909 had advanced, on an average of all countries reporting, 23.3 per cent. Cancer was rightly spoken of as "a menace to society."

The question of the apparent or real increase in mortality was discussed, and it was remarked that "it seems unlikely that accuracy of diagnosis has advanced at such an even rate as to result in almost

exactly the same addition to the recorded cancer death rate each year."

Since 1914, when there was started the active propaganda for the more radical surgical treatment of cancer, the increase in the death rate has been much greater than before that time. Thus in the United States the mortality figure has steadily risen, so that in 1915 it was 81.1 per 100,000, or a total rise of 28.7 per cent, since 1900. In 1916 it was 81.8 per 100,000, or 29.84 per cent increase since 1900.

It is a little interesting to note that during the five years immediately preceding 1915, at which date surgery became more active, the mortality rose only from 76.2 to 79.4, a total of 3.2 deaths per 100,000 population, or much less than one per year; while in 1915, after the vigorous educational and surgical propaganda, the death rate rose from 79.4 in 1914 to 81.1 per 100,000, or 1.7 more deaths per 100,000 population in a single year; this is an increase of 2.13 per cent, more than double that in the preceding years. Could this be ascribed to more accurate diagnosis?

A confirmation of the reality of the increase in deaths from cancer happens to come in the Bulletin of the North Dakota State Board of Health for October, 1917. In it we find a quarterly mortality summary of all the deaths during July, August and September, 1917, with a column comparing these with the data of 1916. We find that while the general death rate, partly or wholly due to increase of population, had risen 22 per cent, the increase in the cancer death rate had increased 30 per cent—from more accurate diagnosis?

Turning now to the mortality from cancer, in New York City, in 1917, as shown in the Weekly Bulletin of the New York Board of Health, we find that there were 4,859 deaths recorded from cancer, malignant tumor, 2143 males and 2716 females. This total number divided by 365 gives 13.33 persons dying daily from this cause. During 1916 there were 4635 deaths from cancer, or 12.68 persons per day.

During 1917 there was a total of 78,467 deaths from all causes in Greater New York against 77,948 in 1916, an increase of 519, or less than one per cent; whereas the increase in cancer deaths was 224 or almost five per cent. Surely such figures, which cannot lie, and which show an increase of cancer mortality nearly five times that from general causes, cannot be explained away by greater accuracy of diagnosis or more perfect recording of death certificates.

In all this study of mortality statistics it is well to remember that these figures do not necessarily represent truly the real increase of cancer as a disease, which is probably even much greater than the figures show. For undoubtedly many cancer patients die of intercurrent diseases, under which the death is recorded, and in many instances the diagnosis of cancer is withheld from the death certificate for personal or family reasons.

The alarming increase in the death rate from cancer under surgical care may well be compared with the notable and steady decrease in the deaths from tuberculosis under rational and careful medical supervision and treatment. In 1900 the death rate from tuberculosis, in the United States Regis-

tration area, was 201.9 persons in each 100,000 population, and by 1916 it had fallen to 141.6 or a decrease of 60.3 persons in 100,000, or almost 30 per cent; whereas during the same period the death rate of cancer had risen 29.84 per cent! In 1900 the two diseases were 138.9 points apart in mortality, and in 1916 only 59.8 apart; at this rate of increase and decrease cancer will soon claim more victims in each 100,000 population than tuberculosis.

In the light of what has preceded is it not possible that there is something wrong in our conception of cancer and its treatment, as I have repeatedly endeavored to show? If any other disease presented such a steady and alarming rise in its death rate would we not stop and consider if our treatment were the best possible? If, with the introduction of antitoxin, the mortality from diphtheria had steadily risen until it was 90 per cent of all cases, which is the acknowledged ultimate death rate of cancer, would we persist in employing it? And yet the profession and laity go blindly on with the idea that surgery offers the best and only hope of reaching cancer, by removing a local lesion which is only the *product* of a previous constitutional departure from health. As well might one excise a syphilitic gumma, or a tuberculous lesion, or amputate a gouty toe, without other treatment, and hope that there would be no further trouble; for all experience shows that cancer is exceedingly prone to manifest itself anew, either in the same location or elsewhere.

It is a curious comment on human credulity that with this steady rise in its mortality so many should have accepted the dictum that cancer was only a surgical disease, and reached only by surgical measures, when all along the past one hundred years single voices of surgeons and medical men have now and again spoken so strongly in favor of its constitutional origin, as I have shown in my first volume. The lure of surgery is very strong, and surgeons have made great claims, while medical men have not yet reported any single specific for the disease—for the single reason that no specific will ever be found.

It is not the purpose of the present writing to enter upon the proof of the constitutional nature of cancer and its successful treatment by other than surgical measures, which have been abundantly considered in the books referred to. It can, however, be truthfully claimed that under proper and prolonged medical treatment more can be effected than with the knife. Not only is the death rate smaller, but the ultimate suffering is less. Moreover, with the fear of an operation removed, together with the known uncertainty as to the ultimate result, patients would be more inclined to seek aid in the earlier stages of the disease, when the prospects of overcoming it are better.

531 MADISON AVENUE.

*Cancer, Its Cause and Treatment. Vols. I and II, P. B. Hoeber, New York, 1915-17.

Collargol in the Sepsis of Children.—Bogen injected collargol into the veins in desperate cases of sepsis in childhood, both cryptogenetic and postanginal. The typical reaction—sharp rise of temperature after 2 to 4 hours, chill and profuse sweats—is indicative of recovery.—*Jahrbuch für Kinderheilkunde*.

MASKED PELLAGRA.

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OSLER states in his "Practice" that a type of pellagra without the dermatitis had been described, but his dismissing the matter with this short notice would lead one to infer that he was in doubt as to the existence of such a type. I am sure the profession at large are also doubtful of its existence.

My hospital records for the past several years, to my mind, offer sufficient proof that it does exist. I am sure more than a third of the cases are of this type. It is diagnosed "hypochondria," "hysteria," "neurasthenia," "nervous indigestion" — blanket terms that mean nothing and serve only to cover our ignorance.

When we come in contact with a case of this type, we usually make a diagnosis something like the above, and never stop to dig out the real cause of these nervous manifestations.

When we hear the sound of the rattles we know the snake is there, but it blends so cunningly with the surrounding objects it is almost impossible at times to bring it clearly into view. So when we come in contact with this type of the disease, and hear the rattles (nervous phenomena) we have been taught to look first to the ovaries, then to the tubes and uterus, name it something, prescribe a douche and a "nerve sedative," and go on our way without having had even a glimpse of the real snake. These patients drift from physician to physician, from hospital to hospital, are operated on for various things until death kindly closes the drama.

I do not mean to say that all nervous manifestations are the result of this type of pellagra, but, when they cannot be traced to a definite cause, it would be well to give pellagra serious consideration.

My hospital records, as well as those of many of the asylums, I think, prove conclusively that many physicians are having difficulty in recognizing this type of the disease; therefore the purpose of this paper is to provoke thought and discussion of this, the most important scientific problem now confronting Southern physicians.

The difficulty in diagnosis may be emphasized by two or three examples.

Mrs. S. had been treated seven years by various physicians for ovarian, uterine, and other disorders. At Hot Springs she was treated several weeks for "neurasthenia"; her condition became so serious she was carried to the asylum at Tuscaloosa, Ala., where Dr. Searcy promptly made a diagnosis of pellagra; she was brought here and made a good recovery.

Mrs. W. during the past fifteen years had run the gamut of all the "nerve sedatives"; there had been many diagnoses, and a number of operations advised; at Mobile, Ala., Dr. Bonduant made a prompt diagnosis of pellagra. In the sanatorium here she made a slow but sure recovery.

Mrs. M. had been treated several years by many of the best physicians of Georgia; "nervous indigestion" seems to have been the general diagnosis; at Milledgeville the case was diagnosed pellagra; her recovery here was all that could be desired.

Dr. A. S. Frasier, of Dothan, Ala., has been able to diagnose, and kindly refer, a number of these cases to me. A great number of examples of this character could be given; these are enough, however, to emphasize the point made.

None of these cases exhibited any evidence of the dermatitis. When we once have a clear picture of this condition our future diagnoses are comparatively easy. To get this picture without clinical experience is a difficult matter, because we have been taught that these nervous phenomena are of entirely different origin.

Symptoms.—*Skin:* There is no dermatitis in this class of patients, except that it does appear in a small percentage of the cases a short time before death. The skin has a peculiar muddy pallor hard to describe; it reminds one more of toxic pallor than of anemia; it is not a real anemia, the blood count is usually normal, but there are a few cases in which a real anemia exists. The burning sensations of the lower limbs and feet are very often but not always present.

Oral: The mouth and throat present a variety of symptoms; some tongues are red, irritable, and deeply fissured, others have a sleek, burned appearance, still others present a gray putty color without tone or shape, just a dirty, flabby mass; in some cases the tongue shows no evidence of the disease except a burned sleek appearance of the margins.

The throat presents a symptom of great diagnostic value. As far down as it can be seen to a well defined line just above the pillars of the fauces it presents a red, irritated appearance. In many cases the line of demarcation is as well defined as is that of erysipelas; as the disease advances the redness gradually extends to the entire buccal cavity.

Gastrointestinal: In some cases the digestive symptoms are of minor importance; in most instances, however, they assume major proportions.

Tenderness over the entire abdominal area is not an infrequent symptom; it is usually out of seeming proportion to the illness of the patient; by it the colon can by gentle palpation be definitely traced.

Constipation is almost always present, although I have seen mild attacks of diarrhea in a few instances.

Dreaming: Dreaming is a most annoying symptom in many instances; on waking the patients relate some of the most horrible experiences imaginable through which they have passed; some of them endeavor to hide this symptom and deny for a long time that they ever have any such dreams.

Weakness: This is not an uncommon symptom in this type of the disease; it is observed most frequently in those whose mental faculties are the least involved. Except for the toxic pallor they seem to be in fairly good health, but on the least exertion they become out of breath, the limbs tremble and seem unable to support the trunk. This is not dyspnea from cardiac insufficiency, but seems to be due to a lack of nervous tone.

Mental: I fully realize that I am here entering on dangerous ground; however, I believe our knowledge of this type of the disease has progressed to the point where by a painstaking, thorough investigation we are able to differentiate between these nervous manifestations and those of other diseases that present a like symptom complex.

Fear: Fear is one of the cardinal symptoms of this peculiar psychological condition; the patients are in a general state of fear, fearing themselves, as

well as everyone and everything with which they come in contact, and are never able to give a definite reason for their apprehensions. Their facial expression is one of impending danger, with a puckered, furrowed brow.

The genuine psychoneurasthenic may be easily eliminated from this class because of their ever ready voluminous reasons for the impending catastrophe. In genuine depressive mania the patients always ascribe their misfortunes to some personal transgression.

Irritability: It is generally conceded that Shakespeare got his inspiration for "The Taming of the Shrew" from the common scold; the lay mind not being versed in the finer points of psychoanalysis may have easily confounded the scold with this type of pellagrin; there is, however, a wide gulf fixed between the two; the pellagrin is irritated with himself because he is irritable; he recognizes that he is disagreeable to his family and friends, but is unable to remedy the condition. The scold is never conscious of being in the wrong, the other party is always the offender, and he seems to take delight in making himself as obnoxious and disagreeable as possible.

Melancholia: Melancholia is a very grave factor in patients of this type; their deeds of murder and suicide fill the daily press. For obvious reasons it is extremely important that these cases should be recognized and treated at the very earliest possible moment.

Confusional: The stenographer is unable to write an intelligent letter. The mail carrier is unable to assort and deliver the mail. The plowman runs a furrow across the field and cannot properly follow it back to the starting point. The farmer starts to drive his stock to the pasture and then wanders off in the fields, leaving the stock to destroy his crops.

This condition may progress to the point where it closely resembles acute manic-depressive psychosis; the distinguishing feature is that it reaches a definite conclusion much more rapidly than does mania.

Delusions and hallucinations are rare in these cases; however, they do occur. One of my patients knew that his family had been ruined by a wealthy man in the community, and that his life was in danger; he could hear them planning to assassinate him; he called the Governor over an imaginary telephone and asked for a company of soldiers to protect him; the Governor granted his request, and as soon as he believed the soldiers had arrived he became calm and satisfied. This man recovered.

I have seen delusions and hallucinations in the insane and alcoholics, but the picture is not just the combination as we see it in the pellagrin.

Conclusion.—The presence of burning sensations of the lower limbs and feet; general digestive derangement; tenderness over the abdominal area; weakness without seeming cause; redness of the throat extending to a well defined line just above the pillars of the tonsils; a red, sleek, fissured, or putty-colored tongue, and the peculiar nervous symptoms described above, I believe warrants us in making a positive diagnosis of pellagra, although there is no sign of dermatitis.

SOME FRAGMENTARY NOTES ON PARKINSON'S DISEASE AND ITS TREATMENT WITH PARATHYROID GLAND.*

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IT is just 100 years since James Parkinson's classic account of Shaking Palsy was first published in London. In his Preface the author observes, with truth and feeling:

"The disease respecting which the present inquiry is made is of a nature highly afflictive. . . . The writer will repine at no censure which the precipitate publication of mere conjectural suggestions may incur, but shall think himself fully rewarded by having attracted the attention of those who may point out the most appropriate means of relieving a tedious and most distressing malady."

These words shall be an *apologia* for the present fragmentary comments.

I shall not dwell upon the literary history of shaking palsy. The story would take a long time and fill many books. The symptomatology of Parkinson's original account is quite full. Later writers have added *Paralysis Agitans sine Agitatione*, and a rarer form *with* shaking but *without* any marked rigidity.

All races of men appear susceptible. Charles W. Burr¹ has reported a case in a negro of advanced years, and expresses the opinion that the supposed immunity of the negro race to this disease is an error.

As regards age incidence it was believed for a long time that paralysis agitans is strictly confined to the second half of life, not appearing before the third decade. H. Willige² has, however, carefully reviewed the literature, and thinks that some of the reported cases occurring as early as the twentieth year must be acknowledged as genuine. Several of these he considers "familial," and evidently a "special type." J. R. Hunt³ has reported a case of the *paralysis agitans syndrome* beginning in the fifteenth year of life. The autopsy showed what Dr. Hunt designates as "destructive lesions of certain groups of cells in the globus pallidus." He, too, believes the young patients constitute a special type, and thinks that further study will differentiate also many of the older cases. His views await further investigation. The literature contains between forty and fifty other pathological hypotheses based upon one or two autopsies, and without subsequent confirmation.

The confusion and contradictoriness of autopsy reports long ago led C. L. Dana and others to advance the view that a chronic toxemia lies at the base of the disease; and it was suggested by Lundborg of Stockholm⁴ in 1904 and by myself⁵ independently in 1905 that a *chronic dyscrasia or insufficiency of the parathyroid glands* is quite possibly the cause of the disease.

My own reasons for this view have been frequently stated before, and need be only summarized now: (1) The symptoms appearing in rabbits and other convenient experimental animals upon removal of the parathyroid glands are sug-

gestive; shivering and twitching of the voluntary muscles, rigidity, convulsions, salivation, and often a quite typical "propulsion" may be observed. (2) The disease has been reported several times in conjunction with myxedema, and with exophthalmic goiter, where the contiguity of the diseased thyroid might well be supposed to work mischief to the parathyroids. (3) The parathyroid glands have been reported in a diseased condition in a fair percentage of the autopsies upon cases of paralysis agitans; and finally, (4) The use of a properly prepared parathyroid extract by the mouth, or better by hypodermic administration, has been productive of remarkable benefit in a majority of the cases treated. This therapeutic test has been applied to hundreds of cases during a period of more than ten years past; and the treatment has shown a steady and gratifying increase in popularity.

Admittedly these considerations are by no means a *demonstration* of the etiological relation of shaking palsy to parathyroid insufficiency; but the hypothesis certainly comes within the bounds of reasonable scientific speculation.

By the profession both here and in Europe, during the last 10 years the parathyroid theory has been received with considerable favor. In *International Clinics* for 1912, I reviewed⁶ the literature—mostly favorable—up to that date. Since then J. Greenwald⁷ has advanced some interesting but I do not think conclusive chemical considerations *against* the parathyroid theory. Troemner⁸ thinks the parathyroid hypothesis "possible;" and Schioetz⁹ defends it with considerable enthusiasm.

I take up finally the clinical administration of parathyroid, as I am accustomed to give it.

First of all, it is absolutely necessary that an efficient preparation, made from perfectly fresh and carefully identified glands, should be used. The chemical details of my own extraction process, which I have worked out after many years of experiment, have been published in several places, and need not be again detailed here. My formula is now for sale by several New York pharmaceutical wholesalers. It comes in small capsules (one-fiftieth grain of parathyroid extract in milk sugar), and as hypodermic solution; the latter is marketed in small rubber-stoppered bottles of five mils. The hypodermic is the ideal preparation, but is more expensive, and many patients do very well on the capsules.

The dose by the mouth is one capsule two to six times a day, preferably after eating. The hypodermic solution is given in doses of one or two mils once or twice a day. One mil contains one-fiftieth grain of the extract. This arrangement evidently mixes the metric and English systems, but is justified by its convenience, and is easily remembered. The solvent is physiological saline solution. A trace of chloroform is added as a preservative. Aseptically injected, the hypodermic solution should be absolutely without reaction.

The *benefits of treatment* usually appear slowly. They consist in diminished rigidity, shaking relieved or arrested, restlessness and insomnia relieved, and salivation abolished. In some of the cases now and then quite a miracle is performed, as for example in a report recently published by Dr. George Martyn.¹⁰ The writer states that the patient,

*Revised from an address before the Clinical Club of Yonkers, New York, Dec. 4th, 1917.

whose condition had been desperate, was so remarkably benefited that he was enabled to bathe and dress himself, read and write comfortably once more, sleep well, and amuse himself by pruning his own orchard trees again—a pleasure in which he had not been able to indulge himself for a long while. The only setback occurred when for a period of a week or so he was unable to get a fresh supply of the medicine. I myself last year reported two cases which have lately attracted my special notice. One of them, the father of a medical associate in the Bronx, has been literally kept alive by my parathyroid formula these ten years back.

Contraindications are very few. Personally in many years and with more than a hundred patients, I have seen only one, an elderly man, living in Hamilton, Ontario, who could not take ox-parathyroid at all. He seemed to have an anaphylactic sensitivity to the foreign proteins. This may also have been the trouble with a patient last year in the care of Dr. G. Clarence Parcher, of Saugus, Mass., whose account (private letter) has interested and puzzled me considerably.

Some patients get "nervous," and shake worse when the dose is pushed too fast. To these the remedy should be given in divided and infrequent doses till they become accustomed to it. I have one patient who is sure the parathyroid constipates him; but he overcomes this very easily with a simple laxative.

Improvement is often noticed in two weeks, very generally in two or three months; and it should continue for a few months more. After this the remedy should be indefinitely continued, but in smaller doses—just enough to maintain the benefits already secured.

Cardiac disease, arteriosclerosis, and albuminuria are no contraindications. These conditions may even improve under the parathyroid treatment. None of the textbook remedies for the intercurrent diseases of old age is incompatible with parathyroid extract. Hyosine and parathyroid sometimes go very well together, working better than either alone.

Easy travel often benefits these patients, and they are appreciably sustained by cheerful company, a hopeful environment, or perhaps an appeal to their religious faith. Institutional cases do badly, for reasons too apparent to require amplification. The sufferer should by all means be kept out of a hospital atmosphere.

Under these circumstances, and with an intelligent individual application of the principles of treatment outlined above, these patients often do very well for many years, reaching and passing the scriptural threescore and ten with but little more inconvenience than usually befalls normal old age.

REFERENCES.

1. Burr, Charles W.: *Journal A. M. A.*, January 4, 1913.
2. Willige, H.: *Zeitschrift für die gesamte Neurologie und Psychiatrie*, IV, 4, 1911.
3. Hunt, J. R.: *Proceedings of the Am. Neurological Association*, Washington, 1916.
4. Lundborg: *Deutsche Zeitschrift für Nervenheilkunde*, 1904.
5. Berkeley, William N.: *N. Y. Medical Journal*, 1905.
6. ———: *International Clinics*, 1912.
7. Greenwald, J.: *Am. Journal of the Medical Sciences*, 1914.

8. Troemner: *Deutsche Zeitschrift für Nervenheilkunde*, V, 53, 1914.

9. Schioetz: *Zeitschrift für die gesamte Neurologie und Psychiatrie*, No. 23, 1914.

10. Martyn, George: *The Link*, Los Angeles, February, 1917.

11. Berkeley, William N.: *MEDICAL RECORD*, July 15, 1916.

131 EAST SIXTY-SECOND STREET.

THE UNSTABLE QUALITIES OF DIGITALIS PREPARATIONS;

EXPERIMENTAL TESTS AND MEANS OF PREVENTION
RELATED TO THERAPEUTIC EFFICIENCY IN
CARDIOVASCULAR DISEASE.

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IN the treatment of cardiovascular disease the physician in charge of obstinate and chronic cases often faces a hard problem how to secure relief for the patient. An investigation into the cause of our failure may reveal a defective diagnosis, an erroneous treatment, lack of co-operation from the patient, etc. Since the regulations of the Pharmacopœia must be closely followed the practising colleague feels pretty sure that the needy patient is well provided with active drugs.

Individual curiosity and search for more knowledge and truth at times makes us feel as if we have unraveled all or most of the laws governing nature. Usually in the search for an answer to a definite question, we may solve the same, but always there remains something new to be investigated and at the top of that ascending grade of knowledge we notice the bright inscription "per aspera ad astra," by effort to reach the stars.

The task of instructing the medical student has become wider and more extensive since there has been added to inorganic and organic chemistry the problems of colloid and physical chemistry as new and promising fields of investigation. Nobody today will question the importance of these subjects for pharmacology and therapeutics and these branches of science are not as yet sufficient for giving an answer to the many questions we would like to have answered satisfactorily.

Since the discovery of radium and the many interesting qualities of these substances revealed by many investigators—Madame Curie, Rutherford, Soddy, Geiger, and others, the cherished conception of the non-divisibility of the atoms as a basic foundation to our conception of matter has been shaken since we must recall the new interpretation of the atom as a complex of ions and electrons held in a state of equilibrium. Any disturbance of the latter is followed by the display of energy—heat, ionization, chemical radiation—a law accepted by notable physicists, among which the work of Thompson stands so prominent.

Stimulated by the interpretations of radioactive substances in the course of original research work in the past four years I examined numerous chemicals and pharmaceutical products under the fontactoscope—an instrument constructed for the purpose of

*Paper read before the Cincinnati Research Society on December 6, 1917.

determining the amount of radioactive rays emitted by the radioactive bodies.^{1, 2, 3} What at first appeared to me as an interesting fact is that all substances so far examined reveal a discharge of the leaflets of the gold electroscope. More than 6000 tests have been made, each extending over an observation period from a few minutes to several hours, all with a similar result, namely, a gradual discharge of the instrument in excess of the surrounding air which had been tested before the substance was investigated. Such a discharge can be noticed with either a positive or a negative charge of the instrument. This phenomenon can be measured in volts or in electrostatic units or in Mache units as used in the radioactive bodies—radium-thorium series—or it may be measured as ionization and applying to a larger group of chemical combinations. The final decision as to the quality and nature of this electric discharge whether due to ultraviolet radiation or to chemical rays, as alpha, beta, gamma rays, is a problem for the physical laboratory to answer. Besides the scientific interest of such phenomena the question arose whether clinically these qualities, present in medicinal substances, might be of value. I cannot enter into that problem to-day, but would refer to my former publications on that subject, dealing especially with antirheumatics.²

To-day I would call attention only to an investigation of the radiosopic qualities of the cardiovascular stimulants, especially digitalis preparations. I shall not attempt to quote the tables and the individual readings expressed in scale divisions of the instrument or quoted in volts or Mache units for a definite weight, the question is simply this: Can we notice any change in the charted discharge? A glance over the different curves will reveal the result of my investigations, but a few explanatory remarks may precede their discussion. We notice the horizontal line, or zero line, above which the scale readings of the positively charged instrument are recorded, while below the zero line we see the charting obtained under negative charge of the fontactoscope. As intimated before, for every determination the ionization—normal loss—of the air has to be carried out, represented by the dotted line. The heavy line refers to the substance proper examined under identical conditions. For the reading of the curves a clear understanding of the exchange of ions in the recipient is necessary. I must mention one of the principal rules of physics in which the negative electric current tends to be neutralized by the same amount of positive electric energy. The leaflet electroscope being charged with positive electricity, the leaflets are kept as far distant from each other as the insulation will permit. In the recipient containing the air or the substance in which ionization is in progress, the negative ions reach the condenser and in neutralizing they take from the positive charge just the proper quantity, consequently the tension of the leaflets is diminished, they approach each other as observed on the scale at definite time intervals, equivalent to a definite voltage. As in air we have always positive and negative ions besides neutralized ones, it must be remembered that one quality may be in excess of the opposite ones, consequently the fall of the leaflets may be retarded or even be checked, or the charge may

be increased, as the case may be. If we remember that the beta rays are of negative charge, they will become neutralized when the fontactoscope is charged positively, and vice versa the positively charged alpha rays will become neutralized by a negatively charged instrument. Such a deduction applied to our curves, and in speaking of the line above the zero line as the beta line, and of the line below the zero level as corresponding to the alpha radiation may not be absolutely correct, since for the determination of alpha, beta, and gamma rays other physical tests, especially those of filtration through metallic screens, determination of the number of corpuscles, or the measurement of their wave length may be required,⁴ besides their effect upon the sensitive photographic plate. So, choosing a more simple term, we will simply speak of the positive or negative charge of the fontactoscope.

As to the curves, Nos. 1, 2, 3 refer to 0.002 grams of powdered digitalis leaves examined at various periods, always the same sample being used; test No. 2, 323 days; test No. 3, 136 days later, or 459 days after the first test, under the precaution that the digitalis powder was kept in a sealed bottle, protected from light and all moisture for all that length of time. Roughly speaking, in No. 1 we

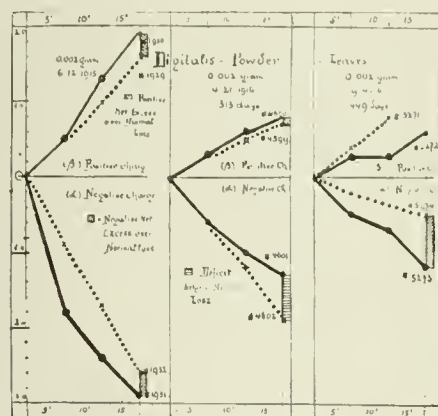


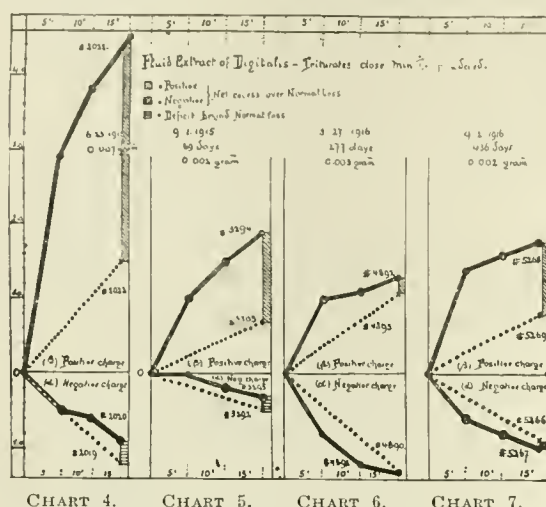
CHART 1. CHART 2. CHART 3.

have above and below the zero line a considerable discharge marked in scale divisions and that in excess of the dotted line representing the normal loss or ionization of the surrounding air.

In test No. 2, carried out under identical conditions and precautions 323 days later, we miss in the charted line the steep ascent, and the normal loss is only slightly smaller from the energy given off by the digitalis leaves. With a negatively charged instrument we notice a steeper curve in which the normal loss exceeds the readings of the substance proper. This difference is again emphasized in chart No. 3 where we have in the positively charged instrument a slight discharge by the substance, much inferior to the normal ionization of the air. For the negatively charged instrument the normal loss is smaller and not so steep, leaving an excess of radiation considerably inferior to the first observation. As stated in former papers of mine, a comparison of the curves obtained with positive and negative charges of the fontactoscope indicates that the difference in the elevation of the curves may be due to an irregular discharge of ions, which being cast off, the positive ones as well as the negative

ones interfere with each other, so necessarily influencing the character of the curve of ionization.

Without entering too much into speculative deductions from the curves presented, we must admit a gradual change of the drug in the physical qualities



mal loss and substance curves pursued a more or less parallel direction. So for a closer study of the phenomenon it was desirable to divide the readings into periods of 15 minutes, making successive readings over one-half to one hour. Admitted the possi-

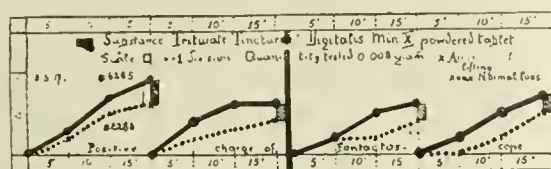


CHART 12. CHART 13. CHART 14. CHART 15.

bility of the greatest fall and discharge of the leaflets to take place in the first few minutes, on further readings the difference between normal loss and substance curve would either cease or become lessened. By carefully removing the bottom of the recipient containing the substance, replacing the ionized air by fresh air, this exchange being carried out without disturbing the electroscope itself, meant a delicate performance requiring some experience. The following charts, Nos. 8, 9, 10, 11, refer to readings made with triturates containing tincture of digitalis, 10-minim powdered tablets, the amount tested being 0.008 gram. A brief discussion of the curves so obtained will be justified, followed by a short review of the serial determinations. It will be noted that in No. 8 and No. 9 the fall of the leaflets, with positive charge of the instrument for the test substance is greater than the fall caused by the ionized air. The latter has a slight tendency toward increase, while the former reaches the same height in both determinations. Once the air had been changed we notice in the normal loss a moderate decline, while the substance curve appears at least not diminished. As a necessary consequence we find an increase in the net excess ionization over the normal loss. Contrary to our expectations of a lowered ionization discharge we see an increase of the same displayed which change cannot be interpreted as a discharge which lasts only a very short time.

The same substance, on being tested two days later, with bad weather conditions prevailing, as a rule yielded less good net results than with a bright and cloudless sky without any precipitation, and the results of such test are given in charts Nos. 12, 13, 14, and 15. Throughout the experiment we notice the leading elevation of the substance curve above the normal loss line. The latter in the course of the observation, also after the renewal of the air in the recipient, becomes slightly lessened. The substance curve shows another interesting peculiarity that in the first 15 minutes period the highest stand is recorded, which level is lessened at the beginning of the exchange of air, with a tendency to rise at the end of the second half hour. The net excess ionization over the normal loss in the stored preparation suggests the maximum difference just at the end of the first 15 minutes. Becoming less at the subsequent readings, this fact would not speak against an accumulation of energy which at the first opportunity would be thrown off. Although qualitatively, in two days interval, the discharge curve may differ, quantitatively, taking in account the final result, there is no difference to be ascertained in my observations.

As a result of my previous study showing a deterioration of drugs, especially of the digitalis preparations, with regard to their physical or electrical qualities, the problem is suggested, is there any means of preventing such a change? Just as in former studies,^{2-3, 6-8} in this field of investigation, theoretical reasons and deductions justified an exposure of digitalis products to electric high-frequency waves. The most effectual method of procedure for getting the optimum results is still in its experimental stage, but a chart of triturates of tincture of digitalis, containing 10 minims, by treating the identical material represented in the previous charts, Nos. 8-15, may be included in the present discussion. A glance at charts Nos. 16, 17, 18, 19, drawn on the same scale as the other ones, will show the higher curves which may be interesting. The method of renewing the air has been chosen, for the purpose of having a more delicate means of information at hand. In chart No. 16 we see a surprising leap upward in the normal loss curve as well as in the substance curve, resulting in an excess ionization for the treated substance. More instructive is chart No. 17, in which, as a consequence of the small normal loss and with a steep ascent of the substance curve, we realize a marked display of excess ionization from the treated substance. A renewal of the air in the recipient does not materially alter the leading ascent of the substance curve in excess over the steeper normal loss line. The fourth period reveals a decline in the normal loss curve, while the substance curve reaches a high level only little different from the one obtained previously. So as a general rule, even with a greater weight of the substance we find a decided increase of the excess ionization curve over the normal loss line, a result which was encouraging at least for further investigation of the subject.

I am aware that a difference in physical radiation or ionization can by no means be interpreted as an advantage which might benefit suffering patients, but we clinicians and research men we cannot get away from certain "dreams" which must stand the test of time by further experimental facts.

Since further experiments with high-frequency waves on patients with cardiovascular disease⁹ have justified the use of such means, why should it not be possible to impart the same electric energy to cardiovascular stimulants and by doing so add another trump card in the patient's game for his life? Further research work will, and must, reveal the probabilities of such a therapeutic attempt.

From the pharmacological standpoint, however,

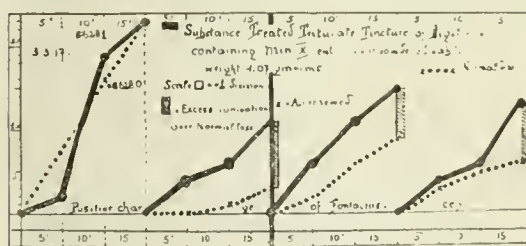


CHART 16. CHART 17. CHART 18. CHART 19.

in concluding this communication, I am reminded of the old classic saying *tempora mutantur et nos mutamur in illis*. I would infer that matter never perishes but is subject to constant change which process should be investigated by the chemist, the

physicist, and last but not least by the pharmacologist in the selection of the proper drugs reputed for their gift of restoring health and so shortening human sufferings.

REFERENCES.

1. Hemmeter, J. C. and Zueblin, E.: *Arch. of Int. Medicine*, February, 1915.
 2. Zueblin, E.: *The Lancet Clinic*, November 4, 1916.
 3. ———: *Therapeutic Record*, November, 1916.
 4. Rutherford, E.: Radioactive substances and their radiations. New York: Putnam & Sons, 1913. Chapter III, VI, pp. 88-267.
 5. Zueblin, E.: *The Lancet Clinic*, November 11, 1916.
 6. ———: *Maryland Medical Journal*, January, 1917. Vol. LX.
 7. ———: *Medical Review of Reviews*, Jan., 1918.
 8. ———: *New York Medical Journal*, Jan. 26, 1918.
- PRICE HILL.

Medicolegal Notes.

Unauthorized Practitioners—Recovery of Compensation.—In an action for services rendered as a mechanotherapist the evidence was held to justify the amount of the judgment entered for the plaintiff by the trial court were it not that the plaintiff admitted that he had failed to comply with the laws of Missouri. He had no legal certificate to treat the sick such as is required by chapter 78 R. S. 1909, and was guilty of the criminal law, which made his act a misdemeanor, punishable by fine and imprisonment. The plaintiff, however, contended (conceding for the argument of the case that he had violated the criminal law of the State) that, notwithstanding this, he was entitled to recover under the existing law of Missouri because the statute of 1909 does not contain the provision contained in the former statute of 1879 that a person violating the law shall not be permitted to recover compensation for services rendered as a physician or surgeon. Differing from the prior decision of the St. Louis Court of Appeals, *Smythe v. Hanson*, 61 Mo. App. 285, where it was held that the omission of the provision as to a recovery for services indicated that the Legislature intended to abolish the penalty of not permitting a recovery, the Springfield Court of Appeals holds that as the later statute makes it a misdemeanor for the plaintiff to perform the services for which he was attempting to recover compensation, he was seeking to be paid for the commission of a crime; and contracts which are made for or about any matter which is prohibited and which is unlawful are void, and cannot be made the foundation of a cause of action. The law will not lend its sanction or aid to a claim based upon its violation. This rule is not for the benefit of the parties, but for the public good; and the medical act was passed for the protection of the public.

Practically every case the court found, except *Smythe v. Hanson*, holds that where a statute has been enacted fixing certain requirements in order to practice medicine and a penalty attached for treating the sick without having complied with the statute, there can be no recovery for services, and this even though the statute has no provision expressly prohibiting a recovery for services. The court considered the case of *McConnor v. Haskins*, 180 S. W. 21, decided by the same court, holding that, although a statute requires one peddling medicines to secure a license, the fact that he does not do so does not preclude his collecting for the goods sold, but merely makes him liable to the fine provided for the violation of the statute, and other like cases, were not analogous. In these cases the licenses in dispute were made necessary as revenue measures and were not required for the protection of the public. Another reason why such cases were not analogous was that the possession of a license or the failure to have one neither adds to nor takes away from the article or goods bartered or sold, the essence of the contract; whereas, the very consideration and essence of a contract made between doctor and patient is the skill, knowledge, and ability of the doctor; that is the very thing the patient contracts to pay for, and to insure the weak, sick and

infirm in getting a high order of skill, knowledge and ability when they contract therefor the law has wisely made certain requirements of those who can give and impart their skill, knowledge and ability in the treatment. It is for the public good that the services of professional men be of the highest character both from the standpoint of efficiency and integrity, and statutes passed to accomplish this result should be broadened rather than narrowed in their construction and application. Especially is this true when dealing with a profession charged with the treatment of the body. For these reasons it was held the plaintiff could not recover for the services rendered, but as this decision is in conflict with that in *Smythe v. Hanson* the cause was certified to the Supreme Court for final determination.—*O'Bannon v. Widick* (Mo.) 198 S. W. 432.

Medical Act Held Unconstitutional.—The Georgia Supreme Court holds that the act of 1916, amending the act of 1909, establishing a board of osteopathic examiners, by extending the provisions of the original act to all other nondrug-giving practitioners except Christian Scientists and masseurs, is unconstitutional because it seeks to impart into the act to be amended matter not germane to it and not indicated by its caption, and therefore offends against the constitutional provision that "no law or ordinance shall pass which refers to more than one subject matter or contains matter different from what is expressed in the title thereof."—*Ausbrooks v. State* (Ga.) 94 S. E. 304.

Occupational Diseases.—Under the Nebraska Workmen's Compensation Act compensation can only be made for personal injuries or for the death of an employee "by accident arising out of and in the course of employment," and unless a disease is traceable to an "accident" as defined in section 3893 the law does not award compensation. The Nebraska Supreme Court holds that a disease arising from the ordinary incidents of an occupation and which may reasonably be said to be the result of an occupation is expressly excepted by that section of the act, and no recovery can be had for disability occasioned thereby. There is a difference in the statutes of different states, and cases which in some states would be held to be within the law are in other states necessarily excluded. It is pointed out in the Bulletin of the United States Labor Statistics Bureau No. 203, issued in January, 1917, that the modifying term "accidentally" does not appear in the laws of California (as amended in 1915), Connecticut, Massachusetts, Ohio, West Virginia and the Federal statutes of 1908 and 1917, so that cases from those jurisdictions afford no light as to whether cases of this nature are within the Nebraska statute. In practically every case in which the workman was held entitled to recover which is at all similar the facts disclosed a sudden event happening at a particular time to which the injury was directly traceable. Within this class of cases are sunstroke, heatstroke, hernia, and injuries from freezing. In a number of cases recovery has been allowed for death from a subsequent disease such as pneumonia, and in such cases there has always been some accident, such as a miner being compelled by accident to the machinery to stand in cold water for a long time, or a pilot jumping into a boat which partly upset and caused him to become wet and chilled, resulting in sciatica, or some other accidental occurrence. The accident may not always have affected the individual directly, but it set a train of causative events in motion, to which the disease was directly attributable. Where a bill collector hurrying to finish his work became overheated, chilled by exposure, which developed into pleurisy, it was held an accident.—*Blair v. Omaha Ice & Cold Storage Co.* (Neb.), 165 N. W. 893.

Death from Accident or Disease—Express Provision of Policy.—The Utah Supreme Court holds that under a health and sickness policy providing that any loss resulting from septicemia should be regarded as resulting from sickness, and should require a payment of only the sick benefit, the beneficiary could recover, for the death of the insured from septicemia following upon a sprained ankle, only the sick benefit for the period between the time of the injury and the date of the insured's death.—*Anderson v. Great Eastern Casualty Co.*, 168 Pac. 966.

Military Medicine.

THE DYSPEPSIA OF THE EDENTATE SOLDIER.

AN attempt to isolate special forms of indigestion in the toothless has not, so far as we know, been seriously attempted by the gastroenterologist. Bolt-ing of food is common enough even when good dentures are present, and attempts have been made to show that the food bolter may constitute a separate physiological type of man to be distinguished from the food chewer. The former is analogous to the carnivorous animal, the latter is the ruminant. In the absence of natural or artificial dentures mastication with the gums may be efficacious, and asylums for the aged are said to present many complete edentates who show remarkably good nutrition. At the present day the statement is often heard that the edentate has his compensations in absence of disease from focal infection about tooth sockets.

The *Journal de Médecine et de Chirurgie Pratiques* for January 10 contains an abstract from an article by Mollière on the dyspepsia of the edentate soldier. It does not appear that a complete loss of teeth is suggested, for the statement is made that 15 per cent of all the French troops have dental insufficiency. These are divided into two great groups, the ante-bellum and post-bellum. The former consist chiefly of peasants who are normally almost vegetarians and have the habit of slow mastication. As soon as these men entered upon a diet of cold meats and canned foods they tended to develop gastroenteric infections and many evacuations from the front became necessary. Those with plate teeth escaped these accidents for a time but sooner or later the dentures were broken and they joined the ranks of the other edentates. The post-bellum or propter-bellum type differs radically from the preceding class and comprises those wounded in the jaws, and in greater numbers those who shed their teeth or require numerous extractions.

The author now analyzes three types of dyspeptic, viz., the food bolter, the undernourished, and the infected. The bolter or tachyphagic as a rule comes into evidence after he has been ill or wounded and is convalescent on a liberal regimen. Habitually a large and rapid feeder, he develops a familiar form of indigestion from incorrect eating. It often happens that he had suffered from this evil before the war and had improved on the war diet. An artificial denture alone will not cure these subjects, who must be taught the correct manner of eating. Of the undernourished type it need only be said that in addition to dental insufficiency there is often a deep repugnance to the diet which consists so largely of cold food. Anorexia and debility set in, and the men form an easy prey to typhoid and paratyphoid infections. There is naturally much constipation in this type.

The infected subject, unlike the others mentioned, does not complain much of his stomach. His mouth is badly infected and he is addicted to pipe smoking. Pus in the pyorrhea subjects is constantly swallowed with the saliva. The men seldom report sick and the extraction of roots followed by perox-

ide gargles often causes much improvement. For some unknown reason they do not bolt their food, but habitually chew slowly, which explains their freedom from many symptoms of indigestion.

The above classification works well in practice and for five months Mollière has carried out a definite plan. First he strives to make painless mastication possible. Peroxide mouth washes are used and ulcerated gums are touched with chromic acid 1-500. The men must chew by habit to harden their toothless gums, incidentally also as a preparation for wearing a plate. The soups and pul-taceous foods discourage mastication which must nevertheless be kept up; and the victims are therefore as far as possible given such food as requires mastication. Excellent for this purpose are the legumes; they are soft, yet require chewing because they cannot, so to speak, dissolve in the mouth. Once provided with dentures the men resume their full regimen of fresh meat, cereals, legumes, bacon, etc. Cereals and potatoes made into small balls, green legumes, and a hash of meat form a good ration. On account of lack of oil and vinegar for salads the ordinary salad vegetables may be hashed up with the meat.

The man who does not masticate well or naturally suffers from a defect of saliva requires something pungent to provoke a flow of the latter. In addition to ordinary condiments onions or kitchen herbs, such as thyme, are useful. An insipid diet is not good for soldiers. Among drugs rhubarb and soda mixtures and arsenic are the best stomachics. Calomel and salines, with rarely opiates, are the chief drugs for intestinal disorders.

Reeducation of the Disabled Soldier.—In *Recalled to Life*, No. 2, 1917, is a description of what is being done for the Canadian disabled soldier. The author of the article says that the French, as usual, were the first to discover the principle upon which disabled soldiers should be returned to civil life. To each one must be assured the possibility of earning his own livelihood, by helping him so that in the end he will require no further help. There is an analogy between the case of the child and the disabled soldier. Both require to be educated and supported until they can support themselves. The principle has been accepted in Canada, and it has been elaborated into four postulates by Major J. L. Todd of the Canadian A. M. C., who is working indefatigably so that correct methods may prevail: (1) Bodily or mental disability due to military service must be brought to an irreducible minimum. (2) When necessary and possible, disabled soldiers must be taught an occupation, so that they may become employable. (3) If necessary, they must be assisted to obtain employment. (4) Pensions will vary in accordance with the extent of the disability in respect of which they are awarded.

Unless these postulates are understood and accepted there will be the political danger that the discharged soldiers band themselves together as voters and make claims upon the treasury greater than can be borne. In the United States the pension bill amounts to \$200,000,000 a year, although it is fifty years since the Civil War. In Canada, one-seventh of the adult male population will have seen

military service, and it is not probable that they will conspire politically against themselves, since in the end they must pay the bill. The disabled cannot learn too soon that they must do what they can to help themselves, and that they must display in time of peace the same courage which supported them in time of war. Under present arrangements a Canadian soldier totally disabled receives a pension of \$2,500 a year. If he is so severely injured as to require an attendant, he may receive an additional \$200. For each of his children he is allowed \$75. Pensions are, under the warrant, unaffected by the man's earning power, income, or social position; they vary in accordance with the rank, but not according to the length of service. This uniformity of pensions does not afford so great an inducement to refrain from acquiring a new occupation as would at first sight appear. The degree of disability is estimated by a Board of Commissioners, and they take into account a man's capacity, apart from the inclination for acquiring a new trade, or practising a trade he had already acquired. They estimate his value in the labor market, and supply the deficiency which will bring him up to the standard. His pension is not diminished if he works; it is not increased if he elects to remain idle. Arrangements are in progress for settling upon the land all returned soldiers. The terms are very liberal. The man is given free 160 acres of land, and he may receive upon loan as much as \$2,500. Work upon the land is not incompatible with a fairly high degree of physical disability, provided intelligence is present by way of compensation.

The policy of Surgeon-General Foster, director of Medical Services in the Canadian Military Forces Overseas, is to return to Canada as quickly as possible all casualties who are not reasonably likely to become efficient within six months. The hospitals in England are thereby relieved. These men will undergo further treatment in Canada, and when necessary they will have an opportunity for reeducation, and so be absorbed into civil life. It is only to a moderate extent that reeducation is practised in Canadian hospitals in England, and in such cases it is a part of the medical treatment which is intended to fit the man for the army rather than immediately for civil life. It has been found the best practice to separate hospital treatment from industrial reeducation. When the hospital has done its best for a man he should be discharged to a convalescent or training camp. Such work as is required under this policy is done at Granville Canadian Special Hospital, Ramsgate. The methods employed in the hospital are curative rather than vocational; but being curative does not prevent them from being vocational also. Cure leads to vocation. Every new movement that is acquired will be of value later in life, no matter what calling the man elects to follow. A patient with a partially ankylosed wrist is set to work using a hammer. If the elbow or shoulder is involved he is given a saw; if the fingers are involved he will be assigned to some task in which the use of finer and more complicated tools is required. Obviously, if a man will continue to use only these separate tools, presently he finds himself acquiring some knowledge of carpentry; and as there is a natural dislike for purposeless work, he soon directs his energy to

works of utility. Insensibly the hospital department becomes a workshop and the patient a mechanic.

Suggested Mobilization of the Entire Medical Profession.—For the purpose of completing the mobilization of the entire medical and surgical resources of the country, the Council of National Defense has authorized and directed the organization of a "Volunteer Medical Service Corps" which is aimed to enlist in the general war-winning program all reputable physicians and surgeons who are not eligible to membership in the Medical Officers' Reserve Corps. Slight physical infirmities, or the fact that one is beyond the age limit, fifty-five years, or the fact that one is needed for essential public or institutional service, while precluding active work in camp or field or hospital in the war zone, should not prevent patriotic physicians from close relation with governmental needs at this time. It is intended that this new corps shall be an instrument able directly to meet such civil and military needs as are not already provided for. It is proposed that the services rendered by the Volunteer Medical Service Corps shall be in response to a request from the Surgeon General of the Army, the Surgeon General of the Navy, the Surgeon General of the Public Health Service, or other duly authorized departments or associations, the general administration of the corps to be vested in a central governing board, which is to be a committee of the General Medical Board of the Council of National Defense. The State Committee of the Medical Section of the Council of National Defense constitutes the governing board in each State. It is proposed that physicians intending to join shall apply by letter to the secretary of the Central Governing Board, who will send the applicant a printed form the filling out of which will permit ready classification according to training and experience. An appropriate button or badge is to be adopted as official insignia.

Hospitals and the War.—In December, 1917, a questionnaire was sent by the New York State Council of National Defense, Medical Section, to three hundred and seven institutions listed as hospitals of the State of New York in the 1917 Medical Directory of New York, New Jersey, and Connecticut. One hundred and seventy-three replies only were received, but of these 167 contained sufficient information to compute the commissioned percentage of the total staff. These replies show that the average percentage of attendance commissioned is 22.5; that of internes is 53.8. There are 18 hospitals that have 50 per cent. or more commissioned; 45 hospitals have between 25 and 50 per cent. commissioned; 105 have less than 25 per cent. commissioned, and 22 hospitals have no staff members commissioned. Seventy-one hospitals state that the present staff is more than sufficient for civilian needs and that additional members of attending staffs can be spared if needed for military service. Sixty-one hospitals state that they have enough, but can spare none additional for military service. Thirty-five hospitals state that present staff is insufficient for civilian needs. Forty-six hospitals were caring for officers or enlisted men at the time of replying, or had recently been doing so. A majority, but not all of those commissioned are in the

Medical Reserve Corps. Membership in the Medical Corps of the Army, Navy, National Army, National Guard, and State Guard, the Naval Reserves, and Naval Militia, is also represented. As a result of this investigation the following conclusions have been formulated: "The response of the hospitals to the call of the national emergency has been, for the most part, highly patriotic. In general, they have not suffered any real loss of efficiency by so doing, but in certain instances individual hospitals have lost efficiency by losing too large a percentage of men commissioned. Certain additional members can be spared from the staffs of selected institutions without injury to them or their public service. The selection of these additional members should be made with great care."

Philadelphia School of Neurological Surgery.—A third course in neurological surgery, under the direction of the Surgeon General's office, has been started in Philadelphia, and is now being given at the Jefferson, Philadelphia General, and University hospitals. The course has been arranged especially for the instruction of Medical Reserve officers to whom will be assigned the care of those suffering from injuries to head and spine. It covers a period of ten weeks, with 31 hours of work a week, and includes demonstrations, lectures, clinics, and quizzes. The anatomy, physiology, and pathology of the nervous system are thoroughly studied under specialists in these branches. Ophthalmologists and otologists give lectures on the relation of the eye and ear to nerve surgery. The latest developments in the science of the use of the x-ray are demonstrated. Clinical neurology, from the standpoint particularly of localization of lesions and projectiles, is taught. Lectures on army administration are given weekly. The serology of the cerebrospinal fluid is dealt with in detail, and opportunity for laboratory examination is given the student officers. Operative clinics are held 8 hours a week at the University and Jefferson hospitals, and special lectures by authorities from other cities are arranged for from time to time. The director of the school is Dr. Charles H. Frazier, and the adjutant is Capt. Thomas M. Joyce. Its headquarters are located at the University Hospital.

Program for the Rehabilitation of Disabled Soldiers.—A conference was called in Washington on January 14, 1918, under instructions from the War Department, at which the Surgeon General presented a program worked out by the Surgeon General's office, providing for a comprehensive system of reconstruction, medical and economic, to be carried on under military auspices. The other conferees urged that, while medical and surgical repair was granted to be within the scope of the surgeon's work, vocational training was a civilian matter, and should be given under civilian auspices. It was argued that the after care of the disabled soldier was already intrusted by Congress in some degree to the Bureau of War Risk Insurance, and that several other governmental departments had in the matter very definite interests and responsibilities. After considerable discussion the matter was referred to a committee, which was instructed to draw up definite recommendations regarding the program to be adopted. This committee, on January 21, presented a bill for submission to Congress calling for

the creation of an interdepartmental commission to be known as the "Board of Vocational Rehabilitation." This bill is now being introduced into Congress. The bill provides that the Board of Rehabilitation shall be composed of one representative respectively of the Department of the Treasury, Department of War, Department of Navy, Department of Labor, and Federal Board for Vocational Education. Under the provisions of this proposed bill every person disabled in the military or naval service shall, upon order of the Bureau of War Risk Insurance, follow such course or courses of vocational rehabilitation as the act prescribes and provides. This, however, does not apply to such persons as are able, in the opinion of the Bureau to resume their former occupations. Section 7 of this bill provides "that all medical or surgical work or other treatment necessary to give, as far as possible, functional and mental restoration to disabled persons in the military service, shall, prior to their discharge from such service, be directly under the executive control of the War Department and the Surgeon General's office of that department; all such work or other treatment necessary to give functional and mental restoration to disabled persons in the naval service shall, prior to their discharge from such service, be under the executive control of the Navy Department and the Bureau of Medicine and Surgery of that department, and all such work or treatment necessary to give functional or mental restoration to disabled persons who have been discharged from the United States military and naval service and require further treatment, shall be under the executive control of the War Risk Insurance Bureau. Whenever prevocational training or other work, mental and manual, is employed by the office of the Surgeon General of the Army, by the Bureau of Medicine and Surgery of the Navy, or by the War Risk Insurance Bureau, as a therapeutic measure, a plan shall be arranged between each of these agencies and the Board of Vocational Rehabilitation, acting in an advisory capacity, to insure in so far as medical requirements permit, a continuous process of prevocational training and the proper preparation of instructors for such training." The bill further provides that the Board of Vocational Rehabilitation be empowered to receive gifts and donations from public or private sources and to expend the same in carrying out the purposes of this act, and calls on Congress for an appropriation of \$10,000,000. Upon request of the United States Employees' Compensation Commission, such vocational rehabilitation shall be made available without cost for instruction for the benefit of any civil employee of the United States disabled while in the performance of his duty, and it may be made available, in the discretion of the board, for the benefit of any other person disabled in the course of employment or otherwise, if requested by any State compensation board or other State organization, or by any corporation, association, firm, or individual.

Lower Death Rate and Improved Health in Camps.—Reports from the officers of the Surgeon General for the week ended February 15 show a lower death rate in all the camps than for any other week since last November. Deaths in all camps, Regular Army, National Guard, and National

Army, totaled 177, of which 96 resulted from pneumonia. There were fewer cases of serious illness reported than for the preceding week. The regulars showed the highest death rate, 12.9 in a thousand per annum, and their non-effective and admission rates showed slight increases over the preceding week.

Deaths at Aviation Schools.—The War Department has issued a statement in response to inquiries regarding the risks of aviators in the service, showing that from the beginning of training, in June, 1917, to date, the fatalities at military aviation fields in this country have numbered 51. Since the training of aviators began, student aviators have flown considerably more than 100,000 miles, averaging about 1,700 hours of flying daily. Considering the number of men learning aviation and the amount of flying, the percentage of fatal accidents is remarkably low.

Mobile Optical Shops for France.—Large automobile trucks, each containing the equipment of a well-appointed optical workshop, are soon to be put into service in France. From the men obtained in the first draft, those skilled in optical lines were ordered to Fort Sill, Okla., to await the completion of the plans and the procuring of the required machinery, tools, and the large stock of optical glass that will form the first equipment of the plants. The main shop from which the mobile units will be operated will be able to turn out 200 pairs of glasses a day on prescription.

New Plan to Train the Unfit for Service.—A new movement has been launched by the National Security League, headed by Walter Camp, for the physical upbuilding of those men who have been found unfit for military service. The plan has the approval of Raymond B. Fosdick, chairman of the War and Navy Departments Commission on Training Camp Activities. The mayors of 5,000 cities and towns have been asked to cooperate. The propaganda of the movement states that the physical reserve of the nation cannot be rallied in a moment unless it has been upbuilt by years of habitual physical exercise of the kind that will keep the human engine in working condition. The object of the present movement is to supply this want by a simple program of exercise suitable for every man and every woman who has the will to undertake it.

Cooperation Between Army Officers and Red Cross.—The War Department has ordered full cooperation between army officers and the Red Cross. Officers have been ordered to inform troops of the presence of the Red Cross representatives and their willingness to help soldiers or their families. Red Cross representatives are authorized to be attached to each base hospital, to furnish emergency supplies, to communicate with the families of patients, and to render any other service for patients.

American Ambulances Again Honored.—The American Ambulance, its founders, and its work, have again been signally honored by the French government. Laurence V. Benet of Washington, one of the organizers of the ambulance, has been promoted from officer to commander of the Legion of Honor. Eugene A. Lachaise of New York, now second in command of the American sections, has been promoted from chevalier to officer of the Legion of Honor.

Navy to Care for Wounded.—As the result of an agreement reached by Secretaries Baker and Daniels, Admiral Benson, and Surgeon General Braisted, the care of sick and wounded soldiers aboard transports returning from France will be undertaken by the Navy Medical Corps, since the Navy already maintains a hospital service aboard such vessels.

Athletic Directors to Accompany Soldiers.—Athletic directors who have received army commissions will accompany the troops to France. The Commission on Training Camp Activities, in making this announcement, said that boxing instructors would not accompany the troops to the other side, as they are believed to be of greater service in the home camps.

Red Cross Farm in France.—A 500-acre farm near Tours, France, has been acquired by the American Red Cross, which is to be used for the education of crippled French soldiers. At the school the soldiers are to be taught how to use farm machinery. In speaking of the reeducation of maimed men, Maj. James H. Perkins of the Red Cross Commission in Europe stated that the professions which offer the greatest appeal to disabled men are industrial drafting and design, making surgical instruments, watch-making, etc.

Attempted Air Raid on American Hospital.—A despatch to the Associated Press, under date of February 16, states that an American field hospital in a town within our lines was apparently a target for German shells. Two sets of bombs were dropped, and although the hospital and the residents of the town were severely shaken up no damage was done.

Dr. Bertha Tallant, the Medical Director of the Smith College Hospital Unit in France, has just returned from the evacuated part of that country, where the unit is working. Dr. Tallant, in describing conditions of medical practice there, states that they are much the same as those in which a country doctor finds himself who has a practice within a thirty-mile radius.

Dr. William Palmer Lucas, chief of the Children's Division of the American Red Cross, together with several doctors and women workers, left Paris on February 16 for Marty, to study conditions in that locality preparatory to giving financial aid and other assistance.

Deaths in the Service.—Dr. FRANK HARRIS GARDNER of Montrose, Pa., First Lieutenant, M. R. C., U. S. A., died of pneumonia on February 23. He was on duty at the Government reservation in Hoboken, having been ordered there six weeks ago from Fort Oglethorpe, Ga. He was 28 years old, and was graduated from Jefferson Medical College in 1916.

Dr. DUDLEY W. QUEEN of Temple, Texas, a member of the Medical Corps, U. S. N., R. F., died two months ago in England of meningitis. He was on a torpedo boat operating against the submarines off the English coast. He was born in Williamson County, Texas, in 1886.

Dr. MILTON J. LICHTY of Cleveland, Ohio, Captain M. R. C., U. S. A., died on February 15 at Camp Taylor, Ky. He was born in 1869, and was a graduate of the Medical Department of the University of Pennsylvania in the class of 1895.

MEDICAL RECORD.

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POSTOPERATIVE PULMONARY COMPLICATIONS.

THE actual frequency with which postoperative pulmonary complications occur is not generally appreciated, and this for two reasons: first, because the majority of such cases are not reported; and, second, because the milder grades of postoperative affections of the lungs, bronchi, and pleuræ are often not even recognized. Two careful studies of postoperative pulmonic complications have recently appeared: one, by Cutler and Morton (*Surgery, Gynecology, and Obstetrics*, December, 1917), is based upon the records of 3,490 patients operated upon at the Massachusetts General Hospital from July, 1915, to July, 1916; the other, by Whipple (*Surgery, Gynecology, and Obstetrics*, January, 1918), is based upon the records of 3,719 patients operated upon at the Presbyterian Hospital of New York during the years 1915 and 1916.

In Cutler and Morton's series there were postoperative pulmonary complications in 65 cases, classified as follows: Lobar pneumonia, 19 cases; bronchopneumonia, 21; bronchitis, 7; pleurisy, 5; empyema, 2; mediastinitis, 3; pulmonary embolism, 6; pneumothorax, 2. The authors are sure that a number of cases of bronchitis or transient pleurisy escaped mention in the hospital records through not being sufficiently recorded in the postoperative notes. Each of the conditions noted in the above enumeration is discussed *in extenso*, not only with reference to their own cases, methods, and opinions, but also in the light of a review of the literature, with the incorporation of statistical tables.

Cutler and Morton think that the anesthesia *per se* has, as a rule, been unjustly blamed for the occurrence of postoperative pneumonia and that there are other factors of far greater importance. The figures presented from their clinic show that one in every 54 cases operated upon in the course of a year developed a postoperative lung condition, and that one in every 106 died; and the authors suggest that this should be a sufficient warning to make any surgeon consider thoroughly all the risks involved and what precautionary methods he might use in each and every case. In their opinion the predisposing factors are: (1) Poor general condi-

tion, *i.e.* age, anemia, alcoholism, arteriosclerosis, weak heart, or susceptible lungs. (2) Oral sepsis. (3) Preexisting lung disease—not only tuberculosis, but bronchitis, emphysema, or a recent pneumonia. (4) Anesthetic badly given. (5)* The presence of septic foci. (6) Too radical operations that open up pathways to the neighborhood of the lungs or to the lungs themselves. (7) Operations in the epigastrium in which there is danger of vascular or lymphatic extension. (8) Exposure to cooling fluids or to draughts (vasomotor disturbance). (9) Postoperative pain resulting in hypostasis from poor expansion. This list of the predisposing factors suggests the prophylactic measures.

Whipple's article deals with postoperative pneumonitis only, of which 97 cases occurred in 3,719 operations or 2.3 per cent. Like Cutler and Morton, he finds that the anesthetic itself has little to do with the incidence of this complication. Indeed, for the years 1915 and 1916 the relative percentage of cases in which pneumonitis developed after local anesthesia by novocaine was greater than when ether or gas-oxygen was used.

Whipple groups the predisposing factors under the following headings: Local inflammations in the upper respiratory tract and factors favoring them; vasomotor changes causing a congestion of the pulmonary vessels; factors inhibiting the normal thoracic and abdominal respiratory movements and favoring atelectasis and hypostasis in the lung; local or general infections elsewhere than in the respiratory tract; debilitated states resulting in a lowered natural or acquired immunity to the particular organism inciting pneumonia, and factors increasing the virulence of the inciting organisms. Regarding the immediate inciting cause, Whipple says that it is generally accepted that there is an inciting cause in the form of some microorganism in every case of fibrous or croupous pneumonia, and that this probably holds as true in the so-called postoperative pneumonia or surgical pneumonitis. Considerable space is given to the discussion of the four pneumococcus groups. The first three of these, he says, may be called parasitic inasmuch as they are not found in the normal throat; while the fourth, or heterogenous group, is saprophytic in the throats of normal individuals, and is found in perhaps 60 per cent. of throats. He thinks it justifiable to consider the Group IV pneumococcus, the inciting factor in the majority of postoperative pneumonias; while the fatal cases are usually due to pneumococci of the first three groups or are embolic pneumonias.

Among Whipple's conclusions are that postoperative pneumonitis is a far more frequent complication than is acknowledged or reported; that its incidence in surgical services varies largely with the care given to its detection, for many of these pneumonias are overlooked under the term "postoperative reaction"; that the pneumonitis caused by pneumococcus IV is, as a rule, an atypical pneumonia of short duration, resolving by lysis, and has

a lower mortality than the groups I, II, and III pneumonias or the pyogenic or septic types; and that the x-ray is a valuable aid in the early diagnosis of lung complication, for the lung shadow usually appears in the radiogram before frank signs of consolidation can be elicited.

It will be seen that there are a number of points of similarity in these two articles. The authors agree that the anesthetic itself has been given far more than its due share of prominence as an etiological factor; and that with the exercise of proper care many of the causative factors can be eliminated. Many cases of postoperative pneumonia occur each year through ill-advised or inopportune operating. In some instances the fault may lie with the operator; while in others it may be due to neglect on the part of the house surgeon to call the operator's attention to conditions that would contraindicate immediate operation except, of course, in cases of real emergency. The actual percentage in which severe postoperative pulmonic complications occur is fortunately small, and for that very reason surgeons and members of house staffs have not infrequently been led to disregard slight affections of the upper respiratory tract and to neglect easily taken precautions. This is especially apt to occur when postponement of operation would cause inconvenience.

DISEASES DUE TO DEFECTIVE ALIMENTATION.

In the widest significance of the term defective alimentation is responsible for the great epidemics such as follow in the wake of famine. Here belongs typhus fever. In the more restricted sense, with reference to deprivation of special classes of food, we have the triad pellagra, scorbutus, and beriberi. There are other more insidious affections affiliated in some way with insufficient nutriment—polyneuritis, hemeralopia, anemia, hemophilia, and last but not least tuberculosis. Certain hitherto unknown maladies—forms of edema, etc.—are believed to be due to the same causes, and in a general way lack of nourishment doubtless modifies many affections and even to some extent favorably. This we see in affections in which underfeeding is indicated and which do not here further concern us. Pellagra is the most widely diffused, most common, and at present the best known disease of defective alimentation, having in this respect displaced the medieval scorbutus, which persists in certain forms. But these affections, as well as beriberi, are too well known to require description.

In 1871 during the last weeks of the siege of Paris the mortality decupled from weakened resistance to disease. The people developed a special predisposition to acute infectious diseases, acute bronchitis, congestions, and hemorrhages—especially of the lungs and intestines. Pneumonias, which were common, suggested the secondary, complicating type, such as occurs sometimes in malaria; while the diarrheas were also changed in

type, resembling tropical forms and chronic dysentery.

These data are taken from an article by Plicque in the *Journal de médecine et de chirurgie pratiques* for November 10. A fact of interest in connection with polyneuritis is that this malady does not occur alone in beriberi, but to some degree in inanition and general denutrition. It sometimes precedes cachectic states. In neurasthenia there is also a food-deficiency factor as shown incidentally by the presence of emaciation. The singular prevalence of hemeralopia in the present war has been definitely traced to defective and insufficient regimen. Moreover, it is known to accompany scurvy and pellagra. It occurs in epidemic incidence in prisons, convents, etc., in times of penury and want.

There are definite psychoses due to food scarcity in association with psychic causes and alcoholism. These are akin to the subdelirium of starvation, and suicide is not uncommon. Such psychoses recall in a measure the psychic component and suicidal tendencies in beriberi. The relations of chloroanemia and tuberculosis to deficient nourishment are too well known to require discussion.

Along with deficiency diseases the underfed suffer from alimentary intoxications of various kinds due to unhygienic foods. Substitutes often disagree with digestion; saccharin, for instance, causes gastralgia, anorexia, nausea, and diarrhea; it suggests that while in the mood one might seek to replace diet sugar with sugar of lead because this salt happens to be sweet. The various additions to bread grains in bread making, to say nothing of adulterations and complete substitutes, have in the past been responsible for ergotism and lathyrism, and some of the warm breads have caused much digestive disturbance.

GRADUATION THESES OF PROMINENT MEDICAL MEN.

A RESEARCH into the subject of the inaugural dissertations and graduation theses of great physicians and surgeons of the various enlightened nations brings out the somewhat curious fact that in at least one-half of the cases the men could have had not the slightest inkling of their approaching spheres of professional activity. In certain classes of practitioner, notably laboratory men and alienists, the career was usually foreshadowed by the thesis. The student of the former class commonly entered the laboratory as an assistant to his professor and wrote his thesis at the latter's suggestion and under his guidance; often enough he remained in the laboratory, was promoted to chief assistant and ultimately through the death or transfer of his superior became professor. This seems to have been the lot of the anatomist, physiologist, medical chemist, and pathologist. It is not so apparent why the same custom should obtain among alienists, but to go no further, Esquirol, Moreau, S. Pinel, Bailarger, Billod, and Magnan, all well known later as alienists, wrote theses on insanity or brain disease.

Among the great clinicians, surgeons, internists, and specialists, such a sequence seems to have been the exception. It is true that Brehmer wrote on the laws of consumption, and Unna on the development of the skin; that Bilharz, while a student, wrote on blood parasites, and Lepine, while an undergraduate, wrote on the animal sugar ferment. Israel, the famous renal surgeon, wrote on nephritis, but his subject was medical nephritis. Brand did not write on typhoid fever or analogous theme, but on pyloric stenosis. The thesis of Brieger on gangrene of the lungs was not so remote as a subject from that of ptomaines. Bouchard, so well known later for his work on autointoxication, took apoplexy for his subject.

But the great syphilographer Fournier wrote a very unpretentious thesis on uremia before chance made him Ricord's assistant. The equally illustrious Neisser wrote on echinococcus disease and enlarged his thesis into a classic. Behrend, who became distinguished as a dermatologist and syphilographer and edited the earliest periodical devoted to these subjects, wrote his thesis on the vision of the mole. Hoffa, the orthopedist, wrote on lead poisoning, and Bardenhauer, the surgeon, on premature birth. Cavazzini, an Italian surgeon, took for his subject locomotor ataxia. Loeffler did not write on diphtheria or kindred subject, but on bloodletting. Ziemssen, who later edited a system of medicine, had for his maiden effort hospital gangrene, and Madelung wrote on tartar emetic in psychoses. Jourdan, who became highly eminent as a pharmacist, wrote on pellagra. Haslund, the Danish dermatologist, wrote on rhinoscopy, and Koebner, also a dermatologist, on cane sugar digestion. Schultze, of obstetrical renown, wrote on pathological fat formation. Hardy, distinguished internist and dermatologist, took the commonplace of cautery of the cervix. Even the great Virchow found no better subject than "Rheuma, Especially of the Cornea." The equally great Boerhaave foreshadowed his future in a fine dissertation on the "Utility of Exploring the Secretions" for the purpose of diagnosis, while Rush was happy in his choice as a subject of stomach digestion. Haller wrote appropriately of the newly described Coschwitz's duct and Jaeger of cataract. Mesmer chose astrology as his theme, and Kaltschmidt, who became a famous operator on cancer, wrote his thesis on "Cancer, Especially of the Breast." On the whole, however, our proposition will be found to hold good that at least the half of our leaders in medicine had no insight into the nature of their future spheres of action.

ALLEGED CURABILITY OF OZENA.

DESPITE the work of the bacteriologists and the evidence that at least the odor of ozena is the product of a specific type of bacteria; despite the generally accepted teaching that ozena can be controlled but never cured, Duverger (*Revue de laryngologie, d'otologie, etc.*, January 10) denies both propositions when he asserts that the disease is neither

microbic in origin nor incurable—in fact, he claims that it is readily cured and is, as diseases go, rather more amenable to treatment than most others. The author insists that ozena represents a local manifestation of constitutional inferiority. The insufficiency of the mucosa leads to its atrophy, and the bony structures as a consequence themselves become atrophic. The physiological stimulant of the mucosa, or rather of its secreting crypts, is air; and in a subject under 30 years nasal respiration will, when systematically and persistently carried out, effect a cure. The crusts must be removed, but never by lavage; atomization with the mineral oils and a little massage are sufficient for the purpose. The patient must breathe through his nose during his sleep, and as he cannot do this voluntarily some retentive apparatus suggests itself. The general health must be built up and subjects who can live out of doors do better than the sedentary. The author's success in the treatment of ozena is possibly due largely to the fact that he practises in Cairo, in a climate in which certain chronic ailments greatly benefit—tuberculosis and nephritis, for example. The extreme dryness of the air should increase the tendency to the formation of crusts, and the author warns against all procedures which tend to stimulate the production of nasal secretions. He states that the Arabs are remarkably free from ozena, although he naturally scouts the idea that this is due to their dislike of the dog, claimed by Perez to be a carrier of the ozena bacillus.

ASSOCIATION OF ADENOID VEGETATIONS WITH PHIMOSIS.

A COINCIDENCE not fully appreciated is the frequent association of these two affections which appears to be somewhat baffling to certain writers, for while phimosis is a congenital malformation, adenoids is generally regarded as an acquired condition although possibly itself due in part to a congenital narrowing of the nasal chambers. Either condition seems able to cause urinary incontinence. Recently Lasalle wrote an article on this subject, which is abstracted in the *Journal de médecine et de chirurgie pratiques* for December 10. Within a brief interval he was summoned to treat cases of urinary incontinence in three small boys. In each patient he found both phimosis and adenoids. In two both operations—circumcision and adenoidectomy—were at once performed and incontinence immediately ceased. In the third only circumcision was performed and the incontinence continued unchecked. The French author, not himself a rhinologist, appears to regard adenoids as inevitably a primary manifestation of disease; but certain others regard it as, in part, secondary to congenital insufficiency of the nasal passages. It seems at present impossible to connect a condition like phimosis embryologically with defective osseous development of the bones of the nasal chambers, and the physiological association between the nasal mucosa and sexual apparatus does not assist us here. That two such very common conditions should occasionally, or even frequently, coexist ought not, however, to be surprising, and it is possible, or even probable, that the only relation between the two conditions is one of coincidence.

A SIGN OF BEGINNING INSUFFICIENCY OF THE CIRCULATION.

A TRUSTWORTHY token of the mildest degree of circulatory failure has long been the quest of the internist, and the number of induced tests described rather goes to show that spontaneous evidences are still far to seek. Galli, in a short article published in *Il Policlinico*, for January 13, refers first to Krehl's minimal edema which appears in the feet if the patient is up and about and over the sacrum if he is in bed. The author thinks the precordium the best region to test from this viewpoint. Even the persistent mark made by the stethoscope in listening for the heart sounds may indicate an edematous condition of the skin due to circulatory insufficiency. If now the ring of the stethoscope be pressed over the tibia or malleoli no such persistent imprint appears, and this is true of the rest of the surface. The presence of a trace of edema over the heart cannot, of course, depend in any way upon the force of gravity but upon uncomplicated stasis of purely mechanical, *vis a tergo* type. Absence of contracting muscle over the sternum and precordium in general is believed to be an important factor, and the respiratory rhythm, with the continuous alternation of intrathoracic pressure, is another factor to be considered, both favoring the lymph stasis, which gives rise to the edema. The principal drawback to the test is that it does not bear alone on cardiopathies, but may be positive in any condition of general debility, in which, naturally, circulatory force must suffer.

News of the Week.

Pneumonic Plague Menaces North China.—According to advices received by the American Board of Commissioners for Foreign Missions from staff members in north China, the plague has broken out in its pneumonic form in Shansi Province, China, and has assumed such proportions that all north China is seriously threatened.

America Outdoing Germany in Chemical Products.—In a report recently made public by Professor D. D. Jackson of Columbia University the statement is made that with proper legislation this country can compete with any other nation, including Germany, in the manufacture of chemicals, whether for purposes of war or peace. The war has given a great impetus to the manufacture in this country of photographic developers, lenses, pharmaceuticals, synthetic perfumes, flavoring extracts, saccharine, and many other products. We are now able to make our own laboratory glassware of a quality superior to that of Germany or Austria. Our plants are now producing phenol in large quantities, while before the war every pound of synthetic phenol came from Europe.

A Waste of Food That Should Be Prevented.—A recent bulletin of the New York City Department of Health calls attention to its work of protecting the consumer in this city against spoiled or otherwise unwholesome food by condemning large quantities of food each week. Much of this condemned food could by prompt and proper handling be salvaged. At times considerable portions of condemned foods are still fit to be used as food, but under

present mercantile arrangements it does not pay to pick it over and salvage it. During January alone considerably over \$500,000 worth of food was condemned and destroyed. There is a crying need for some plan whereby such food could be picked over promptly, cooked and dried under administrative control, thereby converting some of it into wholesome human food, and practically all the rest into food for animals.

New York Renews Fight Against Jersey Factory Fumes.—The Board of Estimate of New York City, on February 21, instructed the corporation counsel and the health commissioner to intervene in the fight the West End Association is making before the State Board of Health to put a stop to the nuisance caused by the acid and gas fumes from chemical works along the Jersey shore. The offending chemical companies are to appear before the State Board of Health in summary proceedings on March 2 to show cause why their charters in this State should not be revoked. This action is taken under the recent act of the Legislature which permits the State Board of Health to revoke the New York State charter of a corporation whose plant, located outside of the State, constitutes a nuisance to residents of New York State.

Health Board Extends New Plan.—Hereafter in the boroughs of the Bronx and Queens the responsibility for most of the administrative work of the Health Department will rest with the assistant sanitary superintendent. Dr. Arthur J. O'Leary has been appointed assistant sanitary superintendent to the Bronx, and Dr. John Barry will continue to hold that office in Queens. These changes are made in accordance with the policy of bringing the department close to the people, practically giving each borough autonomy in all local matters.

Deaths from Pneumonia Decrease in New York.—The report given out by the Health Department for the week ending February 23 is more encouraging as regards the pneumonia situation. For the week ending February 23, 1,570 deaths occurred from all causes, and 312 of these were from pneumonia; for the week ending February 16 there were 1,738 deaths, of which 373 were from pneumonia.

Doctors Held for Selling Narcotics.—As the result of information obtained by a surgeon in the United States Navy from a sailor who had been obtaining drugs, four doctors were arrested and arraigned before United States Commissioner Hitchcock. The names of these doctors are A. A. Robert Bankowsky, Ira E. Booth, John L. Corish, and M. A. Di Preta. The name of only the first of these is in the Medical Directory of the State of New York, so it is probable that the others are not licensed practitioners of medicine.

The "Archives Médicales Belges" is just entering upon the second year of its resuscitation under the editorial supervision of the Belgian army surgeons. The revival of this excellent journal in the midst of the labor and fatigue of the war bears witness to the indomitable spirit of this brave and sorely afflicted nation.

Birth Control Case Again Appealed.—Mrs. Margaret Sangster, who was convicted in the lower courts of violating the section of the penal code prohibiting the dissemination of birth-control information and paraphernalia, and who then carried

her case to the Supreme Court of New York State, and again lost, has now appealed to the Supreme Court of the United States.

Value of Antenatal Work.—A recent publication of the New York City Health Department gives detailed statistics covering three years of antenatal work in a section of the city selected for the purpose of demonstrating the effect of this kind of public health work. There were in this district in 1914, after the inauguration of antenatal work, 869 living births, with 17 deaths during the first month of life, or a rate of 19.5 per 1,000 living births, as compared with the rate for the city as a whole of 36.6. In this district, in 1917, there were 1501 living infants, among whom there were 22 deaths during the first month, or a death rate of 14.6 as compared with the city rate per 1,000 living births of 35.3. It is believed that these figures bespeak the value of antenatal work and make an extension of this activity most desirable.

A Lecture on Health Conditions in France.—A meeting will be held at the New York Academy of Medicine on March 13, 1918, at 8.15 P. M., under the auspices of the Public Health Committee. The lecture, illustrated by lantern slides, will be on "Health Conditions in France and America's Effort to Aid Them," and will be given by Dr. James Alex Miller, recently returned from France.

Dr. J. W. Reed of Ocean View, Va., has been elected health officer of Norfolk County, Va., and **Dr. George M. Converse** of the Public Health Service has been appointed director of health affairs for the county.

Dr. George Gray Ward, Jr., Professor of Gynecology at Cornell University Medical College, has been appointed chief surgeon and surgical director of the Woman's Hospital, New York, to succeed **Dr. Clement Cleveland**, who has resigned.

Surgeon General Sir Alfred Keogh has retired from the British army to resume his work as general executive officer of the Imperial College of Science and Technology. He will be replaced by **Colonel Goodwin**.

Gifts and Bequests.—Announcement was made on February 22, Alumni Day at Yale, that the Carnegie Corporation has made a gift of \$250,000 to the Yale Medical School and one of \$25,000 to the Yale Mobile Hospital Unit.

The New Hampshire Memorial Hospital at Concord, N. H., has opened a new children's ward, which is the gift of **Dr. and Mrs. Charles P. Bancroft**, in memory of a deceased infant son.

St. Rose's Home for Cancer and the **Molly Fancher Memorial for Cripples** have each received \$1,000 by the will of **Florence Starr**.

Medical Society Elections.—THE FORREST COUNTY (MISS.) MEDICAL SOCIETY, at its meeting in Hattiesburg, Miss., on February 9, elected the following officers: *President*, **Dr. Leo H. Martin** of Hattiesburg; *Vice-President*, **Dr. J. J. Bethea** of Hattiesburg; *Secretary-Treasurer*, **Dr. May F. Jones** of Hattiesburg.

THE CABBARUS COUNTY (N. H.) MEDICAL SOCIETY, at its meeting in Concord, N. H., on February 8, elected the following officers: *President*, **Dr. S. W. Rankin**; *Vice-President*, **Dr. W. E. Pemberton**; *Secretary-Treasurer*, **Dr. J. A. Patterson**, all of Concord, N. H.

Free Clinical Instruction in Contagious Diseases.—The second course of instruction in contagious diseases, conducted at the Kingston Avenue Hospital, Brooklyn, under the direction of the New York City Department of Health, will begin on March 5, at 3 P. M. The course will last two weeks, and will consist of eight lessons, six devoted to clinical bedside instruction, one to a demonstration of intubation, and one to practical laboratory work. The clinical instruction is given under the direction of **Drs. Ager, Spingarn, and Ratnoff**. Laboratory instruction is given under the direction of **Dr. William H. Park**. No fees are charged.

All Horses to Be Tested for Glanders Infection.—The Board of Health, in order to deal more efficiently with the problem of eradicating glanders infection among the horses in New York City, has added the following section to the Sanitary Code: "No horse shall be brought into or kept in the city of New York unless it shall have been tested and found to be free from glanders by a duly licensed veterinarian, in accordance with the regulations of the Board of Health."

Obituary Notes.—The Rev. **Dr. GEORGE S. BAKER**, for twenty-three years pastor and superintendent of St. Luke's Hospital, New York, died last week at his home in this city. He was born in Medford, Mass., in 1838, and was appointed superintendent at St. Luke's, succeeding the founder of the hospital, **Dr. Muhlenberg**, in 1877.

Dr. ANTRANIG AYVAZIAN of New York city died of lobar pneumonia in the Polyclinic Hospital, on February 15, aged 67 years. He was graduated from New York University, medical department, in 1886, and was for many years a medical inspector with the Board of Health.

Dr. R. L. PAYNE, SR., of Norfolk, Va., died suddenly of heart disease at Durham, N. C., on February 8, aged 61 years. He was graduated from Jefferson Medical College, Philadelphia, in 1881, was a Fellow of the American College of Surgeons, president of the medical staff of St. Vincent's Hospital, chief surgeon of the Norfolk Southern Railway and the Chesapeake and Clyde Steamship companies, medical director of the Jamestown Exposition, and ex-president of the Norfolk Medical Society.

Dr. BENJAMIN R. SWAN, of San Francisco, died at the Adler Sanitarium of pneumonia, on January 27, aged 81 years. **Dr. Swan** was a graduate from the College of Physicians and Surgeons, New York, in 1868. He was a Civil War veteran, Coroner of San Francisco for a term, and in 1875 became professor in the medical department of the University of California, where he taught until his resignation in 1890.

Dr. STEPHEN W. GERARD, a retired physician of St. Joseph, Mo., died at a hospital in that city, on January 31, aged 84 years.

Dr. GEORGE B. LAWRASON of Shreveport, La., died at the Touro Infirmary, on February 3, aged 63 years. He was graduated from the Medical Department of Tulane University in 1883. He was an army surgeon in the Spanish-American War, and later served in the Philippines, where he had the rank of major conferred upon him.

Dr. JAMES WILLIAMSON, a graduate of Vanderbilt University Medical Department, Nashville,

Tenn., in 1905, died of tuberculosis on February 4, aged 38 years.

Dr. WILLIAM NELSON MEBANE died of pneumonia at his home in Hillsboro, N. C., on February 5, aged 38 years. He was graduated from the George Washington University, Washington, D. C., in 1906.

Dr. H. A. SMITH of Waterville, Wash., a graduate of Lincoln Memorial University Medical Department, Knoxville, Tenn., in 1892, died on February 2, aged 50 years. He formerly resided in Knoxville, Tenn.

Dr. ALBERTUS JOSEPH, a graduate of the State University of Iowa Medical Department, in 1900, and for many years connected with that institution as an instructor in surgery, died at his home in Iowa City on February 4, aged 48 years.

Dr. CHARLES DEXTER SAWIN, a graduate of Harvard Medical School, in 1882, died suddenly at his home in Somerville, Mass., on February 8, aged 65 years.

Dr. EDWARD A. HENNESSEE of Morgantown, N. C., a graduate of the Chattanooga Medical College, in 1900, died suddenly on January 29, aged 45 years.

Dr. M. S. SILVA, a graduate of the California Medical College, in 1901, died at his home in Sacramento on January 20, aged 55 years.

Dr. EDWARD P. ANSHUTZ, retired from active practice, died at his home in Philadelphia on January 31, aged 46 years. At the time of his death he was editor of the *Medical Recorder* and the *Homeopathic Envoy*.

Dr. EDWARD B. HAMPTON of Elkin, N. C., a practitioner of medicine for nearly seventy years, died on February 1, at the age of 93 years.

Dr. ELI PERCIVAL FLINT, a graduate of Yale University Medical Department, in 1879, died of pneumonia at his home in Rockville, Conn., on January 31, aged 69 years.

Dr. EUGENE CHASE PECK of South Boston, a graduate of the University of Vermont College of Medicine, in 1869, died at the Massachusetts Homeopathic Hospital, February 3, aged 77 years.

Dr. GEORGE F. RODIER, a graduate of Laval University Medical Department, in 1899, died of Bright's disease at his home in Natick, R. I., January 27, aged 48 years.

Dr. FRANK E. WHITNEY, a graduate of New York University Medical School, in 1881, died of uremia at his home in Rochester, N. H., on January 24, aged 65 years.

Dr. EDWARD DYER ELLIS, a graduate of Harvard University Medical School, in 1877, died of heart disease at his home in Poultney, Vt., on January 24, aged 68 years.

Dr. ALFRED L. S. MORAND, a former acting assistant surgeon of the United States Army, and for many years a practising physician of South Boston, Mass., died at his home in that city on January 30, aged 80 years.

Dr. CARROLL G. ZERRETT of Norfolk, Va., died suddenly in that city on February 7, at the age of 50 years. Dr. Zerrett formerly practised medicine in Boston.

Dr. JULIAN H. EVANS, a graduate of Vanderbilt University Medical Department in 1887, died following an attack of acute indigestion at his home in Sandersville, Ga., on January 23, aged 51 years.

Dr. M. S. SILVA, a graduate of the California

Medical College, San Francisco, in 1901, died at his home in Sacramento, Cal., on January 20.

Dr. ELISHA B. MOORE, a graduate of the University of Nashville Medical Department in 1868, died at his home near Ripley, Ala., on January 17, aged 82 years.

Dr. O. A. ODELL of Hall's Cross Roads, Tenn., a practising physician for sixty-four years, died after a brief illness, on January 20, aged 83 years.

Dr. O. BEN STROUD of Ore Hill, N. C., died after a brief illness in a local hospital, at the age of 68 years.

Dr. JECHIEL TCHLENOV, a leading physician of Moscow, Russia, died on February 3, at the age of 58 years. He gave up a lucrative medical practice in order to devote his time to the Zionist movement.

Dr. CHARLES C. HAWKINS, a graduate of the medical department of Tulane University in 1876, died after a long illness at his home in Waco, Tex., on January 24, aged 62 years.

Dr. IVAN E. BELLINGER of Sweet Home, Ore., died of pneumonia at Fort Riley, Kan., on January 17. Dr. Bellinger was a graduate of Willamette University Medical Department in 1913 and a lieutenant in the Medical Reserve Corps.

Dr. GEORGE H. LATHROP, a graduate of Bellevue Hospital Medical College in 1875, died at his home in Livingston Manor, N. Y., on February 15, aged 68 years.

Dr. JOHN A. O'BRIEN of New York City, a graduate of the Galveston, Tex., Medical College in 1875, died at his home on February 18.

Dr. HORATIO F. COPELAND, a graduate of Harvard Medical College, in 1865, died, following a stroke of apoplexy, at his home in Whitman, Mass., on February 8, aged 76 years.

Dr. ROBERT F. STRATTON died of heart disease at his home in St. Joseph, Mich., on February 7. He was graduated from the Harvard Medical School in 1853, and served as an army surgeon during the Civil War, with the rank of major. He was for many years a pension examiner.

Dr. D. B. MORROW, a graduate of the Pulte Homeopathic Medical College, Ohio, and an ex-president of the Homeopathic State Medical Society, died at his home in Dallas, Tex., on February 8, aged 79 years.

Dr. HARRY MADISON CUTTS of Brookline, Mass., died on February 22, aged 60 years. He was a graduate of Harvard Medical School in 1883, medical examiner of Norfolk County, Mass., for more than twenty years, and for many years superintendent of the Garfield Memorial Hospital Washington, D. C.

Dr. A. G. HAGADORN, a graduate of the University of Michigan, in 1871, and a practising physician of Lansing, Mich., died at his winter home in St. Cloud, Fla., on February 11, aged 75 years.

Dr. ALEXANDER CAMERON BROWN, a graduate of the Hospital College of Medicine of the Central University of Louisville, Ky., died of pneumonia, at his home in Lexington, Ky., on February 6, aged 30 years.

Dr. TALIOS K. SERIJANIAN, a graduate of the College of Physicians and Surgeons, Boston, in 1890, died in Lawrence, Mass., on February 7, aged 53 years. He was a resident of Worcester, Mass., for a number of years before removing to Lawrence.

Dr. CHARLES M. FRISSELL of Wheeling, W. Va., a graduate of the College of Physicians and Surgeons, New York, in 1882, and founder of the Hospital Training School for Nurses in Wheeling, W. Va., died on February 12, aged 58 years.

Dr. OSCAR G. McMULLAN of Elizabeth City, Va., a graduate of the Medical Department of the University of Virginia, in 1880, died of pneumonia on February 13, aged 61 years.

Dr. AMBROSE J. GALLISON, a graduate of the Medical Department of Dartmouth College, in 1837, died of angina pectoris at his home in Franklin, Mass., on February 13, aged 62 years.

Dr. ALBERT HOMER BURKET, for forty-three years a practitioner of medicine, died at his home in McKees Rocks on February 12, aged 71 years.

Dr. CHARLES R. GOUGH, a graduate of the Marquette University, Milwaukee, died at his home in Wausau, Wis., on February 12, aged 31 years.

Correspondence.

MEDICAL RESERVE STATISTICS OF NEW YORK STATE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Believing it will be of interest to all the physicians of New York, I am enclosing a schedule of the various counties of New York State, arranged on a basis of the percentage of their total physicians already recommended for commission in the Medical Reserve Corps. It should be noted that two counties, Hamilton and Putnam, are so situated as regards the geographic distribution of their medical and general population that actually no physicians can be spared. All are needed by the local communities. The fact that they have furnished no applicant for commission must not therefore be counted against them. On the other hand, large population centers like Brooklyn, Buffalo, Rochester, Syracuse, and Utica have, in general, an excess of medical talent and might properly have been ex-

pected to furnish a percentage nearer to that of Albany, New York, and Troy.

F. T. VAN BEUREN, JR., M.D.
Executive Secretary, Council of National Defense, New York State Committee, Medical Section.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

February 14, 1918.

1. Suggestions on the Care of Mental Cases. Frederick H. Packard.
 2. Relation of Industrial Surgeon to Industry and to Society. John F. Curran.
 3. Organized Provision for the Care of the Sick in Massachusetts. G. E. Whitehill.
 4. Gastroduodenal Perforation: A New Diagnostic Sign. Martin T. Field.
 5. Severance of the Chorda Tympani Nerve. Irving Sobotky.
4. Gastroduodenal Perforation: A New Diagnostic Sign.—Martin T. Field says that the diagnosis of perforation of the stomach and duodenum must many times remain in doubt unless aided by some distinctive and reliable sign, independent of parietal peritoneal irritation and tension. In every case of perforation, gas and fluid are present in varying amounts in the free peritoneal cavity. The gas may pass between the liver and diaphragm, as shown by the x-ray, and cause obliteration of liver dullness. Much dependence cannot be placed on liver percussion as ordinarily practised, because of the very great variations, both in health and disease. Change of patient's position will cause the fluid to flow to the dependent part, and the air to rise to the top. *This will intensify the findings; tympany over a wide liver area and again flatness over the same area on change of position.* Normally there is a change in the liver percussion note on change of posture. This was noted in a large number of normal cases examined, but in none of these were the results similar to those found in the cases reported. Normal liver changes must be recognized before positive deductions are made. A fair comparison is the difference detected in shifting flank dullness in moderate ascites and in the normal abdomen. The writer believes that this sign is of considerable value, and should be sought for in every case. If absent, in the presence of other positive signs of perforation, it may be disregarded, but if present in doubtful cases, it may be the deciding diagnostic factor.

New York Medical Journal.

February 16, 1918.

1. The Relation of the War to the Nourishment of Children. S. Josephine Baker.
 2. The Cure of Heart Disease in America as Replacing the Heart Cures in Europe. Louis Faugères Bishop.
 3. Tuberculosis and X-ray Plates. Mary E. Lapham.
 4. Epilepsy. Frank R. Starkey.
 5. Control of Communicable Diseases in the City of New York. S. Dana Hubbard.
 6. Practical Points Concerning Diphtheria. D. M. Lewis.
 7. Exanthematous and Other Forms of Influenza. Bernard Frankel.
2. The Cure of Heart Disease in America as Replacing the Heart Cures in Europe.—Louis Faugères Bishop defines and describes the course of treatment for diseases of the heart as formerly conducted at special European resorts and then considers what there is in this country to take its place. The benefit received was not only from the baths but depended largely upon other factors, such as the dropping of business cares, the enforced rest to body and mind during the voyage, the distraction of a week or two in London and Paris, the growth of faith inspired by the belief of the "Kur" doctor in the efficacy of his treatment, and finally the quiet aftertreatment in Switzerland or elsewhere. An essential feature is change of environment which can be obtained here by going to some other city—the New York business man, for example, should seek the restful atmosphere of Philadelphia. The patient should agree to give up five or six weeks to the course of treatment, but even then it is difficult to imitate the spirit of re-

County	Percentage	Recom. for Commission to Feb. 1	Quota	County	Percentage	Recom. for Commission to Feb. 1	Quota
Albany	23.9	71	45	Ontario	13.9	13	14
Tompkins	23.5	21	14	Allegany	13.7	8	9
Yates	23.3	7	5	Tioga	13.0	6	7
Madison	21.3	12	8	Erie	12.6	110	130
New York				Lewis	11.9	3	4
Bronx	21.0	1315	927	Livingston	11.9	8	10
Richmond				Schuyler	11.6	3	4
Rensselaer	20.6	36	27	Montgomery	11.3	7	9
Saratoga	20.5	19	13	Essex	11.3	5	7
Westchester	20.4	84	62	Nassau	11.2	14	19
Dutchess	20.0	27	21	Steuben	10.9	13	18
Schenectady	19.8	24	19	Washington	10.7	6	8
Clinton	19.6	10	8	Cayuga	10.5	11	16
Seneca	19.5	9	7	Orleans	10.0	4	6
Cattaraugus	19.2	16	12	Fulton	10.0	6	9
Wayne	18.1	12	10	Ulster	9.7	9	11
Wyoming	17.7	8	7	Broome	9.7	14	22
Genesee	16.6	7	6	Queens	9.5	30	42
Chautauqua	16.4	22	20	Orange	9.2	16	27
Rockland	15.6	8	8	Otsego	9.0	7	12
Chenango	15.2	9	9	Oswego	8.4	7	13
Herkimer	15.0	11	11	Franklin	8.0	5	9
Columbia	15.0	9	9	Chemung	7.8	7	13
Jefferson	15.0	18	18	St. Lawrence	7.6	9	18
Schoharie	15.0	5	5	Sullivan	7.3	3	6
Oneida	15.0	36	36	Cortland	6.4	3	7
Niagara	15.0	19	19	Delaware	6.0	3	8
Kings	14.9	330	332	Greene	3.3	1	5
Monroe	14.2	68	72	Hamilton	0.0	0	1
Suffolk	14.1	22	24	Putnam	0.0	0	2
Warren	14.1	8	9	N. Y. State	16.9	2655	2350
Onondaga	14.0	52	56				

laxation which pervaded the European resort and to get the mental uplift that comes from a crowd of people all taking the treatment in a hopeful spirit. There is need in this country of some resort that will be specially for heart patients, including those with high blood pressure conditions. Many resorts have started in this direction, but each time they have been dissatisfied with the limitation of their work and have spread out to cover every known ailment and have consequently failed in the proper development of their heart cure. For those who cannot leave home, a careful physician can substitute a fairly good cure, provided he has sufficient control of the sufferer. He can gain the consent of his patient to a course of treatment covering three to six weeks. He can make his thorough examination with the x-ray, the electrocardiograph, the polygraph, and the sphygmomanometer. He can have a Wassermann reaction, a urinalysis, a blood count, and such other observations as his condition suggests, as well as is done in a foreign cure resort. He can reduce his drugs to the actual need of the person. He can institute hydrotherapeutics, graduated exercises, and other measures as may be needed. He can perhaps persuade his patient to give up some of his worrisome business affairs and then send him to some quiet and distant place for an aftercure. But, after all, what is really more needed for the cure of heart disease in America as replacing the heart cures of Europe, is a keen realization of the problem rather than the discovery of a particular resort.

Journal of the American Medical Association.

February 16, 1918.

1. An Experimental Investigation of Lipovaccines: A Preliminary Note. E. R. Whitmore, E. A. Fennel, and W. F. Petersen.
2. Type Determination of Pneumococcus Infection as Practised in the Field with Avery's New Cultural Method. Warren T. Vaughan.
3. Personality in Paresis. Michael Osnato.
4. Bilharziasis in South Africa. F. G. Cawston.
5. Recurrence of Urinary Obstruction After Prostatectomy. F. M. Denslow.
6. Condyloma of the Bladder: Report of Case. Robert H. Baker.
7. Primitive Surgery of the Western Hemisphere. Leonard Freeman.
8. Obstructive Sterility in the Male: Treatment of Direct Vaso-Epididymostomy. V. D. Lespinasse.

1. An Experimental Investigation of Lipovaccines: a Preliminary Note.—E. R. Whitmore, E. A. Fennel and W. F. Petersen refer to the advances made in both medicine and surgery since the advent of the war, especially do they call attention to the preparation of vaccines, of which lipovaccines are a brilliant example. Their investigations have been carried out from the Department of Pathology, Army Medical School, and they have found that among the advantages derived from the use of oil vaccines may be considered: (a) the diminution of both the local and the systemic reaction; (b) the feasibility of giving sufficient vaccine at a single injection properly to immunize the individual; (c) the persistence in the individual of a focus from which the immunization proceeds over a period of several months with a resulting lengthening of the period of immunity; (d) the actual detoxicating effects of certain lipoids that can be incorporated in the vaccine, and (e) the prevention of autolysis and deterioration of the vaccine. The vaccine used in the Army for prophylaxis against typhoid and paratyphoid fevers contains 1,000 million typhoid and 750 million each of paratyphoid A and B per cubic centimeter, given in three doses, the first of 0.5 c.c., the second and third of 1 c.c. each, the total number of organisms used being, therefore, 6,250 million. This method of immunization, as introduced by Colonel Russell, gives practically complete protection for a period of several years. When a dose of 7,500 million organisms is prepared as a lipovaccine, either in olive oil or oil of sweet almonds, it can be given with less local reaction than that which follows a single dose of the aqueous vaccine, and an almost entire absence of constitutional effects. The possibility of giving the entire immunizing dose at one time is, for military purposes, an advantage in relieving the medical service from a not inconsiderable routine of injections and record work as well. With a lipovaccine, absorbing over a long period of time, the immunity might be conceivably prolonged. Lipovaccines make it possible to take

advantage of the distant detoxicating effects of certain lipid combinations, and in this way lessen the reaction, quite apart from the delayed absorption. Also from a technical point of view the autolysis of the organisms is largely prevented and the deterioration of the vaccine reduced. They have prepared a series of vaccines including (a) typhoid-paratyphoid (A and B); (b) pneumococcus (types I, II and III); (c) meningococcus (types 1, 10, 30 and 60); (d) dysentery (Shiga, Flexner and Y). They state that the choice of oils used in the preparation is rather limited. The mineral oils were first tried by the French, but were discarded in favor of the vegetable oils, such as olive, sweet almond and poppy. The oils must be nonirritating, of slow absorbability, must not be too viscid for injection, should withstand complete sterilization with alteration, and must be available in the market in reasonable quantities. They consider that while they regard their work as purely preliminary, they have gained the impression that the lipovaccine offers a number of advantages over the aqueous preparation. The production of the vaccine is, of course, more laborious and expensive, and a number of technical problems remain to be studied in connection with it, together with detailed investigations of the comparative antigenic value. Apart from the typhoid-paratyphoid A and B preparation, the pneumococcus and meningococcus vaccines have been of interest to us because of the apparently ready response in agglutinins of both animals and man to a single injection. Whether such a response properly portrays the protective value of the vaccine is, of course, not to be determined in so short a period of time as has been available to us. Protection tests in animals vaccinated with the triple typhoid lipovaccine have indicated the development of a considerable degree of resistance, and similar experiments carried out in mice following pneumococcus vaccination gave some evidence of protection. The latter experiments, together with those under way with meningococcus vaccine, are, however, not sufficiently advanced to permit them to draw definite conclusions.

The Lancet.

February 2, 1918.

1. Two Addresses on War Psychoneurosis. (II) The Psychology of Soldiers' Dreams. F. W. Mott.
2. An Address on the Repression of War Experience. W. H. R. Rivers.
3. The Predisposing Factors of War Psychoneuroses. Julian M. Wolfsohn.
4. Observations Upon Prognosis, with Special Reference to the Condition Described as the "Irritable Heart of Soldiers." Thomas Lewis.

3. The Predisposing Factors of War Psychoneuroses.—Julian M. Wolfsohn finds that throughout the massive literature which has sprung up within the past three years one reads passing references mostly to the relation of the symptoms of war psychoneuroses to a previous neuro-potentially unsound soldier; most authors have elicited an inherited or acquired neuropathy in the majority of their patients afflicted with shell shock, neurasthenia, or any of the neuroses resulting from the strain of the war. But enough actual specific data on the inherited and acquired neurotic factors in these cases have not been published. Before drawing generalizations on this subject, one should try to answer some of the following pertinent questions: (1) Of what kind of forbears is the patient a representative? (2) What is the personal temperament of the patient? (3) What was his former calling, and how has he shouldered his responsibilities during active war service? (4) Do acquired war psychoneuroses occur, and what are the causes thereof? (5) What is the relation of the last "shock" to the production of the war neurosis? (6) Why do not all soldiers suffer from war neurosis? Before answering any of these questions one must examine all available data, up to the time of active service, and also the actual causes and circumstances exciting the outbreak of the neurosis, realizing that every individual's nervous system will react according to his inherited tendencies superimposed on the effects produced by environment. Therefore the object of this special work is to make an intensive study of the casual factors of war neurosis as presented by the family and the personal histories (up to the time of, and including the cause of, disablement) of 100 cases of war psycho-

neurosis—viz., shell shock, neurasthenia, hysteria, and exhaustion. Insane cases are not included in this paper. As a control 100 cases of somatic injuries produced in the firing-line—viz., enucleation of an eye, fracture of the skull, jaw, femur, amputations, and wounds, with or without sepsis, have been similarly studied. The exhaustive history in most of the cases was given by the patient himself. In some cases the help of the wife or mother was necessitated to get as much first-hand available data as possible. From this study of 100 cases of war psychoneuroses and 100 cases of somatic injuries produced in the firing line Wolfsohn finds he can draw the following conclusions: Cases of war neurosis are very rarely associated with external or somatic wounds. The vast majority of the psychoneurotic cases studied were among soldiers who had a neuropathic or psychopathic soil. In 14 per cent. of these cases a family history of neurotic or psychotic stigmata, including insanity, epilepsy, alcoholism and nervousness, was obtained, whilst a previous neuropathic constitution in the patient himself was present in 72 per cent. A gradual psychic shock from long-continued fear, together with the sudden change from quiet peaceful environment to the extraordinary stress and strain of trench fighting, is the chief predisposing cause of war psychoneurosis in soldiers with neuropathic predisposition. In fact, these factors may be the cause of the neurosis *per se*. The history of the individual previous to enlistment has an influence on the character and gravity of the symptoms of the neurosis. Acquired neuroses with their less severe symptoms appeared only after excessive fatigue, with the concussion from the high-explosive detonation acting as the exciting factor. On the other hand, in the same abnormal environment, and with the same powerful factors obtaining, wounded soldiers do not suffer from war neuroses except in rare instances. In the wounded soldiers studied no neuropathic or psychopathic stigmata occurred in the family history. Previous neuropathic tendencies were found in 10 per cent. of these patients (controls), all of which number presented mild neurasthenic symptoms. Hysteric manifestations, such as monoplegia in a wounded limb, are occasionally encountered in injured soldiers.

British Medical Journal.

January 26, 1918.

1. War Surgery of the Chest. A. L. Lockwood and J. A. Nixon.
 2. The Treatment of Septic Hemothorax and Empyema. J. Campbell.
 3. The Endotoxin of the Meningococcus. M. H. Gordon.
 4. Notes on Asthma. James Adam.
 5. A Survey of 1,064 Operations for the Complete Removal of Tonsils and Adenoids. Edward D. D. Davis.
 6. The Treatment of Amebic Dysentery with Emetine and Bismuth Iodine. A. C. Lambert.
5. A Survey of 1,064 Operations for the Complete Removal of Tonsils and Adenoids.—Edward D. D. Davis states that the consideration of the large number of operations performed for the removal of the faucial tonsils and adenoid growth, or hypertrophied pharyngeal tonsil, makes one pause to wonder whether all these operations are really necessary. It must be remembered that the tonsils, both faucial and pharyngeal, are normal structures present for some definite purpose in every child. When the tonsils and adenoid growths are septic, diseased, or hypertrophied, so that their presence produces definite and harmful symptoms, every one will agree that they should be efficiently removed, but the predisposing and exciting causes of infection and enlargement of these structures should be reviewed before deciding that operation is necessary. The experience gained by a close study of 1,064 cases, in addition to those seen during seven years in charge of a London County Council school clinic for affections of the nose, throat and ear, may throw some light on their etiology. The cases have been carefully examined before operation, they have been seen two or three hours after operation, again one week afterwards, and, finally, six months later. The strumous or scrofulous child, the child living in poor, dirty surroundings, present so often cases of enlarged tonsils and adenoids. Operations are usually successful when the hygienic surroundings admit of clean living. Otherwise failure in operation is courted. The results of operations in the carefully selected and well-marked cases are excellent; not only

are the symptoms relieved, but there is a great improvement in the general health and comfort, due to the fact that the child sleeps better, its appetite is increased, the hearing improves, the frequent and prolonged colds cease, the flat chest develops, and growth is more rapid. The removal of adenoids in the so-called idiopathic asthma of the nervous, wheezy child has no beneficial effect, and most of these children have no adenoid growth. Idiopathic asthma must not be confused with the intermittent suffocative attacks during sleep, which are due to adenoids, and are cured by the removal of the growth. A large number of children have attacks of earache and deafness during colds, with retraction of the drums, which frequently suppurate; and if such a case is allowed to continue without operation, the deafness or dulness of hearing becomes permanent, and is beyond cure. The affection of the ears makes operation imperative. In all cases of earache and deafness operated on the ears become normal, except in the older patients, in whom the damage has been done by the long duration of the inflammation. Cases of recent suppuration rapidly heal and the otorrhea ceases. The mouth breathing and frequent colds disappear if the patient is made to perform suitable exercises to expand the chest and to promote nasal breathing. No operation is complete unless followed by a course of breathing exercises and the teaching of children to blow their noses efficiently every morning. The parents are told that breathing exercises are as important as the operation, and should be carried out every day for at least six months, commencing a fortnight after operation. Occasionally a school child will have a temperature, of obscure origin, of 100° with a rise to 102° or more for some weeks following a so-called influenzal cold which on careful inquiry is seen to have been tonsillitis. There is slight tonsillitis with enlargement of the cervical tonsil lymphatic glands. The enucleation of the tonsils cures the fever, and the cervical glands slowly disappear. There are two types of enlargement of the upper deep cervical set of glands as the result of infection of the tonsils. The first is inflammatory, and accompanies most attacks of acute tonsillitis, and disappears with the tonsillitis. In repeated attacks of tonsillitis the enlargement, which is limited to the tonsil gland of the upper deep cervical group, becomes chronic, but gradually disappears after the removal of the tonsils. The second type of enlargement is tuberculous, is more marked, and there is extension to the other glands of the deep cervical group. If the case is early and the glands are not caseating, removal of the tonsils with suitable antituberculous treatment results in their disappearance, but the majority of hospital cases require removal of the glands in addition to the tonsils. Nocturnal enuresis has been stated to be due to adenoid growth and its accompanying suffocative attacks during sleep, but in Davis' experience true regular enuresis occurring every night is rarely, if ever, due to adenoids. Very few children with well-marked adenoid growth have this symptom, and he has seen a number of cases of enuresis with absolutely no adenoid growth. Moreover, the removal of the adenoids has not cured the enuresis. Whatever the function of the tonsil may be its structure and behavior are similar to that of a lymphatic gland, and it is reasonable to suppose that the remaining lymphatic tissue of the pharyngeal wall, the lingual tonsil, and cervical glands compensate and take on the function of the tonsils and tissue removed, but he has not seen hypertrophy of any of these structures after operation, not even the cervical glands. He has carefully examined a large number of children six months or more after operation, and has endeavored to follow up cases, and has not observed any deleterious effects or disadvantages following removal of tonsils and adenoids. He has not obtained any evidence to indicate that the removal of the tonsils predisposes these children to diphtheria, scarlet fever, or other acute infections, but has seen several cases of unhealthy spongy tonsils yielding cultures of the Klebs-Loeffler bacillus weeks after the quarantine period had elapsed. E. W. Goodall and J. D. Rolleston both state that in their experience there is no reason to think that children who have had tonsils and adenoids removed are more susceptible to scarlet fever or diphtheria. He has not seen and has no records of tuberculosis of the cervical lymphatic

glands appearing after removal of the tonsils. In conclusion, when a child has a specific set of injurious symptoms which can be definitely attributed to the tonsils and adenoid growth, nothing but benefit results from removal, but there is a need for careful examination and selection of operation cases. An attempt should be made to ascertain and eliminate the cause of the condition under observation before the question of operation is finally settled.

Berliner klinische Wochenschrift.

December 3, 1917.

Tuberculosis (Continued from previous issue).—E. Schloss develops the study of an epidemic of tuberculosis undertaken by him in an orphan asylum. He puts forward general considerations on the technique, the diagnostic and prognostic value of the cuti-reaction and that of tuberculine. His conclusions are somewhat guarded. Given the ignorance in which we now stand as far as the real genesis of the symptoms is concerned, it would be premature to assign to them a precise signification. The success in the way of cures from tuberculin, which result in the disappearance of the reaction, keeps one from looking upon it as an indication of organic defense. Cuti-reaction is rather more an indication of the defensive combat itself than of an organic capacity for the combat, since it may disappear when in the presence of clinical precision. Finally, Schloss does not even admit the current opinion that infantile tuberculosis is a sort of vaccination for adult life, because were it so the class of people in easy circumstances which is relatively free from infantile scrofulosis should furnish a greater contingent of tuberculosis in the adult, which is far from being the case.

The Present State of Our Knowledge in Respect to War and Traumatic Neuroses.—H. Oppenheim, in a long polemic, which is especially addressed to Naegeli, the rejector of the theory of traumatic neuroses, brings up to date his former opinions which he has rectified from the data collected from the present war. "The functional nervous disturbances resulting from emotion are more commonly transitory in nature; they may become fixed from desire, of claiming tort, and therefore results a resistance to cure. But inversely their duration should not allow one to attribute them to this mechanism." A great progress, the result of war experience, resides in the fact that suggestion and comminatory (Zwangsbehandlung) treatment bring about a rapid disappearance of the symptoms most evident. However, in the majority of cases this result does not correspond to a real cure and leaves the subject much inclined to relapses. The degree of incapacity for work is less considerable in commotional neuroses than Oppenheim and others had formerly supposed. Pensions and indemnities are, therefore, not to be allotted in: (1) Slight cases; (2) in "pension neurosis" (Reutenkampf-neurose) and (3) when there is reason to suppose that an obligation to work may result in recovery.

Münchener medizinische Wochenschrift.

December 4, 1917.

Treatment of Wound Erysipelas by Silver Nitrate.—Gaugele refers to a former article of his (*Deutsche medizinische Wochenschrift*, No. 15, 1917) and again insists on his treatment because of its continued encouraging results. The writer's procedure is as follows: At the distance of about a hand's breadth from the red area he marks with a silver nitrate stick a circular line around the limb involved. The stick is first moistened and is then applied with considerable pressure on the surface so as to provoke vesiculation. Next, the entire distal segment of the limb is coated with a 20 per cent. solution of silver nitrate. A cure of the erysipelas is produced in twenty-four hours. The writer does not hesitate to look upon his treatment as the specific one of traumatic erysipelas.

Weil's Disease and the Point of Entrance of Its Pathogenic Agent.—J. W. Miller has been the first to describe the changes taking place in the tonsils in this disease. These consist in a hyperemia, often even a hemorrhagic injection, and above all the presence of

small miliary vesicles in the domain of the epithelium of the crypts. The writer regards these vesicles as specific of Weil's disease. This general aspect of the tonsil may be effaced by superadded infections. The histologic picture of the cervical lymph nodes is characterized by: (1) A catarrhal process of their sinuses, and (2) an inflammatory hyperemia with capillary thromboses. Miller believes that the point of entrance of the icterogenous spirochete is in the rhinopharynx, this organism being the specific agent of the affection under consideration. Clinical studies corroborate this view from the fact that there is dysphagia resulting from an angina, redness and edema of the pharynx and uvula. Contagion takes place, as in the plague, by the intermediary of rats, whose urine and feces contain the specific organism of the disease. Finally, the writer relates this disease to scarlet fever, inasmuch as it is similar from the development in both processes of exanthemata, nephritis, otitis, etc. On the other hand, there is no relationship between Weil's disease and acute yellow atrophy of the liver.

Deutsche medizinische Wochenschrift.

December 6, 1917.

Typhoid Carriers and Widal's Reaction.—Hilgermann has endeavored to discover the bacillus of Eberth in the stools of subjects suspected of carrying the bacilli by means of agglutination. By thus replacing the tedious and deceiving procedure by a more exact research and one less liable to be rendered inexact by the subject himself a surer conclusion can be arrived at. By using a broth inoculated with bacilli of various origins the writer comes to the conclusion that a positive Widal always indicates the presence of a typhoid focus in the body. There are no typhoid carriers who do not give a positive Widal. In convalescents from typhoid, agglutination is positive only for four or five months, and if it continues beyond this time it implies, contrary to the general opinion, that the subject is still in a latent typhoid state. Very happily, the writer considers a negative Widal as proof of the absence of typhoid bacilli in the body. He is about to prepare a further publication in proof of his views.

Restrictions to Be Formulated in the Treatment of Serious Cases of Enteritis with Bolus Alba.—J. Bunge records the history of a patient presenting hysteria in which the exhibition of bolus alba resulted in intestinal occlusion which necessitated surgical interference and resulted in the patient's death. The writer comes to the conclusion, after offering a discussion on other possibilities which may arise from this treatment that it is not without danger, and he further bears out this conclusion by reporting two cases in which bolus alba, exhibited at the dose of 200 grammes in water, produced a marked paresis in intestinal evacuations. Bunge recommends particular prudence in cases where there is a history of former intestinal trouble, likewise in enteroptoses and chronic constipation.

The Bacteriology of Dysentery.—U. Friedmann considers epidemic hemorrhagic colitis as being exclusively caused by well-known bacilli. He has not been able to observe any appreciable results to be derived from anti-dysenteric serum.

Wiener medizinische Wochenschrift.

December 8, 1917.

Extragenital Syphilitic Infections in Wartime.—A. Seidl relates in a summary way the histories of twenty-five cases of syphilis contracted otherwise than by coitus. The frequency of these infections as compared by their former frequency as offered by the statistics of Vienna (78 cases from 1889 to 1908) shows that for the period of January, 1915, to February, 1917, there has been a considerable increase of lues in general. The primary localization of the extragenital infection has been 2 cases of digital chancre, 10 chancres on the lips, 10 on the tonsils, one on the tongue and one on the upper lid. Generally speaking, the evolution of the disease offers nothing in particular other than the abnormal site of the initial sclerosis. The writer has not met with any cases of extragenital ulcers mollor in spite of their frequency, particularly at the com-

mencement of the war. This frequency, however, was only temporary and later on hard chancres predominated, while there was a period during which mixed chancres were particularly prevalent.

Multiple Fractures of the Skull from Shrapnel; Gangrenous Encephalitis; Excision of Brain Tissue; Drainage; Recovery.—R. Kropac has operated with success on a wounded man who appeared to offer a minimum of chance for a favorable result. The wound, resulting from an exploding shell, was located on the right side of the head. The writer attributes the successful outcome of his operation, which left the patient with the use of his limbs and an intact mental condition, to free drainage and above all to a musculocutaneous plastic operation covering the exposed cerebral mass. The advantages of this latter are evident, as it protects it against the air and results in a permanent moistening of the wound and stimulation of its secretions.

Hygeia.

December 30, 1917.

Albuminuria in Icterus.—Höjer seeks to demolish the old view that the albuminuria of icterus is due to the cholemia, the retention within the blood of certain bile constituents. He would explain it by the theory that the toxic substances present in the blood in icterus damage the parenchyma of both liver and kidneys and hence set up both jaundice and albuminuria.

Irrigation of the Ear with Alternating Heat.—Alfelt recommends that 100 c.cm. of warm water (42°-43°C.) be first thrown into the ear and followed at once by 5 to 10 c.cm. of cold water of ordinary hydrant temperature. This sequence is to be maintained until one liter of warm water has been used. The last injection should be warm. The ear should then be carefully dried and a cotton pledget worn for one hour. There should be a daily session for a period of 4 to 6 weeks, although good results may follow a less assiduous course. The author has treated by this means adhesive catarrhs, otosclerosis, nervous deafness without known cause, deafness from loud noises and from arteriosclerosis. In most cases the hearing improves, although at times tinnitus, etc., persists.

Correspondenz-Blatt für Schweizer Aerzte.

December 22, 1917.

Progress in Our Knowledge of Defensive Ferments.—Abderhalden writes briefly upon the advance of our knowledge of the reaction which goes by his name. This comprises the conception of "zelleigen" and "zellfremd" substances as something over and beyond "arteigen" and "artfremd" matter. Still another conception is "bluteigen" and "blutfremd." If a person's muscle is injured, for example, the blood shows later the presence of a ferment which can disintegrate muscle albumin. Every "zelleigen" substance is "blutfremd" or foreign to the blood. The thyroid tissue in a given subject is foreign to the liver cells of the latter. These distinctions have been elaborated by Hamburger through series of experiments. Much activity has been shown in the province of the demonstration of defensive ferments by various methods, as polarization, dialysis (both long used), precipitation, charging with coloring matters and metals, use of the interferometer and refractometer. A micro method has been introduced in which a few drops of serum may serve for analysis.

Prolonged Use of Camphor in Chronic Myocarditis.—Zangger sought ten years ago for a remedy for this affection which could be administered month in and out without prejudice. Incidentally camphor tincture was tested, 10 or 15 drops t. i. d., because of its known stimulant action on the heart muscle and its vasodilator activities in the peripheric circulation. The first person to be tested thus was a woman aged 76 with many petty symptoms of cardiac insufficiency due to stasis. After 4 months of treatment the woman was able to leave the bed and attend early Mass. She was kept going by camphor for 4 years, dying after anginal attacks and beginning senile dementia. Since then Zangger has treated nearly 100 cases of chronic myocarditis in subjects over 65 years of age, including those in the eighties and nineties. Camphor was used con-

tinuously and in acute crises digitalis or pituitrine-adrenaline. The author must therefore take issue with Mackenzie when the latter states that camphor is without action on the heart.

Sterility and Retroflexio Uteri.—Herzog sums up the causes of sterility as follows: Male insufficiency, 33 1/3 per cent.; female gonorrhea, 33 1/3 per cent. The remainder comprise a host of petty factors, among which is retroflexion. The profession are very skeptical concerning the cure of sterility through correction of this deformity, but there is plenty of evidence that this result is attainable. For example, Bamm has seen conception frequently follow shortening of the round ligaments in retroflexion cases. A distinction must be made between the virginal type, in which defective development is at fault, and the secondary form. In the former, with the uterus nearly doubled on itself, the wearing of a pessary was followed by conception. Pessaries, however, are burdensome to nulliparæ. The author claims to have cured a primary case by means of an Alexander-Adams operation and also two secondary cases by the same resource and by a Gilliams ventrofixation respectively.

La Riforma Medica.

January 19, 1918.

Two Cases of Suppurative Paraneuphritis of Tonsillar Origin.—Botteselle refers to the occurrence of paraneuphritic phlegmon as a metastasis from local infections of all kinds and from infected blood states. This lesion has received numerous designations and its precise seat and pathogenesis have been much debated. The fibrous capsule of the kidney, the connective tissue which invests it and the perirenal fatty tissue may doubtless be attacked individually and separately, but the incidence of the affection is largely due to the presence of the adipose tissue which is in close relationship with the renal capsule. It is not apparent why in a hematogenous infection this tissue should invite metastasis, and the prevalent view is that various microorganisms on their way toward elimination by the kidneys migrate from the latter into the pararenal tissue, an activity which is greatly facilitated by the arrangement of the blood vessels. Both patients were young women who complained first of distress in the right flank, with a systemic reaction which caused them to take to their beds. The antecedent tonsillitis was mild and in one case must have been very pugnacious. This patient seems to have had a purulent infection of a finger, as shown by a recent scar; this was perhaps itself a metastasis—or it may have been the original source of infection. The symptoms in the flank showed aggravation and the general reaction suggested some septic qualities. Everything pointed to suppuration in the region of the right kidney. In one patient the urine was quite normal, while the other showed the presence of albumin, red cells and casts. On employing the segregation it was found that the function of both kidneys was disturbed, while both showed minimal evidences of infection. In both subjects, however, the urine was sterile, or at least negative to culture tests. The author, despite the finds in one case, regards the kidneys as practically intact. In both cases the blood examination showed some leucocytosis. Sudanophiles were present, but not in a marked degree. Blood cultures are not quoted. In but one patient was an x-ray taken, showing a faint shadow under the liver. Both patients were treated by incision over the suppurating area, which evacuated a certain amount of pus. The cause in one case was the streptococcus; in the other the staphylococcus, which were isolated from the latter. In such cases we are justified in concluding that it is the business of the kidneys to eliminate pathogenic bacteria which have found entrance into the blood. At times the kidneys themselves become involved, at others the bacteria migrate through the capsule into the perirenal tissues. There are also cases of the ascending type in which pyelonephritis develops as a sequel of cystitis. Here, too, there may be a migration of bacteria through the walls of the urinary tract. Finally, the author says, bacteria likewise very often progress through the intestinal wall into the perirenal tissues.

Book Reviews.

MEDICAL WAR MANUAL No. 2 (Authorized by the Secretary of War and under the Supervision of the Surgeon-General and the Council of National Defense). NOTES FOR ARMY MEDICAL OFFICERS. By Lt.-Col. T. H. GOODWIN, R.A.M.C., Author of Notes for Medical Officers on Field Service in India and Field Service Notes for R.A.M.C., with an Introductory Note by Surgeon-General WILLIAM C. GORGAS, U. S. A. Philadelphia and New York: Lea & Febiger, 1917.

THE contents of this little volume of coat pocket size are elaborated from a series of lectures given by the author before the classes at the Army Medical School at Washington, D. C. There are chapters on Organization and Administration, War Surgery and Sanitation in War, with a brief Appendix on General Notes for Service on the Western Front. The consideration of all these subjects is compressed into 107 pages, which also contain 34 text figures, and the entire instruction comprises not over 20,000 words.

LE COURAGE. Par MM. les docteurs LOUIS HUOT, Médecin principal de 1^{re} classe des troupes coloniales, Médecin divisionnaire, et PAUL VOIVENEL, Aide-major au 6^e bataillon du Régiment d'Infanterie. Préface de M. EUGÈNE ÉTIENNE, ancien Ministre de la Guerre. Prix, 3 francs 85. Paris: Félix Alcan, 1917.

THIS little volume, devoted to the psychology of courage, begins with a chapter on war, which is followed by a defense of the claim that courage is purely a human quality, "animal courage" being a misnomer. The elements which enter into the conception of courage are then individually considered—fear as its background, altruism, habit and experience, love of taking a chance, crowd courage, love of country, courage in battle and finally pathological courage. The work is rich in citations from authors, touching upon acts of bravery by real and fictitious characters. Among romancers who deal with courage Stephen Crane is mentioned. Professional courage naturally enters largely into the general subject. Crowd courage is the inversion of panic fear. Fatalism does not receive a separate consideration, but is properly credited as a factor in individual courage. The book is worthy of a translation and should be widely read.

WAR-SHOCK. The Psychoneuroses in War; Psychology and Treatment. By M. D. EDER, B.Sc., Lond., M.R.C.S., L.R.C.P., Lond.; Late Temporary Captain, R.A.M.C., and Medical Officer in Charge of Psychoneurological Department, Malta. Price, \$1.75 net. Philadelphia: P. Blakiston's Son & Co., 1917.

THIS book is another contribution to the study of the war neuroses, often called shell shock. The author has presented 100 consecutive cases, with attempts to understand them from a psychogenetic standpoint; in these cases he could find "antebellum" causes, family or personal, in only thirty. He found suggestion under hypnotism his best weapon. Although, owing to service exigencies, he was able to apply psychoanalysis to only four cases, he approaches the problems presented on lines laid down by Freud and Jung, even to discussing the dreams of the patients. While this will at once damn his book in the minds of many, it should not be dismissed contemptuously. He has at least obtained some understanding of the mental mechanisms of these soldiers and has succeeded in curing or improving nearly all his cases. The book is a small, handy one and can be read by all with pleasure and benefit.

THE MICROSCOPE. An Introduction to Microscopic Methods and to Histology. By SIMON HENRY GAGE, Professor of Histology and Embryology, Emeritus in Cornell University. Twelfth Edition. Rewritten and illustrated by over 250 text figures. Price, \$3.00 net. The Comstock Publishing Co., 1917.

GAGE on the microscope is one of those works which seem to have existed always, so neatly does it fill its niche. The magic numeral "12" before the "edition" speaks volumes itself, showing the seekers after knowledge who have used it and found it good. Although there has not been such radical progress in microscopy in the past decade as has been the case in other sciences

allied to the medical, a number of noteworthy innovations have been included in the present volume. Chief of these are: (1) The development of the single objective binocular and the dark field illuminator; (2) the adaptation of the new powers of the electric light to the projection microscope; (3) the perfection of photographic light filters; and (4) the production of a glass filter. Microchemistry and metallography have been omitted from this edition as adequately dealt with elsewhere.

Dr. Gage describes the microscope simply, but in great detail; he discusses the appearance of objects in the microscopic field and then goes on to discuss micrometry, projection and photography, as well as the spectroscope and polariscope. The discussion of the preparation of material for microscopic examination is devoted to novelties and variations in lenses and microscopes. A complete bibliography is appended and the work is well indexed.

The physician who goes in for laboratory work at all cannot dispense with this book; and even if he take but an academic interest in the subject he will find it invaluable. We think it should be the first selection for the laboratory library. The illustrations are excellent and the book is splendidly gotten up from a mechanical viewpoint.

STATE BOARD EXAMINATION QUESTIONS AND ANSWERS OF THE UNITED STATES AND CANADA. A Practical Work Giving Authentic Questions and Authoritative Answers in Full That Will Prove Helpful in Passing State Board Examinations. Reprinted from the MEDICAL RECORD. Fifth Edition. Altogether New Matter. Every Question Answered in Full. Price, \$2.50. New York: William Wood & Company, 1918.

THIS is the fifth edition of a very useful book. That it is considered a useful book is proved by the fact of four editions having been exhausted. The object of publishing the State Board Examination Questions and Answers which have appeared from time to time in the MEDICAL RECORD is to acquaint the student with the general tenor of such papers and thus to inspire him with confidence. The unknown always possesses terrors, but when the student knows what to expect in the written examinations they are divested of much of their dread.

ELEMENTS OF PEDIATRICS FOR MEDICAL STUDENTS. By ROWLAND GODFREY FREEMAN, A.B., M.D., Adjunct Professor of Pediatrics, New York University and Bellevue Hospital Medical School; Attending Pediatricist to the Roosevelt Hospital, New York, etc.; ex-President of the American Pediatric Society. Price, \$2. New York: The Macmillan Co., 1917.

THERE has long been wanted in the study of pediatrics a work which would deal with the standards of the normal child on which to lay a foundation for the future comparison of abnormal conditions which engross pathological pediatrics. Practically all of the comprehensive works on the diseases of children give a certain number of pages to the normal child anatomy, physiology, and development, but it has remained for Dr. Freeman to supply in every detail a book devoted wholly to the normal child.

This modest-sized volume is written primarily for students, but there is no reason why it should not prove delightful reading for all medical people who have more or less the care of infants and children in their keeping. It is one thing to have a scattered knowledge of the infant world in one's mind, but it is a more beneficial matter to have that knowledge brought into proper order and sequence as it is arranged in this latest contribution to normal pediatrics.

Aside from all the usual aspects expected in the study of infants, the author has dealt with the care of premature children and the mental and moral development of children in general. One, on reading these later chapters, wishes that Dr. Freeman had added more pages to this special part of his book, for, after all, the physical upbuilding of a child is but a preliminary to his mental and moral development, and a keener insight into this side of the child life would give to the coming pediatricist a sympathy and understanding which would go a great distance toward his success in this, his chosen field.

Society Reports.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

21st Regular Meeting, Held Jan. 4, 1918.

THE PRESIDENT, DR. GORHAM BACON, IN THE CHAIR.

The Problem That Mental Disorders Present to the Medical Profession, and the Profession's Responsibility.—

Dr. WALTER B. JAMES read this paper (see page 353).

Dr. M. ALLEN STARR said that the paper had been of a great deal of interest and brought up many important points. In the first place he wished to speak about instruction on the subject of insanity. When he began to teach medicine thirty years ago at the College of Physicians and Surgeons, in laying out the course on nervous and mental diseases, he assigned about one-quarter of the time to mental disorders and as it was then impossible to give clinical instruction in that subject, he dealt with it in didactic lectures, which appeared to awaken much interest among the students. There being a lack of suitable textbooks he had to publish a synopsis of these lectures, which included considerable elementary psychology. As time went on the increased amount of work involved in medical education crowded upon the subjects of neurology and psychiatry so that twelve years ago it became necessary to reduce the time assigned to these subjects one-half. Later the lectures upon insanity were cut out and a scheme of instruction by clinics at Bellevue Hospital was substituted. These clinics were optional and the students did not attend. He believed at present that eight clinics were held in this subject of insanity in the course of the four years' instruction. He believed this method to be very imperfect, as a student who had no knowledge of psychology could not understand a clinic on insanity and got nothing out of such a clinic. Dr. James had brought this point out very cleverly. A student could not appreciate the symptoms of an insane person when he knew nothing about the normal action of the mind and this knowledge he could not obtain from a clinic, but must get from a didactic lecture or from a textbook. One might just as well expect a student to make a correct diagnosis of pneumonia when he had no knowledge of physical diagnosis. Instruction in insanity should be didactic at first and should include elementary psychology. In the second place he wished to add that Dr. James' paper recalled to mind a paper read by Dr. S. Weir Mitchell some years ago which caused a great amount of criticism among men working in psychiatry, and what Dr. Mitchell said at that time, namely, that very little information on or contribution to the subject of insanity had come out of the insane asylums of this country. The men who were working in the insane asylums were not trained in laboratory methods until within the last few years, and even those who had been trained in these methods had many of them failed to apply them to the study of their cases. It was his belief that a considerable proportion of cases of insanity were due to poisons circulating in the blood and originating in the body from errors of metabolism or defects in the action of the ductless glands, but he failed to find any systematic investigations along these lines in any of the insane asylum reports published in this country with one or two exceptions. Cannon and Crile had demonstrated conclusively that certain physical conditions were produced in the body by fear and anger. In addition to the rapid action of the heart and respiration and the increased secretion of the sweat glands, they had shown that the effect of emotion was to increase the secretion of the suprarenal glands in such a way as to increase the production of glycogen in the liver and also in the muscles, thus producing a muscular energy which enabled an animal in a state of fear or in a state of anger to fight or run away. The display of muscular energy in a maniac, which was known to be enormously greater than that in a sane man, had proved that the excitement of fear and anger in the insane produced similar chemical changes, increasing the muscular activity. This was only one example of the chemical change occurring in insanity, but there was no place in this country where these chemical changes connected with mental processes had been or could be investigated, and it had been impossible for

him to induce the authorities at the Phipps Institute in Baltimore to understand these chemical investigations. He had now three cases in mind of states of depression undoubtedly due to errors in the chemistry of the system, in two of these there was probably a defective secretion of the thyroid gland and such investigations might easily lead to the discovery of proper remedies, but he knew of no place where such investigations could be made. Psychiatric hospitals should be established with clinical laboratory observers connected with them and only with these could we hope to see our asylums made of some service in the study of insanity. At present the asylum received the cases in the last stages only. If only cases which had large cavities in the lungs went to the sanatoria for tuberculosis sanatorium cures would not be expected. If mental diseases were taken in the early stage and properly investigated and treated, we might hope for a large percentage of cures at the present time. Considerable attention was being given to psychoanalysis, but the experience of the last five years had shown pretty conclusively that, however interesting this might be to the psychologist, it was of no practical importance in the treatment of patients. If this paper of Dr. James' awakened an interest in chemical and laboratory research in mental disorders it would open the way for great advances in the therapeutics of insanity.

Dr. BIGGS said it had been his experience for a good many years in public health work that while public authorities seemed unwilling to make opportunities for laboratory work, as a matter of fact this was not so. If one only showed the usefulness of the laboratory work, appropriations were available in constantly increasing quantities. That was the experience in New York City, and it had been his experience in the State Department of Health. Less than four years ago, we had a State Laboratory that did not deserve the name, since Dr. Wadsworth was appointed director of the laboratory, it had been reorganized and was now doing very good work. The appropriations had increased from \$30,000 a year to \$175,000. This simply showed what was possible if the usefulness of the work was only demonstrated. If one only had a man at the head of the work who had energy and ability, he could get the money to do the work.

Dr. DANA expressed his strong appreciation of the views which Dr. James had presented, and he hoped that his paper would make the general medical man take a keener interest, and hold in higher value the science of psychiatry. He believed in teaching psychiatry in medical schools. He said that there were two kinds of psychology—the static and the dynamic, and there was great difference of opinion just now as to which was the valuable one and which should be taught to medical students. He himself believed that both kinds would be of service. With regard to mental hygiene and the prevention of mental diseases the speaker thought that the greatest effort should be made toward reclaiming people before they had ever got into State hospitals. When a person had reached the stage of mental disease or deterioration that he required custodial care, preventive medicine could not do its best work. He thought that preventive medicine should attack, for example, the general paresis before it became general paresis, and if the State were to take an active interest in this phase it could reduce the 20 per cent of the insane suffering from general paresis to 5 or 10 per cent. The group of patients known as sufferers from psychoneuroses, hysterias, neurasthenias, and psychasthenias, formed all the group in which most could be done in the prevention of insanity.

Dr. FORDYCE said that he was glad that Dr. Dana had called attention to the possible prevention of paresis by systematic examination of the spinal fluid. This question had interested him for a long time and he believed that if syphilis was properly controlled by an examination of the spinal fluid before the patient was finally discharged it might be possible to diagnose paresis long before stigmata of degeneration appeared. In the first year of syphilis it was found that from 25 to 30 per cent of the patients showed spinal fluid changes. In some of these patients the colloidal gold test gave a paretic curve and the Wassermann reaction was strongly positive in the high dilutions. At this stage it was quite possible to anticipate by proper treat-

ment the development of the late degenerative results of the disease.

Dr. GILMAN THOMPSON said he would like to add his testimony to the great value of elementary training in the matter of psychiatry. As a student he had received no instruction in this subject at all, but after graduation he had been fortunate in securing a service for some time in the Bloomingdale Asylum, and it had been of great value to him ever since, for there were so many applications of a knowledge of psychiatry in general medical practice. He was much interested in the plea that Dr. Starr made for didactic instruction, not only in this subject, but in others. It was certainly a good way to teach this subject to students. It seemed that what was needed was more graduation instruction in insanity, but those who had sat on medical faculties knew that there was very little time to give to this topic, no matter how important it might be. When we had reached a five years' course of medical college training, there would be opportunity given for this line of instruction, and it should have ample recognition. Formerly there was a full-fledged psychiatric laboratory in New York City, in connection with the New York Infirmary for Women and Children. The trustees of the Infirmary found themselves in possession of a large building, which they equipped for the purpose. A few patients were treated, but the institution gradually died on account of lack of financial and professional support, and had not been in existence for some time.

Dr. KIRBY said there was no doubt that the past ten or fifteen years had witnessed a notable advance in the medical and psychiatric work in State hospitals and other institutions dealing with mental disorders. Scientific methods of approach to the problems of psychiatry were being gradually developed and the great social significance of mental abnormality was slowly but surely winning a general recognition. Unfortunately it was true, as Dr. James had so clearly pointed out, that the general profession had not shown any decided interest in the applications of the newer psychiatry, although these applications led directly back to the field occupied by the general practitioner. The reasons for this were not difficult to find. The ancient aversion of people to contact with the mentally sick was still shared by physicians who moreover had always been to a very large extent relieved of all responsibility in the care and treatment of mental cases on account of the State's practical monopoly of the management of mental disorders as soon as any pronounced symptoms appeared. A most encouraging sign was the passing of the isolation of the State hospitals and their establishment of various contacts with the community and the medical profession. The hospitals were now not only receiving many voluntary patients, but out-patient clinics and dispensaries had been established and manned in various localities by the State institutions. The cumbersome legal machinery surrounding the admission of most patients to a State hospital might be with great advantage still further modified; also the internal arrangements of State institutions should in the future be designed not chiefly for the relatively small class of turbulent cases, but for the larger class of easily controlled cases who required little more than the kind of restriction imposed by general hospitals. An entire change in the present methods of the teaching of psychiatry was, as Dr. James had shown, urgently needed. Didactic lectures would, of course, be required, but the great difficulty in teaching had been that students could not be shown clinical material of the kind that would interest a man preparing himself for general practice. Very pronounced mental cases brought from a State hospital to an amphitheater and shown to students usually afforded the latter some diversion but did not appeal to them as a problem in general practice. The recognition and treatment of incipient psychoses and borderland cases rather than of committed patients should be emphasized in clinical instruction. Such material was usually not available because physicians and general dispensaries did not devote much time to such cases. It was obvious that a psychopathic hospital would more than any other thing remedy this defect in our teaching facilities and bring psychiatry more into line with other branches of medicine.

Dr. JAMES, in closing the discussion, said that he had been delighted with the interest that the members of

the Practitioners' Society had shown in this subject, and could only wish that the interest of the medical profession at large was as keen. After spending the summer with the State Hospital Development Commission he had been impressed with the fact that it was the legislators and the more intelligent portion of the public generally that interested themselves in the problem of the insane and of insanity, rather than the medical profession. The lay members of the commission, including some of the busiest and most prominent legislators at Albany, had given their time and strength to this work ungrudgingly, and in a way that he confessed had surprised him. He had been surprised also by the intelligent interest shown by the boards of managers of the State hospitals for the insane, and as soon as our own profession threw itself heart and soul into this problem he believed that we should have taken a long step forward towards its solution. He believed that the legislature and the people generally were prepared to do anything for the insane that was seriously recommended by our profession, and also to do anything reasonable looking towards the solution of the whole problem of insanity. He was interested in what Dr. Biggs had said about his suggestion of making a knowledge of psychology requisite to entrance into a medical school, or, as an alternative, the teaching of psychology in the school itself. This he confessed seemed to him so obvious as hardly to need further emphasis. Today a man graduated from the medical school had hardly heard the word psychology. It had seemed to him that the constitution of our medical schools was a wrong rule. We retained still too many of the features that were inherent in the old-fashioned proprietary school, belonging as it did absolutely to a little group of professors and looking to them alone for its stimulus and guidance. Each one of these men fought fiercely for the welfare and advancement of his own department, and the strongest of them secured most of the curriculum. There was hardly any other life that did so much to stunt the imaginative faculty and the breadth of mental vision as the life of the teacher, and when our medical schools came to be governed more directly than at present by boards of trustees, who, taking a bird's-eye view of the situation would be able, with advice, to see the part which each chair should occupy in the curriculum, he believed that medical education would have taken a distinct step forward. Anatomy, human and comparative, would absorb less of the time and interest of the students, and more time would be given to the study of function, normal and pathological, and especially the functions of the mind. Of course a psychopathic hospital was needed in New York, and needed badly, and he was glad to see that all present recognized this fact. Whenever a united medical profession asked for it and was even approximately in accord as to what it wanted it was his belief, as a result of last summer's work, that its accomplishment would be only a matter of a short time. Our profession probably carried more weight in public life than most of us realized and if we could cease differing upon unimportant, and present a reasonable united front upon essential matters, we should achieve the accomplishment of what after all must be the desire of every real physician—success in our combat with disease of every description.

Acute Dilatation of the Stomach in Pneumonia.—Dr. LEWIS A. CONNER presented this case. He said that the subject of acute dilatation of the stomach was now such a familiar one that he would not have ventured to report this case had it not seemed to him to throw some light upon one of the gravest and most intractable complications of lobar pneumonia, namely, marked abdominal distention. He knew of no complication of pneumonia more serious in its import or more resistant to treatment than such distention. Usually this tympanites seemed to involve a great part of the gastrointestinal tract and results in a uniform hemispherical distention of the whole abdomen. The present report concerned a man some forty years of age who entered the New York Hospital a month ago on the third day of his pneumonia. He looked very ill and was beginning to show some abdominal rigidity and distention which in spite of treatment increased rapidly. On the next day when Dr. Conner saw him his condition had become very much worse; there was well marked pulmonary edema with cyanosis, and it was quite evident

that the man had only a few hours to live. Examination of the abdomen showed very marked distention, which, however, differed from that usually found in that the distention was much more pronounced in the upper than in the lower half of the abdomen and that by careful palpation one could recognize that the lower limit of the distention was sharply circumscribed and had a curved outline strongly suggestive of the greater curvature of an enormously enlarged stomach which occupied the whole upper half of the abdomen and extended downward to a point 5 cm. below the umbilicus. In spite of the fact that there had been no vomiting it was quite evident that there existed an acute dilatation of the stomach of formidable size. Although the man's condition seemed hopeless it was deemed wise to attempt to empty the stomach and this was done by passing through the nose a very small sized stomach tube. This was accomplished with very little disturbance to the patient and resulted in the escape of an enormous quantity of gas and the removal of almost a quart of dark colored liquid. The abdominal distention disappeared entirely and there was an appreciable relief to the embarrassment of respiration, although no improvement to the condition of the pulmonary edema, which steadily increased and the patient died some six hours later.

Acute dilatation of the stomach was known to occur occasionally in the course of lobar pneumonia and its pathogenesis in that condition was no less obscure than was that of other more common formas. It was, however, far less frequent than the corresponding distention and dilatation of the intestines. As far as the speaker knew, it had never been suggested that the stomach might participate in the severe form of tympanites which constituted such a grave complication of lobar pneumonia. The occurrence in this case, however, suggested that such a gaseous distention of the stomach might sometimes at least play a part in such tympanites and that the relief of the stomach inflation by means of the stomach tube might aid materially in overcoming the general tympanites. The passage of the stomach tube even in such gravely ill patients could be accomplished with very little discomfort or embarrassment to the patient if a very small tube was used and if the tube was passed through the nose rather than through the mouth.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held December 21, 1917.

THE SECOND VICE-PRESIDENT, DR. LUDWIG KAST, IN THE CHAIR.

The Principles and Technique of the Treatment of Wounds.—Dr. GEORGE LOEWY of the Medical Corps of the French Army, assigned to the Rockefeller Institute of Medical Research, made this presentation by invitation, which consisted in a description of Carrel's method of treating wounds (see MEDICAL RECORD, November 3, 1917), illustrated by lantern slides and moving pictures. Attention was directed more particularly to the more recent developments and details of this method. In these moving pictures, which were taken at the War Demonstration Hospital of the Rockefeller Institute, Dr. Carrel had emphasized the way in which wounds should be treated and he started by showing what should be the aim of the surgeon, namely, to sterilize the wound before suppuration took place, or when suppuration had supervened to arrest it, to sterilize the wound, and to close it. In order to accomplish these aims treatment must be begun as early as possible. The first two pictures would illustrate that it was possible to accomplish much more by this method than had previously been done by former methods of treatment. The first picture was that of a wound of the forearm which was closed at Carrel's hospital after five days of treatment, and in which a perfect functional result was obtained. The second picture showed a wound closed after seven days of treatment. The results obtained at the beginning of the war were very bad because they were poorly organized for the work and because the pathological condition of the wounds was absolutely unknown. It was surprising how little progress had been made in the treatment of war wounds

from the time of the Civil War until 1914. If laboratory work had been done during the interim of fifty years, if the pathology of the wound and the topography of the infection had been studied, an entire year would not have been wasted in efforts to cope with the problems which confronted them during the first year of the war. The condition of the surgeon could be compared with that of the chemist before the end of the eighteenth century. At that time the chemist became interested in the use of the scale or balance and measured the weights of the substances involved in the chemical reaction. From that started the wonderful growth of chemistry. In surgery these quantitative measures must be used; the use of precise methods was most important in every field of surgery. Therefore, in the film, after the purpose of the author, was shown the basis of his method of surgery. The basis of Dr. Carrel's method was not a chemical substance or any special procedure; it was the method by which the volume of infection and the action of chemical and surgical procedures on the healing of the wound could be measured or expressed in figures, or plotted in curves. The action on infection was measured by counting bacteria in the secretions of wounds. The numbers of bacteria per microscopical field were recorded on a chart, like a temperature chart. Every two days the bacterial curve was plotted. Each patient had a bacterial chart which indicated the state of infection. The action of a given procedure was shown by changes in the bacterial count. For example, a drop of the bacterial count from 40 bacteria in a field to one bacterium per ten fields indicated surgical sepsis. The bacteriological curve showed whether sterilization progressed properly, and when the wound should be closed. Sterilizing procedures must not injure the tissues. The best method of testing their action on tissues was to study their influence on cicatrization. In order to study the process of cicatrization, a technique for measuring accurately the area of wounds was developed. Sterilized cellophane was applied to the wound and the edge was outlined with a wax pencil. This drawing was transferred in ink to an ordinary sheet of paper. Afterward the area was measured by means of a planimeter, either the Amsler system or some other. A curve was obtained by carrying the area, in square centimeters, in ordinates, and the time, in days, in abscissæ. In many experiments made by Dr. Carrel the curve representing the cicatrization of aseptic wounds was of regular and geometric appearance. These curves were expressed by a mathematical equation in function of time and area. After a large number of slightly infected wounds had been studied, a simple extrapolation formula was obtained. Marked deviation from the calculated curve showed generally that infection had set in. By means of the formula the area of the wound after a given time could be foreseen. The action on cicatrization of sterilizing procedures was ascertained finally by comparison of observed curves and calculated curves. By these measurements an exact comparison could be made of the value of different procedures, surgical, mechanical or chemical, and the best selected. The aim and the two main methods upon which the technique was based were emphasized in these moving pictures in order to turn the mind of the surgeon to the necessity of using methods by which they could measure what they were doing, know when a mistake is made, and know when they are doing the right thing by actual mathematical measurements. This part of the film was the only new part of the whole method and was the cause of the enormous progress in practical results. After an understanding of the general principles, the surgeon could comprehend the details which were described in the second part of the film. This part showed the practical way of taking care of the wound; a combination of mechanical and chemical procedures used under bacteriological control, until the wound was sterile and closed. Dr. Loewy then gave a moving picture demonstration, showing the method of mechanical sterilization for fresh, sterile wounds. It was, of course, most artificial, but the idea was to show the different stages as, for instance, free incision of skin, aponeurosis, and muscles, excision of necrotic edges of skin, excision of the bruised portions of the tract (necrotic fragments of muscles being carefully removed), removal of shell fragments and shreds of

clothing. Hemostasis was carefully carried out. A sufficient degree of asepsis might be reached through mechanical cleansing to allow immediate stitching, but this must be done only under special conditions. Too often it was not possible to practice early intervention; a state of shock or difficulties of transportation might prevent operation for some time and the infection might spread during this time. On the other hand, the local condition might prevent complete cleansing, for instance, the proximity to important vessels or nerves. Another point was that an operation such as this required time and was difficult to perform. Practical difficulties, when the doctor was exposed to the same dangers as the soldiers, prevented the necessary precision in the Advanced Surgical Unit. For these reasons the wound remained septic and it was of prime importance to disinfect the wound with chemical substances. The existence in the wound of the remaining contused parts explained the necessity of *chemical sterilization* and the use of an antiseptic having the property of dissolving necrotic tissue. And this was the principal reason why Dr. Carrel used hypochlorite of soda instead of chloramine, which did not possess this dissolving property. The antiseptic was only an instrument, like a scalpel in a surgical operation. Dakin's solution and chloramine-T were generally used, but Dr. Carrel said that other substances could also be employed just as an operation was performed with several different instruments.

The doctor showed the method of the preparation of the hypochlorite and of stabilizing it with potassium permanganate and also its preparation by bubbling liquid chlorine through sodium carbonate. He also described the Daufresne paste, made by mixing Dakin's chloramine-T with sodium stearate. This paste gave up the antiseptic substance slowly and was only suitable for surface wounds which it sometimes sterilized in twenty-four hours though it usually took longer in war wounds. Demonstration was made of the arrangement of the irrigating tubes, the closure of wounds after the sterilization had been obtained, and a hammock suspension apparatus which enabled a patient with a fracture of the thigh to move about in bed. In addition he showed Dr. Carrel's method of skin grafting applicable to large surface wounds. In conclusion the speaker said that Dr. Carrel showed that the entire method of wound treatment was like a chain in which each procedure was a link. It was not the use of a paste, it was not the use of an oil, or of any mechanical cleansing. It was a combination of procedures under a definite control which would give the results, and it was impossible to suppress any one without the suppression of all.

In conclusion, Dr. Loewy said that the method was no longer in an experimental stage. It had been absolutely proved by thousands of cases. He referred to the report of Captain Campbell and Major Wolfenden (*Lancet*, August 11, 1917) on gunshot wounds of the knee joint. Comparing the former results with those obtained recently by Carrel's method, these surgeons found that in the latter the mortality was reduced one-fourth and that the number of cases requiring amputation was reduced one-eighth, and all this in spite of the fact that the cases treated by the Carrel method were if anything more severe. Dr. Loewy emphasized the convictions of all those who had had experience with the method, to the effect that, as stated in the report of the surgical committee to the Director-General of the British Army Medical Service, which appeared in the *British Medical Journal*, November 3, 1917, it would (1) diminish the dangers incidental to sepsis, including secondary hemorrhage; (2) hasten the patient's convalescence; (3) lessen the liability to stiff joints and cicatricial deformities; (4) enable the patients to leave the hospital with better general health than they otherwise might, and (5) where secondary operations became necessary these operations were more likely to be free from septic complications than where some other system of primary treatment had been adopted.

Dr. EDWARD WALLACE LEE told of his impressions of the value of the Carrel method of treating wounds as it was being demonstrated at the Rockefeller Hospital for Teaching War Surgery. For those who had not had the privilege of seeing the actual work as it was being carried out in this institution under Drs. Carrel and

Loewy and those connected with the hospital it certainly was a great privilege to have seen the pictures which Dr. Loewy had shown tonight. Dr. Lee said he had spent three months studying the technique of this method at the Rockefeller War Hospital and had been making daily observations of the results obtained by it. Words were not adequate to express the enthusiasm he felt for the work he had seen done in that institution. He did not believe in marvels, but the marvelous things he had seen there were beyond conception, and he had had thirty years' experience in surgery and thought he was quite well informed in antiseptics and asepsis. He had started in practice when antiseptics was first being used and had watched the progress of developments along this line for thirty years, but until now he had seen nothing that gave the results that were obtained by the Carrel method as it was carried out at the Rockefeller Hospital. The cases that they got there were those that had been under the observation of good men in this city and throughout the country, and had been treated for periods varying from five days to fifteen years, and the results obtained were most remarkable. For instance, in a case of old osteomyelitis, which had been intractable to treatment for a long period, it was gratifying to see the results obtained by the Carrel method. Dr. Lee said he had not the time or the inclination to go into details, but he would say that if anyone was not enthusiastic and did not believe all that was claimed for this method, all he had to do was to carry out the method in detail in order to be convinced. It did not mean going to the druggist and getting a prepared antiseptic, but it meant carrying out the entire technique accurately from the time the patient entered the hospital until he left. They healed wounds with mathematical precision, even in exact conformity with an algebraic formula. The plan might appear a little complicated until one became familiar with it and then it seemed very simple. Another point worth mentioning was the results obtained in empyema following pneumonia. He had seen these demonstrated not only in the Rockefeller Hospital but elsewhere as well. Even the best men had not realized that pleurisy with effusion developed in the early stages of pneumonia, even before the crisis was reached. In these cases of empyema, he had seen a rib resection, the pus evacuated, the cavity irrigated with the proper solutions, and the patient had recovered in a remarkably short time, even within two or three weeks.

In closing, Dr. Lee moved that a vote of thanks be extended to Dr. Loewy for having presented this work to the Society. This motion was unanimously carried.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 17, 1918.

THE VICE-PRESIDENT, DR. EDWIN B. CRAGIN, IN THE CHAIR.

Hay Fever and Asthma and the Uses and Limitations of Desensitization.—Dr. ROBERT A. COOKE presented this paper in which he analyzed a series of cases in the hope that they might furnish a more definite viewpoint, first, as to the extent to which anaphylaxis played an etiological part and, second, as to the results that accrued to the patient from observations so made, and, finally, the indications for and the limitations of treatment by desensitization in hay fever and asthma. He discussed briefly relative immunity to infectious diseases for the purpose of emphasizing the fundamental identity of the body reactions to proteins, whether they were bacterial proteins, or toxins, or inanimate proteins, and the fact that whereas this sensitization of body cells was distinctly advantageous and protective against the incidental invasions of bacteria, it was a definite cause of disease and absolutely disadvantageous to the human economy when this same capacity for sensitization of cells had spread to those forms of inanimate proteins which constituted our daily food, or with which we must come in intimate contact. Dr. Cooke then reviewed the principles of sensitization in general and noted the following facts as having been experimentally established: (1) The injection of any protein into an animal stimulated the body cells of that animal to produce specific reacting substances called antibodies. (2) An incuba-

tion period was required for the formation of antibodies against these proteins in exactly the same way that an incubation period was required in infectious diseases. (3) The production of antibodies bore a definite relation to the amount of protein injected and the number of times that the injection occurred. These antibodies tended to attach themselves to certain cells within the body and also to circulate free. When antibodies were present in small amount they tended for the most part to attach themselves to cells. When an overproduction of antibodies had been stimulated, they existed in both forms, attached and free. (4) On introduction of the specific protein into a sensitized animal, a reaction occurred and this reaction took place in the sensitized cells. (5) Sensitization and immunity were in principle identical. When antibodies were few and attached we had the sensitized state; when they were in excess and circulated free in the blood we had the immune state. Immunity, however, was only relative and depended upon the number of free antibodies present. Reactions depended not only on the amount of the intoxicating protein that was introduced, but on the manner of its introduction. By this was meant that an animal might be immune to a subcutaneous injection, whereas the same amount of protein intravenously introduced would cause death. (6) Immunity produced experimentally and due to the free circulation of antibodies was only a temporary state, and in the absence of stimulation to its continuation by specific injections would return to the sensitized state and the free bodies practically disappear from the blood. The essayist then discussed artificial versus natural sensitization, stating that artificial sensitization never reached the degree of exquisiteness that was discovered by those naturally sensitized. Neither was artificial sensitization as permanent as natural sensitization nor did it seem to give rise to clinical manifestations. When one bore in mind that the anaphylactic reaction was cellular in character it could well be understood that in the sensitized individual the clinical reaction that ensued upon the introduction of the specific protein would depend entirely upon the group of cells that happened to be sensitized, and it was for this reason that we saw such a miscellaneous and apparently irrelevant group of symptoms described as being anaphylactic in nature. On account of the fact that the field was so new, one felt tempted, and rightly, he believed, to apply this principle to many of the undetermined ailments of the present day, such as migraine, epilepsy, arthritis, renal, and hepatic diseases, and even to some of the blood dyscrasias because of the fact that certain of these manifestations were seen in experimental work. As to the pathogenesis of sensitization but little was positively known. The writer and Dr. VanderVeer, in a former publication, had been able to show: (1) That 50 per cent. of the cases of sensitization had a positive family history, whereas only 14 per cent. of a group of normal individuals gave such a history. (2) That the age of onset of the clinical symptoms was earlier in cases with a positive family history, the earliness of onset being in direct ratio to the completeness of the family sensitization. (3) The clinical manifestation of this sensitization in the descendant bore no relation whatever to that of the antecedent. In other words, sensitized individuals transmitted not a specific sensitization, but an unusual capacity for developing bioplastic activity to any foreign protein. (4) In so far as it was possible to discover in the human race, the possibility for sensitization was transmitted as a dominant characteristic in the Mendelian sense of the word. One must also consider whether those humans who had inherited this abnormal characteristic developed their own sensitization by the usual immunological process, or whether the sensitization was acquired in the absence of antigen. Arguments in support of the latter contention were presented.

Multiple Sensitization.—The peculiar capacity of individuals to develop reacting bodies within themselves was shown most strikingly in the fact that over 42 per cent. of a large series of cases showed a reaction to many unrelated forms of protein, these different sensitizations amounting to as many as fifty in some cases, and showing absolutely no relation to one another. The clinical diagnosis of sensitization depended upon

the production of a reaction. These reactions depended upon the presentation of a suspected protein to the sensitized cell. It must be borne in mind that the sensitized cells were much more widely distributed than the particular group giving a clinical reaction. To this rule there were some exceptions. In view of the fact that sensitization was not limited to any particular group of cells, but seemed to affect all of the epiblastic tissue in general, it was possible to make use of this reaction in the diagnosis and we had recourse, therefore, to the intradermal and to the ophthalmic reactions. The essayist gave preference to the intradermal test by the hypodermic for the reason that it created less trauma and the protein was brought into more intimate contact with the sensitized cells. Approximately 1/100 c.c. was injected. Usually the reaction was observed in fifteen or twenty minutes, though occasionally it was deferred twelve to twenty-four hours. The ophthalmic test was made by instilling a small amount of the solution into the eye. The reaction began within fifteen minutes and was characterized by itching, lacrymation, and conjunctival and corneal injection. This reaction was more limited in its value than the intradermal for the reason that many of the food proteins that gave clinical symptoms and a cutaneous reaction gave no ophthalmic reaction. Those cases that required a high concentration of protein to produce a reaction were much less sensitive.

Hay Fever.—In discussing hay fever the essayist protested against the use of the term hay fever as too restricted in its meaning to fulfill all the requirements and convey the conception of the condition of rhinitis as it was understood today. He suggested the term "protein rhinitis" or anaphylactic rhinitis to cover the group of disturbances due to pollens, animal emanations, perfumes, sachets, and foods. The more one studied clinically the so-called vasomotor rhinitis the larger became the percentage of cases that were demonstrably anaphylactic. He did not wish to be understood as assuming a too biased attitude or denying the existence of vasomotor changes *per se*, but he believed the same situation obtained here as in bronchial asthma, namely that there was a development of a capacity in the mucous membrane to react by vasomotor changes to exciting causes other than those fundamentally responsible for the condition. A consideration of the pathogenesis and pathology of protein rhinitis led the writer to the conclusion that spontaneous sensitization occurred in human individuals rather than a process of sensitization by the usual immunological process. A consideration of the importance of anatomical structure and infections made it seem fair to assume the hypertrophied and chronically congested mucous membrane was the result of either infection or protein reaction. Persistent protein reaction undoubtedly led to infection and its attendant symptoms.

The Etiology of Protein Rhinitis.—The essayist presented the following classification of the etiology of acute or chronic rhinitis: (1) Infective. (2) Non-infective. The noninfective might be (a) vasomotor rhinitis or (b) "protein rhinitis." A protein rhinitis might be due to (a) pollens, (b) sachets, (c) animal dander, (d) foods. Of these latter the pollens were the most important. Food was usually not a factor in the etiology of protein rhinitis; when food was a factor, gastrointestinal and cutaneous symptoms were also present and minimized or obscured the nasal symptoms. In making the diagnosis of protein rhinitis, if violent reactions were avoided it was feasible to make fifteen or twenty cutaneous tests at one time; ophthalmic tests to this extent were out of the question.

Treatment of Protein Rhinitis.—In the treatment of protein rhinitis three factors must always be borne in mind: (1) Sensitization. (2) The condition of the nose from polyp, hypertrophy of the turbinates, deviated septa, etc. (3) Infections, nasal or paranasal sinuses. The treatment of hay fever was carried out by the minute injections of the specifically reacting protein. It was best instituted six weeks before the onset of the trouble, one injection a week being given in gradually increasing doses. The injections were continued through the season, about twelve being given. If the symptoms had started, an injection of pollen extract was given every day for three or four days and

then every two or three days, gradually increasing the interval as the doses were increased. The result of the treatment in typical hay fever was evidenced by the fact that 80 per cent. of the cases were relieved of 80 per cent. of their symptoms. There were difficulties encountered in the administration of the pollen extract, either from too large a desensitizing dose or from insufficient dosage. Care in determining the degree of sensitization and experience were both invaluable in avoiding the danger inherent in this method of treatment. Where it was possible to alter the environment of the patient this method was preferable.

Etiology of Bronchial Asthma.—The essayist also presented a classification of bronchial asthma on an etiological basis as follows: A. Bronchial asthma due to anaphylactic absorption from (1) the respiratory tract, as animal and vegetable emanations; (2) the intestinal tract (foods); (3) foci of infection; (4) subcutaneous tissue. B. Bronchial asthma not due to anaphylactic absorption, as that due to thymic enlargement, tuberculosis, renal disease, cardiac disease, bronchial infections acute or chronic. On account of the identity of the clinical manifestations in the latter conditions they must always be borne in mind in making a differential diagnosis. In addition to the causes here classified, mention might be made of inciting causes such as physical exertion, over-eating, inhalation of irritating vapors and dust, and atmospheric and barometric changes. After discussing the pathogenesis and pathology of bronchial asthma, it was stated that the history of cases of chronic asthma led to the belief that the so-called vagotonic state to which attention had been directed was the result of repeated anaphylactic reactions, and that the asthmatic habit was one evidence of this heightened vagus tone. In the diagnosis of bronchial asthma all non-anaphylactic causes must be excluded and the cutaneous and ophthalmic tests were used as described in the paper in connection with the diagnosis of rhinitis.

Treatment of Bronchial Asthma.—Prevention was always indicated by avoidance of the cause of trouble if possible. In a series of 95 individuals with typical hay-fever and asthma caused by pollens, 18 of whom had both early and late forms, so making 113 cases, treated with specific pollen extracts, the fact was brought out that the asthmatic symptoms were controlled far more readily than the nasal manifestations. When the asthma was caused by sachets avoidance of the source of the trouble was always indicated; when it was due to foods avoidance of the antigenic foods should be the rule and desensitization only attempted when the reacting group included most of the foods habitually included in the daily diet. Foci of infection, wherever found, should, of course, be eradicated. Summing up the uses of desensitization it might be said that (1) first and foremost it was indicated in pollen rhinitis and asthma; (2) it was only indicated in the cases of sensitization to sachets, animal dander, and foods when avoidance of the antigenic substance was out of the question. The greatest limitation to the free use of desensitization was the grave danger not only to health but to life and its field of usefulness was automatically restricted by the fact that its effect was evanescent.

Dr. HERBERT S. CARTER said that it was with a good deal of hesitancy that he, as an internist, approached this subject, for the mere nomenclature was enough to make a stout heart quail. It was not only with the asthenic forms of anaphylaxis, such as asthma, hay-fever, and urticaria that they were concerned, but they would have to reckon with the less dramatic aspects of chronic anaphylaxis, and in studying this much depended upon what the laboratory men could teach them. Until their feet were placed on solid ground by Meltzer and other workers with the phenomenon of anaphylaxis it would be the football of all the specialists. Probably all the manifestations of this particolored disease belonged under one heading and when we knew all that there was to know of immunity we should have solved the problem of anaphylaxis to the full. Dr. Cooke had given such a complete picture of the subject of desensitization that he would not attempt to add to it, but would merely indicate some of the problems that faced the internist: (1) There were still certain cases of anaphylaxis, particularly the obscure asthmas, the knowledge of which left much to be desired. If in these

cases, after the full round of skin tests, no form of protein were found which gave a positive reaction, one found himself in much the same position as before he knew anything about anaphylaxis; he must fall back on empirical measures of forced elimination, etc. The mere failure to find the offending protein was no argument against the general hypothesis, but it left one with less faith in what he was doing. That was one problem, and a trying one it was. (2) By far the most important aspect of this question was the remote effect upon the parenchyma of the various organs that repeated acute or chronic anaphylactic shock might have. It was here that the particular interest of the internist lay, for in the solution of this question might lie the answer to many, if not most, of the so-called degenerative processes. There was a long list of workers who had added to their knowledge in this field, though the subject was of course only in its infancy. Gay and Southard had studied the effect of anaphylactic shock on the organs and had shown that hemorrhages were caused which were due to lesions of the capillary endothelium, that the changes in the capillaries of the endothelium were mostly fatty changes, waxy changes, or fragmentation of the heart and skeletal muscles, local necrosis of the epithelium, and round celled infiltration of the kidney as well as a thickening of the capsules of the glomeruli, as shown by Longcope. Longcope has also shown that in the heart the same necrosis, round celled infiltration, and scar tissue formation occurred producing the appearance of interstitial myocarditis. It was enough merely to mention these findings to show what a vast area of possibilities were opened. While these lesions were artificially produced by the repetition of repeated acute anaphylactic shocks, it was natural to ask themselves what the effect of repeated slight shocks might be even when too slight to cause any outward manifestation. In the fall of blood pressure consequent upon shock one could see great possibilities in the interpretation of acute subnormal blood pressure in acute infections, as, for instance, in a pneumonia which we had come to fear as an expression of depression of the vegetative nervous system, for while we commonly here put the blame on toxemia, the effect of a toxin on this system was ordinarily one of stimulation with raised blood pressure, as Pottenger had shown; while on the other hand we knew that the effect of anaphylactic phenomenon upon the vagus was one of depression. Manwaring had shown that the fall in blood pressure in the dog that accompanied anaphylaxis was not due to the direct action of foreign protein on the sensitized blood vessels but was probably an indirect phenomenon due to the explosive formation or liberation of depressive substances by the liver, resulting in vasodilatation, bronchodilatation with consequent fall in blood pressure and pulmonary edema. (3) As to desensitization, Dr. Carter said, his experience had been too limited to be of value, but the general impression was that a few of the patients who suffered from chronic anaphylaxis were entirely relieved, most of them were rendered more comfortable but were not free of symptoms, and some showed no relief. There was much to be desired in the way of sure promise of complete relief from symptoms. The efforts at desensitization were undoubtedly in the right direction, but there were still missing links in some of the chains.

Dr. OSCAR M. SCHLOSS stated that his experience with bronchial asthma was confined to cases of sensitization to food proteins seen in children. For statistical purposes these cases might be divided into two groups. In the first group the patients came under observation on account of a definite history of protein sensitization as indicated by such conditions as angioneurotic edema, and urticaria, and among these there were some cases of bronchial asthma. There were 42 such cases. The second group comprised 89 cases of bronchial asthma, and in these tests were made to ascertain their sensitiveness to food proteins. Of the 89 cases four gave positive reactions to the food proteins. It seemed that this furnished very definite evidence that bronchial asthma due to food protein was relatively rare. An investigation of the origin of this idiosyncrasy showed that it was either inherited or acquired. Dr. Cooke stated that in the cases that were artificially sensitized the state of sensitization was mild, and with this statement the investigations of Longcope were in

accord. Assuming that an acquired sensitization through ingestion might be taken in the same sense as artificial sensitization, Dr. Cooke's statement was not in accord with his own observations. In three cases of acquired sensitization in which the symptoms were of the most pronounced grade his reason for believing that the condition was acquired was that there was no family history and, secondly, there was a history of these children having ingested the food to which they later developed idiosyncrasy. When such a sensitizing dose was ingested it was usually some time before the toxic symptoms were manifested. Certain individuals seemed to be more easily sensitized at certain times than at other times. It had been brought out by Lust, Schloss, and Worthen, and others, that at certain times unaltered protein could pass unaltered through the gastrointestinal mucosa and produce sensitization. Wells' experience had some bearing on this subject. Wells found that certain groups of guinea-pigs could not be sensitized to a protein of a certain type, zein from corn, and he found that they had been fed corn previously. By carrying out his experiment he had been able to demonstrate that sensitization was acquired. Guinea-pigs fed for a certain time with white of egg passed through a stage of sensitization and later became immune; for a time they reacted very violently, and then if the food were continued they did not react and it was impossible to sensitize them actively to the egg white. There must be a previous predisposition to explain why relatively few people acquired sensitization of any marked degree. In a series of cases desensitization had been attempted by the speaker. He found it possible to desensitize such individuals by feeding the protein to which they were sensitive, but they must be fed with the protein frequently over a considerable period of time. His experience in this respect was in accord with that of Dr. Cooke. If, after having been desensitized, sensitization again occurred, it was present in a milder degree and could be more easily corrected. In cases of multiple sensitization the problem of desensitization resolved itself into that of desensitizing the patient to the foods to which he reacted most actively.

Dr. MARK J. GOTTLIEB related his experience with artificial desensitization which went to show that such artificial desensitization was not very prolonged. He also described an experiment on himself which seemed to indicate that serum carried over from one season to the next had not deteriorated. He thought it was possible to find sensitization in some cases in which there was no family history of anaphylaxis. He also raised the question as to whether the mucous membrane was desensitized by the injection of pollen extract under the skin when the sensitized cells lay in the mucous membrane of the upper respiratory tract.

Dr. COOKE, in closing, emphasized the fact that the subject was so new that thus far in their investigations they had only scratched the surface; furthermore, what had been done was subject to considerable revision and amendment, and certainly a much more accurate technique in every particular might be worked up.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

THE NATIONAL BOARD OF MEDICAL EXAMINERS.

Chicago, October 10-18, 1917.

(Continued from page 310)

MATERIA MEDICA AND THERAPEUTICS.

Answer the first six questions; of the remaining six choose four:

- (a) Give the source and physical properties of strychnine. (b) Describe the action of strychnine on the spinal cord.
- (a) Describe the therapeutic uses of atropine, and state the proper dose to be given in each instance. (b) Describe two therapeutic uses of caffeine, and state the proper dose to be given in each instance.
- (a) Describe the source and physical properties of morphine. (b) Explain the analgesic action of morphine. (c) Explain the constipating effect of opium.
- (a) What are the different stages of ether anes-

thesia? (b) Describe the stage of surgical anesthesia. (c) Describe the effect of hydrated chloral on the central nervous system, and give the principal therapeutic uses.

5. (a) Describe the pharmacologic action of digitalis on the heart muscle. (b) In which forms of cardiac disturbance does digitalis exert its best therapeutic effect?

6. What are the indications for the use of mercury in syphilis?

7. (a) Discuss fully the administration of quinine in malaria. (b) Write a prescription containing quinine with full directions to the patient.

8. (a) Give the source of salicylic acid. (b) Describe the effects of large doses of the salicylates. (c) Write a prescription containing sodium salicylate, with full directions to the patient.

9. Describe the pharmacologic action and therapeutic use of epinephrin.

10. Name two dissimilar drugs classed as circulatory depressants, and state in what conditions you would use each.

11. Name two evacuates acting mainly on (a) small intestine; (b) large intestine; (c) rectum. (d) Define a cholagogue, and give one example.

12. (a) Name three preparations of iron used in medicine. (b) Discuss the relative value of iron and arsenic in anemia.

BACTERIOLOGY, MEDICAL ZOOLOGY, AND IMMUNITY.

1. (a) What are the most important points differentiating streptococci from pneumococci? (b) What are our present views as to types of pneumococci, and what bearing has this on the success of serum treatment of pneumonia?

2. (a) What are the general characteristics of *B. dysenteriae*, and how do we separate Shiga strains from Flexner ones? (b) Name the anaerobic and aerobic spore bearers of pathogenic importance in man.

3. (a) Name the various organisms which may cause meningitis. (b) What are the laboratory methods of diagnosis of a tuberculous meningitis, and what are the characteristics of the spinal fluid of such a case?

4. (a) How does an antitoxic serum differ from an antimicrobial one, and give two or more examples of each? (b) What is the difference between active and passive immunity.

5. (a) What are the laboratory methods for the diagnosis of a hookworm infection, and outline the life history of the parasite? (b) How do the segments and head of *Dibothriocephalus latus* differ from those of *Tænia saginata*?

PATHOLOGY.

Answer five of the following questions:

- Discuss post-traumatic embolism.
- Contrast in parallel columns the distinguishing characteristics, gross and microscopic, of benign and malignant tumors of the breast.
- Contrast in parallel columns the distinguishing characteristics, gross and microscopic, of the lesions in internal organs, of syphilis and tuberculosis.
- Discuss the pathology of chronic interstitial hepatitis.
- State briefly the pathologic conditions which may be present ten hours after the receipt of a nonfatal perforating gunshot wound of the abdomen.
- An unknown middle-aged man has died six hours after having been found on the street, apparently in a drunken stupor: Give the general necropsy technic and the probable essential findings.
- A man 47 years of age has died two years after the onset of typical pernicious anemia: Tabulate the gross and microscopic changes probably present in the several affected organs.

ANSWERS.

MATERIA MEDICA AND THERAPEUTICS.

1. STRYCHNINE. *Source:* *Strychnos nux vomica* and *strychnos ignatia*. *Physical properties:* It occurs in crystals which are transparent and colorless, or as a white crystalline powder; it is odorless, very bitter, alkaline in reaction, almost insoluble in water, but its salts are soluble in 32 parts of water. *Action on the*

spinal cord: Strychnine "increases the reflex excitability of the spinal cord, culminating in symmetrical convulsions and tetanus. The motor reflexes are modified so that smaller stimuli are effective; and the response even to slight stimulation is maximal, tetanic, and spreads to all the muscles. There is also a reversal of inhibitory into augmentory reflexes, so that the reciprocal action of antagonistic muscles is disturbed"—(Sollmann's *Pharmacology*.)

2. **ATROPINE.** It is used (1) to dilate the pupil, render it insensitive to light, and to paralyze accommodation. The drug is applied locally, either an aqueous solution of the sulphate or an oily solution of the alkaloid being used; to avoid the toxic action a single drop of a 1 per cent. solution may be employed at a time. (2) It is also used to inhibit the secretion of sweat or saliva; small doses, such as 1/100 grain may be employed to suppress ptialism or to relieve (temporarily) the night sweats of phthisis.

CAFFEINE acts as (1) a diuretic, affecting mainly the water constituent of the urine; the solids in the urine are slightly increased. This action may be caused by cardiac stimulation, vasodilatation, or stimulation of the secretory epithelium of the kidney. Dose, 5 to 10 grains of citrated caffeine. (2) It is also used in certain forms of headache (such as migraine, neuralgia, or when due to fatigue). Dose, 7½ grains.

3. **MORPHINE.** *Source:* Opium. *Physical properties:* White or colorless prisms, or in fine needles, or a crystalline powder; odorless, bitter; almost insoluble in water, though its salts are soluble in about 15 to 20 parts of water. The analgesic effect of morphine is due to its depressing effect on the higher centers in the brain (chiefly the perceptive centers); the local action of morphine is practically nothing at all. The *constipating effects of opium* are due to the diminution of peristalsis and also of secretion; the nerve centers in the intestinal walls (Auerbach's plexus) are depressed; and there is a diminished irritability of the endings of the vagus, and also splanchnic (inhibitory) stimulation.

4. (a) The different stages of *ether anesthesia* are variously given. Thus, Hewitt classifies them as (1) analgesia, (2) light anesthesia, (3) deep anesthesia, and (4) bulbar paralysis. Sollmann's classification is into (1) the pre-anesthetic, (2) the anesthetic, and (3) the paralytic stages.

(b) The stage of *surgical anesthesia* is thus described by Sollmann: It is characterized by complete paralysis of the brain and of the motor reflex centers of the cord, and usually some depression of the medullary centers. Consciousness, sensation, and most reflexes are lost—the corneal reflex being among the last. Consequently the muscles are lax. The smooth muscles are not usually affected, but there is sometimes a relaxation of the sphincters. The pulse is full and soft, the rate slightly faster than normal; the blood-pressure is normal or rather raised. The respiration is regular and deep, often softly snoring or stertorous, and rather rapid. The temperature falls in consequence of the lessened muscular activity and increased heat loss. The pupils are somewhat small and respond sluggishly to light. The face is often cyanotic. The medullary depression does not reach a dangerous degree if the administration is carefully done. But with prolonged anesthesia, the pulse tends to become progressively weaker, the respiration more shallow, and the temperature lower—it may fall as much as 5° C. This is due to paralysis of the function of temperature-regulation.

(c) *Effect of hydrated chloral on the central nervous system:* In hypnotic doses chloral hydrate fairly rapidly induces a mild but prolonged cerebral depression, accompanied by the phenomena of natural sleep, and it is a very reliable hypnotic. The pulse and respiration are somewhat slowed, the pupil is in midcontraction, the CO₂ of the blood is reduced, as in sleep, and the patient may be fairly easily aroused by noises or pain or other sleep antagonists. From therapeutic amounts there is no essential analgesia, so that pain is not abolished, and in animal experiments it is found that there must be profound narcosis before there is any perceptible diminution in the response to painful stimuli. The reflexes are somewhat depressed, but not enough by safe amounts to make the drug more than weakly antidotal to the convulsions of eclampsia, tetanus, and strychnine

poisoning. From poisonous doses there is profound stupor, diminished excitability of the motor areas of the brain, as shown in experiments with dogs, depressed pain sense, and diminished reflexes, so that there is more or less muscular relaxation. The patient passes through stages similar to those from chloroform, and may pass to a state of surgical anesthesia (coma), with abolition of consciousness and of the reflexes, but in imminent danger of collapse. *Therapeutics:* As a hypnotic—in fever, in various forms of delirium, or in conditions of nervousness or restlessness from overwork or excesses, *e. g.*, alcoholic or sexual. It is a powerful and reliable sleep-producer in dose of 10 to 30 grains. The beginning dose should not ordinarily exceed this. As a circulatory depressant—in cases with high arterial tension, as in chronic nephritis or arteriosclerosis. Its action may be due to its effect upon the viscosity of the blood, but it is probably of very little real use. Dose 5 to 10 grains three or four times a day. In obstetrics, when the first stage is prolonged, a dose of 30 grains by mouth or rectum may give the patient rest and promote relaxation of the cervix. Chloral has some employment as a motor depressant in certain spasmodic conditions such as whooping cough, chorea, spasmodic asthma, tetanus, eclampsia, and strychnine poisoning; but for an effect in these cases larger than safe doses are required. It is of no value to check pain.—(Bastedo's *Pharmacology and Therapeutics*.)

5. **DIGITALIS.** (a) *Action on the heart muscle:* "It slows the beat of the heart; the diastole is prolonged, the force of the systole increased, and the size of the individual pulse-wave is also increased. Under digitalis the work done by the heart is much greater than normal, and the slowness developed is not sufficient to counter-balance the increased output at each ventricular contraction. Later, if enough of the drug has been taken, the heart's action becomes extremely fast and irregular, the strength of the ventricular contractions diminishes, and the output of the heart rapidly declines. Digitalis is preeminently a vaso-constrictor, and it causes a marked rise in blood-pressure; under toxic doses the pressure diminishes with the extreme slowing of the heart, but, as the organ becomes accelerated, it again rises to a pronounced degree. Finally, as the heart becomes irregular, the blood-pressure declines until it reaches zero, when the heart stops.—(Wilcox's *Materia Medica*, etc.)

(b) *Effects of digitalis in cardiac disturbance:* "The most important use of digitalis is in diseases of the heart; it is indicated, in general, when the cardiac action is rapid and feeble, with low arterial tension, and contraindicated when the cardiac action is strong and the arterial tension high. It not only slows and steadies the heart, but also improves the nutrition of its walls. It should be administered with caution, and should always be stopped as soon as symptoms of gastro-intestinal irritation occur, or the pulse becomes abnormally slow. It has a cumulative effect, and should not be given too long continuously. It is especially valuable in cases of mitral disease in which compensation has begun to fail and in which there is dropsy; when cardiac dropsy is present digitalis is usually an efficient diuretic. In diseases of the aortic valve it is of much less benefit, and is often entirely contraindicated. Still, the indication for giving or withholding digitalis is not so much the particular valvular lesion present as the effects which have been produced by this upon the cardiac wall. The constriction of the peripheral vessels caused by the drug may, when necessary, be counteracted to a considerable extent by the simultaneous administration of remedies causing vasodilatation, such as the nitrites. Digitalis is much used also in cardiac affections which are not due to valvular disease, and is highly esteemed in the weakness of the heart resulting from various acute diseases and from such causes as hemorrhage, poisoning, injury and shock.—(Wilcox's *Materia Medica*, etc.)

6. **Mercury** is indicated in all stages of syphilis, both acquired and hereditary. It has been misused and abused, but it still remains the best drug for use in syphilis.

7. (a) The specific action of quinine in malaria is due to its toxic effect upon the plasmodia causing the disorder. Quinine is most effective in the tertian, less

in the quartan and least in the pernicious malaria. It does not act equally on the parasite in all stages of its development. The sexual forms are more resistant than the usual asexual. Its strongest action is upon the forms which are just breaking into spores and upon the free-swimming organisms; it is much weaker upon the older segmenting bodies, and least upon the young endoglobular forms. Since the resistant endoglobular forms exist in the blood just before the paroxysm, and their sporulation gives rise to the characteristic chill and fever, and since quinine does not act well upon them, it will not be effectual against the oncoming paroxysm. But if it is given at this time it will be present in the blood when the spores are liberated, and as these are most susceptible to its action, it will kill them and thus prevent the development of the new cycle (providing that the dose has been sufficiently large). It should therefore be given several hours before the expected paroxysm so as to allow time for its absorption. The dose should then be quite large: 1 to 2 gm. given (fasting, if possible) two to three hours before the expected attack (which will in all probability occur), or 0.3 gm. four or five times a day in the interval; 0.5 gm. per day should be continued for three months after the last chill. To be effective, the quinine must be administered in solution. Large doses of quinine sulphate in pills or powder are probably largely wasted, since they are not dissolved or absorbed; the sulphate requires 720 parts of water for solution. The hydrochloride is more soluble (1:18) but the bisulphate (1:8.5) or the dihydrochloride is the best. It is not customary to prescribe the bisulphate directly, but to bring the sulphate into solution by the addition of a sufficient quantity of dilute sulphuric acid. The quantity of acid should be rather in excess. If it is only just sufficient, some sulphate will be precipitated on the tongue by the alkaline saliva, and give rise to a very persistent after-taste. There will be very little of this if an excess of acid is used and the mouth rinsed afterward. Urgent cases may demand intramuscular injection of quinine dihydrochloride (1 gm. in 10 c.c.) or of quinine-urea hydrochloride (2 gm. in 5 to 10 c.c.). Intravenous injections of the hydrochloride have also been used. Concentrations of 1:150 are dangerous; and even lower concentrations should be used with caution, for fear of direct cardiac effects. Ehrlich suggests using methylene blue with quinine.—(Sollmann's *Pharmacology*.)

(b) R

Quininæ hydrochloridi, 5iv.

Fluidextracti glycyrrhizæ, 3iv.

Syrupi aurantii, 5iv. M.

Sig.—Three teaspoonfuls three hours before the expected attack and one teaspoonful three or four times a day between attacks.

8. (a) Salicylic acid exists in combination in various plants, but may be obtained from the natural salicylates as the oil of wintergreen; but is generally prepared synthetically from phenol. It may also be made by combining sodium carbolate with carbon dioxide gas and then treating the disodium salicylate with hydrochloric acid.

(b) *Effects of large doses of the salicylates*: Nausea, vomiting, tinnitus aurium, deafness, vertigo, headache, mental dullness and confusion, diaphoresis, quickened pulse, deepened respiration; sometimes skin eruption, albuminuria, impaired vision, and delirium.

(c) R

Sodii salicylatis, 5iv.

Tincturæ lavandulæ compositæ, 5iij.

Glycerini, 5v.

Aquæ distillatæ, q. s. ad 5vj. M.

Sig.—Take one teaspoonful, well diluted, every three hours. If nausea or ringing in the ears is noticed, stop taking the medicine for twelve hours; and then resume the medicine, taking one-half the dose.

9. "Epinephrin excites the sympathetic nerves so as to produce a variety of effects according to the function of the part supplied by the nerve. It produces a sudden rise of blood-pressure by contraction of the arterioles. The pulse is slowed as the result of the increased blood-pressure. The heart is stimulated directly, but the resistance offered by the contraction of the blood-vessels is such that at times the heart is unable to overcome it and suffers passive dilatation.

The rise of blood-pressure which results from the action of this drug is very prompt but transient, lasting, as a rule, not more than five minutes. When given by the mouth it produces no evident effect on the circulation, but it is readily absorbed into the mucous membranes of the nose, mouth, urethra, vagina and rectum, producing local contraction of the blood-vessels. Very large doses are tolerated when given hypodermically on account of the slow absorption due to the constriction of the blood-vessels of the part into which it is injected. It acts promptly after intravenous injection, but is rapidly destroyed. Epinephrin dilates the pupil. It inhibits the peristaltic movements of the intestine and increases the secretion of saliva and other glands which receive their nerve supply from the sympathetic. It relaxes bronchial spasm. Epinephrin may produce hyperglycemia and glycosuria, and experiments on rabbits indicate that its continued use may cause a degeneration of the internal coats of the arteries. The chief therapeutic use of epinephrin is to constrict the peripheral blood-vessels by local application. A period of secondary dilatation follows. In this way it may be used to diminish hyperemia of the conjunctiva, to reduce swelling of the turbinated bones, to arrest hemorrhage from the mucosa of the upper respiratory tract, and in operation on the eye, nose, ear, etc. It is successful only in capillary or small arterial bleeding, as it cannot stop a large vessel hemorrhage. For the arrest of hemorrhage it must be applied directly to the bleeding vessels or congested area. If the blood washes it away the application may fail because it has not time to act. It may be swallowed to check hemorrhage from the stomach, but the chances of success are small because a quantity of liquid is usually present in the stomach which dilutes the remedy so that it is useless. It should not be given for internal, concealed hemorrhage, in which high blood-pressure is never desired. Epinephrin is employed in conjunction with local anesthetics, especially cocaine, to limit the absorption of the anesthetic and secure a more efficient local action. It has proved useful in relieving paroxysms of asthma both by applying a spray to the nose or throat, or by hypodermic injection."—(Useful Drugs.)

10. *Two dissimilar circulatory depressants*: Aconite, and potassium bromide.

Aconite is used in cases of high arterial tension, when the heart is hypertrophied without valvular lesion, and when with valvular lesion there is excessive compensation.

Potassium bromide is used when the heart is overacting, in cases of tachycardia or palpitation.

11. *Two evacuants acting mainly on the small intestine*: Castor oil, and jalap; *on the large intestine*: Colocynth, and sodium sulphate; *on the rectum*: Aloes, and rectal enema of soap and water.

A cholagogue is an agent which stimulates the liver and increases the flow of the bile; *example*, podophyllin.

12. (a) *Three preparations of iron used in medicine*: Ferrum reductum, ferri chloridum, and ferri carbonas saccharatus.

(b) The administration of iron in anemia and especially chlorosis often rapidly increases the amount of hemoglobin and the number of red corpuscles. It is useless in pernicious anemia; and of little value, if any, in the anemia of leukemia, exophthalmic goiter, and Hodgkin's disease. In common forms of anemia which are secondary to some special cause, such as hemorrhage, lead poisoning, malaria, scurvy, etc., the removal of the cause is essential to recovery, but the use of iron salts is often of great service in aiding the latter. . . . To restore the amount of hemoglobin and the number of red corpuscles, small doses of reduced iron or of the carbonate, or some one of the combinations with vegetable acids, are usually the most serviceable. In chlorosis better results are often obtained from combinations of iron with strychnine or arsenic than from iron alone.

Arsenic is used to some extent in the treatment of diseases of the blood as anemia, and especially in diseases of the blood-making organs which are designated as primary anemia, including leukemia, exophthalmic goiter, Hodgkin's disease, and pernicious anemia. In chlorosis as well as in instances of anemia, where iron disagrees with the patient or proves unsuccessful, it is considered a valuable agent. In these disorders the

efficiency of iron is at times much increased by the addition of arsenic.—(From Wilcox's *Pharmacology and Therapeutics*.)

BACTERIOLOGY, MEDICAL ZOOLOGY, AND IMMUNITY.

1. (a) *To differentiate streptococci from pneumococci:* (1) *Pneumococci* ferment inulin, if cultivated in inulin-serum-water medium. Acid formation from the inulin results within two days or more in coagulation of the serum and reddening of the litmus. *Streptococci* because of their inability to attack the inulin leave the medium unchanged. (2) Cultivated on whole-blood-agar, *streptococci* usually cause hemolysis, *pneumococci* usually do not. In contradistinction to *streptococcus viridans*, which does not hemolyze, *pneumococci* have a tendency on these media to form the black, dry, paint-blister colonies. (3) Normal rabbits' bile added in quantities of 0.1 c.c. to each one or two cubic centimeters of a *pneumococcus* broth culture caused lysis of the bacteria, rendering the culture fluid transparent and clear. This phenomenon does not occur with *streptococci*, and has been used to differentiate the two species. There are also differences in the agglutinations of these microorganisms in immune sera.—(From Hiss and Zinsser's *Bacteriology*.)

(b) It is believed at present that there are various types of pneumococci; two distinctive groups of pneumococci, a third group, the streptococcus or pneumococcus mucosus, and a fourth or heterogeneous group. Each of these four groups differs from the others in agglutination and serum protection experiments. The first two groups have each their own individual antiserum which may be used for treatment if used early and if it corresponds to the type of pneumococcus causing the disease.

2. (a) *Dysenteric bacilli* are small, plump, rods with rounded ends very similar to colon bacilli. They are usually single, but occasionally occur in pairs. They are not motile, and no flagella can be demonstrated. There is no spore formation. The bacillus stains readily with the ordinary aniline dyes, but is decolorized by Gram's method. The bacillus grows well on the usual culture media. Gelatin is not liquefied, nor indol produced. . . . The Flexner type differs from the others in its agglutination reaction with the patient's serum. Shiga compared the action of the immune serum on the Shiga and Kruse organism and found that they are identical from the agglutination and bactericidal standpoints. He showed that there is a difference in receptor apparatus between the bacillus of Shiga-Kruse and that of Flexner. When the immune serum is saturated with a Shiga culture, all the agglutinins and pro-agglutinoids for Kruse's organism are absorbed by the bacilli; and when they are removed with centrifugalization, the serum is no longer liable to agglutinate fresh additions of Shiga-Kruse bacilli, while its limit for the Flexner bacillus is only slightly changed or *vice versa*.—(From Shiga's article in Osler and McCrae's *Modern Medicine*.)

(b) *The spore-forming organisms of pathogenic importance to man are:* (1) *Bacillus anthracis*, which is aerobic and facultative anaerobic; (2) *Bacillus tetani*, which is anaerobic; (3) *Bacillus oedematis maligni*, which is an anaerobe; (4) *Bacillus botulinus*, which is an anaerobe; (5) *Bacillus aerogenes capsulatus*, which is an anaerobe.

3. (a) *Organisms which may cause meningitis are:* *Micrococcus intracellularis meningitidis*, *pneumococcus*, *bacillus coli*, *bacillus paratyphosus*, *bacillus pestis*, *bacillus mallei*, *bacillus tuberculosis*, *bacillus influenzae*, *bacillus diphtheriae*, *gonococcus*, and various staphylococci and streptococci.

(b) *The laboratory methods of diagnosis of tuberculous meningitis* are finding the tubercle bacilli in the cerebrospinal fluid, cultivating them from the same, and injecting rabbits or guinea pigs with the fluid or sediment, and causing tuberculosis in these animals.

The cerebrospinal fluid may be clear or turbid when drawn, but a slight deposit forms on its being allowed to stand. There is a decided increase in the lymphocytes and polynuclears in the fluid, and the tubercle bacilli may be found in the fluid or the sediment. The fluid is increased in quantity; its protein content is also increased.

4. (a) *Differences between antitoxic and antibac-*

terial sera: The antitoxic sera act directly upon the poison secreted by the living bacterial cell and neutralize its toxic property while the bacteriolytic sera affect the bacteria themselves and destroy them or paralyze their action. Since the antibacterial sera are without effect upon the formed toxin, they are mainly useful in practice as a means of protecting against bacterial invasion, while the antitoxic sera (e.g., diphtheria) may be employed to combat an infection already in progress. Broadly speaking, the latter are curative, the former protective. It must not be inferred that a given serum cannot be both antitoxic and bactericidal. If a horse be injected with a diphtheria culture containing both diphtheria bacilli and diphtheria toxin, the resulting serum will be not only antitoxic, but to some extent bacteriolytic.—(Jordan's *Bacteriology*.) *Antitoxic sera*, those of diphtheria and of tetanus. *Antibacterial sera*, those of meningitis, cholera, typhoid fever, etc.

(b) *Active immunity* is due to the direct participation of the organism concerned and depends upon increased cell activity. Such immunity is gained at the expense and often at the risk of the organism acquiring it. Immunity to smallpox may be obtained either by an attack of the disease due to natural exposure or by deliberate inoculation by vaccination with cowpox virus. This immunity depends upon a specific reaction on the part of the cells and tissues of the individual organism.

Passive immunity, on the other hand, involves no active generation of protective substances by the immunized animal. The latter is simply the recipient of substances formed in the body of another animal and transferred to the individual to be protected. When a child has been exposed to diphtheria it is the custom to inject about 1,000 units of diphtheria antitoxin into the body of the child for protective purposes. The child is then measurably assured against an attack of diphtheria, and is said to have been immunized passively, since its own tissues have in no way shared in the manufacture of the protective substance. Passive immunity may be quickly acquired, but is also much less permanent than active immunity, and tends quickly to disappear.—(Jordan's *Bacteriology*.)

5. (a) *The laboratory methods for the diagnosis of hookworm infection are:* The finding of the ova of the hookworm in the feces; and finding a condition of eosinophilia in the blood.

Life history of the hookworm.—"The ova pass out with the feces, and, under favorable conditions of warmth and moisture, develop an embryo which hatches within a few days. The resulting larvæ pass through a stage of development in warm moist earth, growing to a length of 0.5 to 0.6 mm., and moulting twice. They are then ready to infect a new host. In some cases they probably reach the host's intestine by way of the mouth, with food or water; but the usual route is probably that established by Loos. When moist earth containing the larvæ comes in contact with the skin, they penetrate into the subcutaneous tissues. This is favored by retention of mud between the toes of those who go barefooted. When the larvæ are abundant, a dermatitis is induced. From the subcutaneous tissue they pass by way of the lymph- and blood-streams to the lungs. Here they make their way into the smaller bronchi, are carried by the bronchial mucus to the pharynx, and are swallowed. They thus ultimately reach the small intestine, where they develop into mature worms."—(Todd's *Clinical Diagnosis*.)

(b) *Tænia saginata* has a head about 2 millimeters in diameter, which is square-shaped and has four suckers, but no hooklets. The segments are wider than they are long and the middle segments measure about 6 by 15 millimeters. The uterus extends along the midline of the segment and gives off about twenty branches on each side.

Dibothrioccephalus latus has an almond-shaped head with two long, deep grooves at the borders, but no sucking discs or hooklets. There are generally from 3,000 to 4,000 segments which are broader than they are long, except near the posterior end; the mature segments measure about 3 by 10 millimeters. The uterus is in the center of the segment, and is rosette-shaped and pigmented.

PATHOLOGY.

1. *Post-traumatic embolism.* "Fat embolism follows upon extensive concussion of the bony skeleton, such as may be caused by a fall from a height. So, also, after fracture of the long bones, with rupture of the fat cells of the marrow, after forcible breaking down of stiff joints, operative handling of fatty tissues, such as the omentum and panniculus adiposus, numerous capillaries of the lungs may be blocked by fat. Where only a few capillaries are involved, at most minute infarcts may be produced, with no serious results. There may be a small surrounding congestion and some migration of leucocytes; gradually the fat seems to become saponified and so removed. Its presence in great abundance may seriously obstruct the circulation through the lung, and may even produce a fatal dyspnea. The emboli may become loosened from the lung capillaries, and passing through the left heart, have been encountered in the capillaries of the heart, kidney, and brain."—(Adami's *Pathology*.)

2. "*Benign tumors* are usually very slow in growth and distinctly localized, having a definite capsule. They rarely attain excessive size, but occasionally, owing to their intrinsically benign character, may attain huge dimensions without injury to the general economy. Generally they are movable (unless bound down by surrounding inflammatory tissue or primarily attached to bone). They do not metastasize or become disseminated throughout the body, and when completely removed do not recur. They exert no influence whatever upon the general economy when favorably situated, but may endanger life by their size and situation when they interfere with the normal functions of any of the important organs of the body. They constitute the bulk of the tumors of youth, and need be removed only because of their size and location and because of the ever present danger of transformation into their correlated forms of malignant disease. *Microscopically* they can be distinguished by their non-infiltrating character, by their distinct encapsulation, by their tendency to conform to some definite type of normal adult tissue, and the absence of an actively growing edge with an abundance of cells showing karyokinetic figures.

"*Malignant tumors* exhibit diametrically opposite characteristics. They grow rapidly and usually diffusely. They are not encapsulated and may quickly attain considerable size, although huge malignant tumors are rather exceptional, since they usually prove fatal before they attain such proportions. They are intimately connected with the surrounding tissues and quickly become bound down and immovable. They metastasize and become disseminated rapidly through the lymph or vascular system, progressing steadily toward a fatal termination by the interference with vital functions caused by metastatic growths, or by an auto-intoxication which undermines the general health and produces the condition commonly known as cachexia. *Microscopically* they can be distinguished by the embryonal character of the cells constituting the growth and by their atypical structure, conforming to no definite adult normal tissue. They can be seen to be rapid in their growth by the abundance of cells undergoing indirect cell division. They are not encapsulated, but tend to invade surrounding structures, blood and lymph channels, a circumstance which explains their ready metastasis."—(Rodman's *Diseases of the Breast*.)

3. The relations of tuberculosis and syphilis are thus given by Fowler: (1) Tubercle usually affects the apex of the lung and subsequently the apex of the lower lobe and tends to progress in a certain route. The primary lesion of syphilis is often about the root and central part of the lung. The disease follows no definite line of march and gummata may be found in any position. (2) Both tuberculosis and gummata may undergo either necrosis and caseation of fibrous transformation, but with caseous tubercle the tendency toward softening and cavity formation is the rule, whereas a caseous gumma very rarely breaks down. (3) The progressive destruction of the lung by a process of disintegration leading to a gradual increase in size of a cavity, a change so commonly observed in tuberculous disease, is rarely if ever observed in syphilis, except as a secondary result of stenosis of one of the main bronchi. (4) In

nearly all cases of advanced destruction of the lung occurring in the subjects of syphilis stenosis either of the trachea or of one of the main bronchi is present, whereas this lesion is very rare indeed in tuberculosis. (5) The cavities found in cases of pulmonary syphilis are usually bronchiectatic, but not invariably so; whereas in tuberculosis they are commonly due to progressive destruction of the lung, but may be bronchiectatic. (6) The tendency to the formation of pulmonary aneurysm, which is so marked a feature in tuberculosis, is rarely observed in pulmonary syphilis. (7) Pulmonary lesions in tuberculosis are very common, whereas in syphilis they are extremely rare." Osler says that "the microscopic distinction between gumma and tubercle is always difficult and often impossible. In general, epithelioid cells are more frequent in tubercle, fibroblasts and connective tissue strands in gumma; in gumma caseation and connective tissue proliferation are simultaneous, in tubercle the latter succeeds caseation; gummatous caseation is a much slower process than tuberculous caseation; the tubercle is often free from vessels, but new-formed vessels are a prominent feature of gumma and often persist even during necrosis. Giant cells are certainly more characteristic of tubercle than of gumma."—(Osler and McCrae's *Modern Medicine*.)

4. *Chronic interstitial hepatitis* comprises the cirrhoses of the liver, the two main types of which are the portal and the biliary.

Portal cirrhosis: The size of the liver is very variable; it may be smaller than natural, and justify the term "atrophic"; in such instances it may weigh only thirty ounces. On the other hand, it may be enlarged to twice its normal size. Sometimes, but by no means always, large cirrhotic livers show extensive fatty change (*fatty cirrhosis*). The larger cirrhotic livers are less knobby or hobnailed than the smaller ones. In some instances the "hobnails" show hyperplasia, and are so exaggerated that the condition is called *nodular cirrhosis* or *cirrhosis with multiple adenoma*. A further change in the "adenomata" may result in the development of carcinoma—primary carcinoma with cirrhosis. This is a very rare event. The surface of the cirrhotic liver is irregular, granular, or hobnailed; the capsule is somewhat thickened and opaque, and may be united to the diaphragm by adhesions which are markedly vascular. The "hobnails" are lobules of liver cells squeezed into prominence by the fibrous tissue contracting around them, and are often yellow from fatty change and bile-staining, thus justifying Laennec's term "cirrhosis." As a rule the liver is uniformly affected, but sometimes the left lobe is in a more advanced state than the rest. On section the organ is much firmer than natural, and is seen to be divided up by grey, slightly gelatinous-looking strands of fibrous tissue into small compartments of varying size. Microscopically fibrous tissue in various stages of development and containing elastic fibers spreads out from the portal canals to form meshes of different sizes, and encloses a varying number of hepatic lobules. The condition is therefore called *multilobular cirrhosis*, in contrast to *unilobular cirrhosis*, where the tendency is for each lobule to be separated from its fellows by a distinct fibrous sheath. In the fibrous tissue small round cells are present when the process is advancing. Columns of deeply staining small cubical cells—the so-called new bile-ducts—are frequently seen in the fibrous tissue. Their nature has given rise to a good deal of discussion. The liver cells are atrophied, and frequently show fatty change; pigment granules are sometimes present, especially in malarial cases. Compensatory hyperplasia of the liver cells may occur, and probably plays an important part in nodular cirrhosis and in the formation of the so-called new bile ducts.

Biliary cirrhosis: The liver is uniformly and considerably enlarged and may weigh from 80 ounces to 8 pounds; except for adhesions, the surface is fairly smooth. On section the liver is firm, of a dark-green color, and granular. The large bile ducts, the gall-bladder, the portal vein, and the hepatic artery are healthy. Microscopically, each individual lobule of the liver is seen to be surrounded by delicate connective tissue (*unilobular cirrhosis*): in places the fibrillar connective tissue invades the lobules (*intercellular cirrhosis*). The connective tissue is much more fibrillar than

in portal cirrhosis, but is more intimately related to the liver cells; it contains elastic fibers, but not to the same degree as in portal cirrhosis. In most cases where the disease has existed a considerable time there is in addition portal cirrhosis; this is a secondary lesion, and is probably due to poisons manufactured in the spleen reaching the liver by the portal vein. The small bile ducts show proliferation and some fibrosis around them, while the bile capillaries often contain plugs of inspissated bile. The appearance known as new bile ducts is prominent, but has no special significance, inasmuch as it is seen in common cirrhosis, gumma, and other destructive lesions of the liver. The cells of the liver are much better preserved than in portal cirrhosis; this is correlated with the prolonged course of the disease. The spleen is much enlarged and weighs from 15 to 40 ounces, or even more, sometimes weighing more than the liver. Adhesions around it are frequently met with. (*Quain's Dictionary of Medicine.*)

5. In *non-fatal perforating gunshot wound of the abdomen*, there may be protrusion of the omentum or intestine at the external wound; if the small intestines are perforated, and the opening is small, there may be a hernia of the mucosa; hemorrhage is common in wounds of the mesenteric border of the intestine, of the omentum, and of the solid viscera; if the stomach is wounded, its contents (if fluid) will be extravasated, but the size of the wound and the condition of the stomach with regard to its contents will cause variation in this regard. "In the presence of a gunshot wound of the abdomen it is well to remember that the outcome is uncertain; the exact lesion is problematical; all penetrating and perforating wounds in the abdomen are infected; the complications that are apt to occur are uncertain; and, further, it is estimated that in all peritoneal wounds the viscera have been perforated in nearly every instance. The development of perforation peritonitis is the rule in 12 to 24 hours. The outcome will depend upon the nature of the lesion, the amount of hemorrhage, the kind of infection, and the presence of extravasation from hollow viscera."—(*La Garde.*)

6. *General necropsy technique* is thus summarized by Wadsworth (details must be sought in some standard work): (1) *Preliminary*, permit, history, identity. (2) *Exterior*, surroundings, clothing, posture, general and detail examination. (3) *Dissection*, primary cut, opening thorax and abdomen. Inspection without handling—geography. Inspection with handling—lungs, pericardium, thoracic cavity, diaphragm, peritoneum, omentum, colon, liver, intestines, spleen, retroperitoneal structures, and pelvis. (4) *Full examination*, heart, mediastinum, lungs, great vessels, esophagus, stomach, duodenum, pancreas, liver, intestines, kidneys, suprarenals, ureters, bladder, sex organs. Brain, membranes, circulation. Cord, nerves. The *probable essential findings* are: Alcoholic odor when stomach is opened; mucous membrane of stomach softened and injected, extravasation of blood in brain and membranes, edema of brain and membranes, dura may be thickened, the lungs may be congested and the heart fat and flabby, the liver may be cirrhotic and the kidneys may or may not show signs of fatty degeneration or chronic diffuse nephritis.

7. *Pernicious anemia*: "Various secondary changes are met with, those in the blood-making organs being most important. The bone marrow of the long bones is red and softened and often quite hemorrhagic. This change was formerly regarded as a primary and causal one. At the present time it is looked upon as secondary and reactive to a toxemia and, in part, to the hemolytic anemia itself. In part, at least, it represents the effort of the bone marrow to compensate for the active blood destruction. The spleen is sometimes enlarged, and may be considerably so. The liver, kidneys, and especially the heart, suffer degenerative changes (fatty) in severe cases. Similar alterations in the blood-vessels may cause punctate hemorrhages (especially in the retina), or larger hemorrhages in various situations. The lesions of the gastrointestinal tract are, some of them, doubtless secondary to the anemia; others may be primary. Degenerations of the posterior and lateral columns of the spinal cord are frequent; they seem to be due to a toxic agent rather than to hemorrhages. Pigmentation of the liver, spleen, kid-

neys, and other organs is a significant condition in evidence of the active hemolysis supposed to occur in this disease. The pigmentation of the liver is most important, and seems to be characteristic. It occurs in the hepatic cells at the periphery of the lobules and in the endothelial cells of the lymphatic channels and capillaries in the same situation. The pigment is iron-containing, and may be well demonstrated by applying the iron reactions (sulphide of ammonium; hydrochloric acid and ferrocyanide of potassium—forming Prussian blue.)"—(*Stengel and Fox's Pathology.*)

(To be continued)

Miscellany.

Shell Shock in Cows.—An interesting defence was made by a milk dealer last week in explaining why the milk sold was not of orthodox purity. The defendant claimed that the milk reached the consumer exactly as it came from the cows, but it was drawn at a time when there was an air raid and the animals were suffering from shell shock. The bench did not accept this explanation and the defendant was accordingly fined. Without discussing the defendant's statement there can be little doubt that such a defence might well be valid. It is well known that a cow through restlessness or nervousness holds back her milk, and the quality is often unfavorably affected under such circumstances. Witness the occurrence of the milk depreciating in quality when the cows are placed on exhibit. Thus the analysis of milk obtained from a cow at an agricultural show on one occasion proved to contain only 1.85 per cent. of fat, but the next day the milk was normal, containing 3.64 per cent. The quality of human milk is known also to be affected in some cases by mental strain, anxiety, or fright. Under such influences normal metabolism and nutrition may well be disturbed, with the result that the normality of the secretion of the mammary glands is interfered with. The fact calls to mind the illness sometimes produced by eating the flesh of over-hunted game or of over-driven cattle. In the big drives in the Argentine the day's journey is restricted to a certain number of miles, which if exceeded, the beasts getting tired, is apt to render the flesh unappetizing and unsound. Liebig, in his "Letters on Chemistry," published a good many years ago in our own columns, cited a case in which the flesh of a roebuck which had struggled violently after having been caught in a snare, gave rise to symptoms of poisoning, and according to Gautier pigs have been fatally poisoned through being fed upon the flesh of a horse which had died during its struggles when being broken in, and there are also recorded by the same writer cases of human poisoning by the flesh of roebucks which had died in a state of terror or exhaustion. The plea that the quality of milk can be adversely affected by shock is a quite sound one, but a valid defence would also require evidence that the shock had occurred, and that there had been no tampering with the fluid.—*The Lancet.*

War Paint.—A warning issued by the Explosives Department of the British Ministry of Munitions reveals that many English girls working in munition plants are using dangerous "war paint." T N T powder is being rubbed into their hair to impart a chestnut or auburn color.

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Original Articles.

A PLEA FOR BETTER TEAM WORK BETWEEN THE INTERNIST AND SURGEON IN THE TREATMENT OF SURGICAL AFFECTIONS OF THE BILIARY TRACT.*

By DANIEL N. EISENDRATH, A.B., M.D.
CHICAGO.

CO-OPERATION between the internist and the surgeon has resulted in more rapid advances being made in the early diagnosis and operative treatment of gastrointestinal diseases than in almost any other field of surgery. If similar team work were inaugurated in the case of lesions of the biliary tract which are amenable to surgical treatment, I feel confident that such a joint study of the causes and effects of biliary tract infection would result in earlier operations being performed in many of the

will check the disease provided that the opposite kidney is not involved and will do the work of both. Now, if the human body contained two livers, each of which possessed its own gallbladder and bile ducts and only the biliary tract of one side was infected, we should expect much better results if we removed the entire infected tract of this side rather than a portion of it. In other words, the surgeon has learned the lesson that a cholecystitis is only the local expression of a more diffuse biliary tract infection and that removal of the gallbladder alone does not cure all of the cases because both the extra and intrahepatic bile ducts and the liver parenchyma itself are infected. We cannot, as in the case of the kidney, remove the entire liver, including its excretory ducts, but must be satisfied with drainage or removal of the gallbladder combined or not with drainage of the common duct. We are confronted to-day with the problem of how to make a diagnosis and operate at a time when the biliary infection has not caused irreparable changes. The surgeon



FIG 1.—Section of gall-bladder wall showing stratified cholesterol calculi forming in the dilated crypts of Luschka (Aschoff).

cases in which the postoperative results are far from satisfactory at the present time. A relatively large experience in this field has impressed me with the fact that both the internist and general practitioner do not fully appreciate the changes which take place as the result of infection, not only in the gallbladder itself, but in the bile ducts and liver as well. It is for this reason that the internist is so often disappointed after operations on the biliary tract and places the blame upon the surgeon. In pyogenic infections of the kidney we can feel certain even before operation that removal of the involved organ

cannot be expected to do the impossible if permanent lesions are already present, and it is only by an intensive study of all phases of the subject jointly by the one who first sees the patient and the one who operates that we will make the same progress as has been made in the contiguous field of gastrointestinal surgery. This paper, then, has as its chief object a plea for an investigation by both the internist and surgeon of the causes of the relatively large number of unsatisfactory results following operations on the biliary tract. It is my intention to briefly review the most recent advances in our knowledge of the pathology and diagnosis of biliary tract infection and then to consider how

*Read at the meeting of the City Hospital Alumni Association of St. Louis, Mo., Dec. 6, 1917.

these influence the end results of operative interference, and finally how the number of cases in which there is a fatal or an unsatisfactory outcome can be lessened.

Changes in the Gallbladder.—Recent investigations of Aschoff¹, Ehrhardt², Rosenow³, MacCarty⁴, and others have shown us that there are two principal changes in the gallbladder wall which follow infection. First, there is a more or less diffuse cellular infiltration followed sooner or later, according to the number of attacks, by a thickened condition of the gallbladder wall, so that it loses its property of contractility; and second, we have changes of an ulcerative type. These ulcerations may be quite superficial and only involve isolated areas of the mucous membrane, giving rise to the so-called

bladder, the primary focus often being in the teeth, tonsils, etc. The crypts of Luschka, which are clefts lined by epithelium, extending through the wall of the gallbladder, have been found to contain organisms even after prolonged drainage of the gallbladder, and in a number of cases calculi have been observed to form in these dilated crypts. This explains many of the cases of recurrence of infection and even of re-formation of calculi after simple cholecystostomy. Another question of considerable interest and one which is being actively discussed at the present time is what the relation of an excessive amount of cholesterol in the blood bears to the formation of gallstones. There is no question but that such a hypercholesterinemia is present frequently in pregnant women, and it is a matter of common

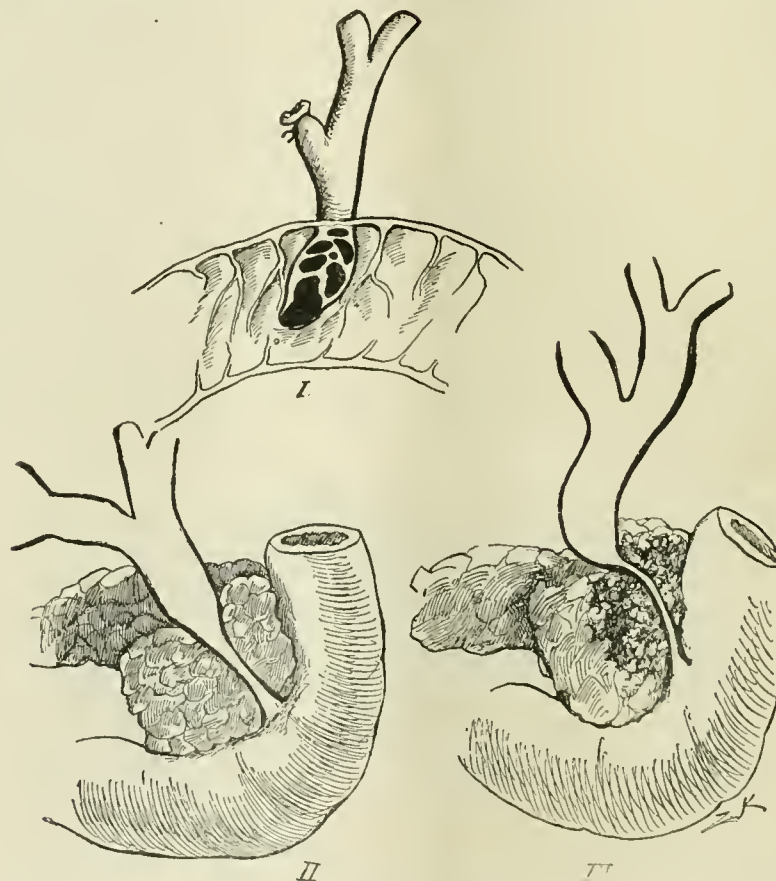


FIG. 2.—Diagrammatic views of various forms of obstruction of common duct: *I*, large calculus found firmly impacted in ampulla of Vater with smaller ones behind it. All of these had been overlooked in this case at cholecystostomy with removal of calculi and later cholecystectomy. *II*, compression of common duct by chronic indurated head of pancreas. *III*, compression of common duct by carcinoma of head of pancreas.

“strawberry” gallbladder, or the destruction extends through the entire thickness of the gallbladder wall and is followed by secondary cicatricial contraction, converting the entire gallbladder into a rigid, greatly thinned out, inert structure, which not only has lost its power of contractility, but favors stagnation of the contents by its very rigidity. The former belief that all of the infections of the gallbladder were due to organisms migrating up the common and cystic ducts into the gallbladder must now be abandoned, because it only holds true for a small percentage of the cases. We now know that the majority of cases of cholecystitis, especially those without formation of calculi, are the result of hematogenous infections of the wall of the gall-

bladder, the primary focus often being in the teeth, tonsils, etc. The crypts of Luschka, which are clefts lined by epithelium, extending through the wall of the gallbladder, have been found to contain organisms even after prolonged drainage of the gallbladder, and in a number of cases calculi have been observed to form in these dilated crypts. This explains many of the cases of recurrence of infection and even of re-formation of calculi after simple cholecystostomy. Another question of considerable interest and one which is being actively discussed at the present time is what the relation of an excessive amount of cholesterol in the blood bears to the formation of gallstones. There is no question but that such a hypercholesterinemia is present frequently in pregnant women, and it is a matter of common

observation that gallstones are especially common in women who have borne children. Henes⁵ was one of the first to direct attention to the possibility of making a diagnosis of cholelithiasis by finding an excess in the amount of cholesterol in the blood, and other authors like Rothschild even go so far as to ascribe the re-formation of calculi to such an excess of cholesterol in the blood and speak of a cholesterol diathesis which can be controlled to a certain extent by diet. There is no question but that surgeons frequently observe a greater tendency on the part of some individuals to form gallstones than on the part of others, and from the clinical standpoint this is of great importance in cases in which both the gallbladder has been removed and

the common duct drained, for the reason that we not infrequently see a constant escape of crystalline substances, especially cholesterol, through the drainage tube, and I have had occasion to see several cases which required reoperation owing to the fact

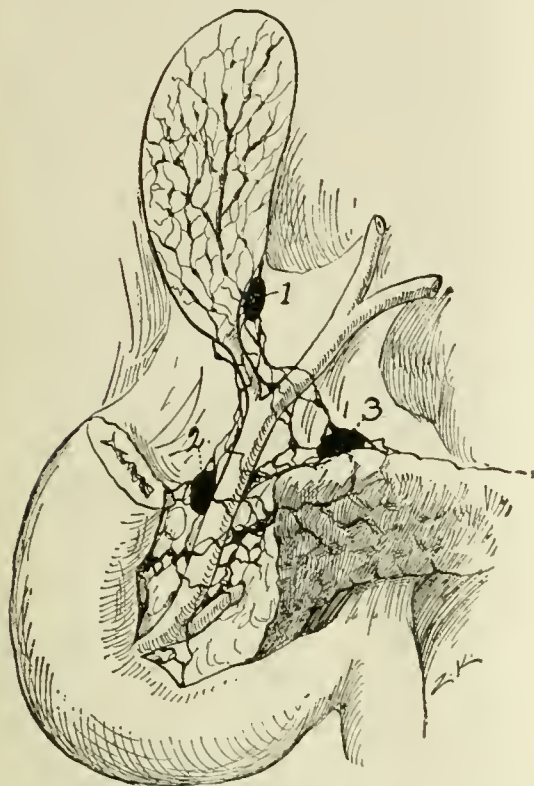


FIG. 3.—Lymphatics of gall-bladder, bile-ducts, and pancreas (modified from Franke): 1, lymph-node at neck of gall-bladder which acts as a relay between lymphatics of gall-bladder and those of common duct. 2, lymph-node along right edge of common duct which communicates by a number of lymphatic trunks with lymph-nodes of pancreas. 3, and the last named, in turn, with interstitial lymphatics of the pancreas.

that the common duct was filled with such a crystalline detritus. In a recent paper, Gorham and Meyers⁶ have rather exploded the diagnostic value of a hypercholesterinemia, and while granting that it is a common occurrence during pregnancy, yet it is so frequently present in other diseases than cholelithiasis that it is of relatively little value as of either a diagnostic or a prognostic value. We now believe that calculi can form even when infection is not present, and this is especially true of the cholesterol stones, but as soon as infection supervenes the so-called mixed calculi are formed.

The study of the pathology of the biliary tract certainly convinces one that the finding of calculi is not absolutely essential to the diagnosis of biliary infection, and not infrequently we find only changes in the consistency of the bile, in the gallbladder wall itself, or the evidences of a more or less advanced pericholecystitis in the form of adhesions as the chief expressions of the living pathology of gall-bladder infections. I do not wish to minimize the important role which calculi play in gallbladder surgery, but I believe the time has passed when we must expect invariably to find calculi present, as a cholecystitis without calculi can cause practically the same symptoms as with calculi, but the clinical picture is not perhaps as severe a one in the former

case. From the standpoint of successful operations we must not forget that calculi play an important part, especially when they cause an obstruction of the cystic duct or of the neck of the gallbladder with retention of contents so that the virulence of the organisms concerned in the particular case is apt to have greater opportunities than if the passage toward the common duct were open. I refer particularly to those cases of hydrops, empyema or gangrene of the gallbladder wall which are among our most important indications for removal of the gallbladder at primary operations if the patient's condition and the skill of the operator permit.

The examination of our recurrence cases has plainly shown that a large percentage of those following simple cholecystostomy are due to changes in the gallbladder wall or recurrence of infection which give rise to the same symptoms as the case originally presented. That stones can re-form in such an infected gallbladder is not only possible but has been confirmed by finding them at secondary operations in which they could not possibly have been overlooked at the primary one. Even after cholecystectomy the cystic duct may dilate and form a new gallbladder. I have encountered the condition in one case clinically, and in some recent experimental work we have confirmed the observation of von Haberer, who found that the cystic duct within a few weeks becomes dilated so as to form a pseudo gallbladder.

Changes in Bile Ducts and Liver.—The effect of the presence of infection within these structures is

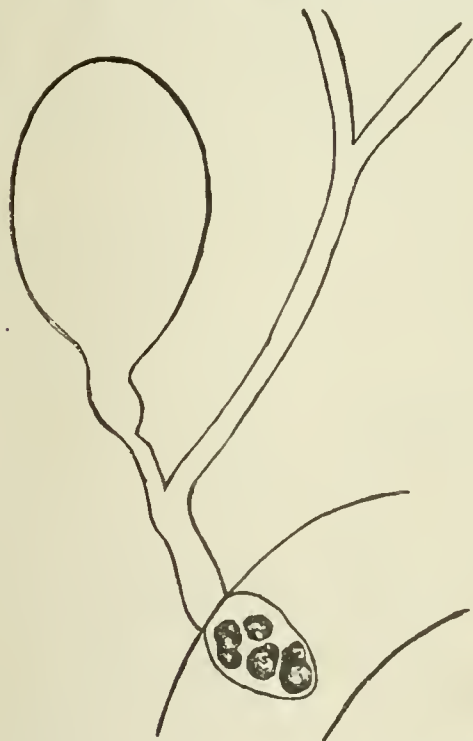


FIG. 4.—Calculi lying in common duct which were overlooked at previous drainage and subsequent removal of the gall-bladder. One calculus projected through and obstructed the papilla of Vater.

perhaps to-day the most important question which confronts the surgeon and is the cause of many of our unsatisfactory results. It is especially necessary for the internist to know the sequelæ of prolonged biliary infection, because the relatively high

mortality following operations on the common duct is due to the fact that the infection is so widespread throughout the liver that its parenchyma is unable to take care of the extra strain of an operation and the resulting hepatic insufficiency is the cause of many deaths which could have been avoided by earlier operation. This has been termed by some a toxemia, but the tissue changes are of more than a transitory nature, and not infrequently even the kidneys are secondarily involved and such operations are followed by an anuria which may lead to a fatal outcome. Coincident with the changes in the liver parenchyma, the infection of the intrahepatic bile passages, commonly termed cholangitis, is a most important complication. There is a great variation in the degree of cholangitis. It may be so mild in some cases as not to be recognized clinically and to be rapidly recovered from. On the other hand there are many cases in which the symptoms of cholangitis in the form of recurrent chills followed by high temperatures and profuse sweating predominate in the clinical picture. All forms of cholangitis from the very mildest to the most severe may be present in a fairly large percentage of the cases even when no stones are found either at operation or at autopsy. This is of great clinical importance because cases of cholangitis in general demand early drainage of the common duct and it should be maintained for some time as the mortality of cases of cholangitis in general, whether it is complicated by stones or not, is very high. When a cholangitis is present as a complication of stones in the common or hepatic ducts the prognosis of such cases depends in a great measure upon early drainage, and many a disappointment both as to end results in a case which had recovered, and high mortality after such operations is due to the fact that the medical adviser has waited too long before giving his consent to an operation.

We have been accustomed to teach that common and hepatic duct stones must invariably be accompanied by icterus as a pathognomonic symptom at some period in the clinical history. This observation is one which we can no longer hold as true in from 75 to 80 per cent. of the cases. Kehr found jaundice absent in 25 per cent. of his common duct cases. Bruning in 273 cases reports that in 8 per cent. there was no jaundice and 22 of 29 of the common duct cases (cholangitis) in which no calculi were found, had icterus. Van Beuren in 33 common duct cases operated at the Roosevelt Hospital found icterus absent in six, and in a recent report of 36 common duct operations by the author, icterus was absent in 20 per cent. We thus see that the internist who waits for the appearance of icterus as a symptom of hepatic or common duct calculi is apt to overlook the golden time to operate the cases in one out of every five, and the surgeon on the other hand must not be disappointed if he should operate such cases, even though icterus be present and no stones be found.

In this connection I wish to speak of the relation of the pancreas to infections of the entire biliary tract. I have called attention in another paper⁷ to the ultimate relation between the lymphatics of the gallbladder and those of the pancreas and we now believe that a large proportion of the cases of both chronic and acute pancreatitis are secondary to the

infections of the biliary tract, by way of the lymphatics. This clinical observation only confirms the necessity of early operation in cases of cholecystitis and cholangitis, both with and without calculi, before a chronic interstitial pancreatitis develops. This latter condition can by its pressure upon the lower end of the common duct simulate in every respect an obstruction of the duct by calculi. Another important observation in relation to the prognosis of gallbladder operations is that of the formation of calculi within the intrahepatic bile ducts. This has been observed in a number of cases including two of my own clinically and undoubtedly plays an important part in the recurrence of calculi after operations on the common duct.

In a recent paper⁸ I have reviewed this entire subject of recurrence after operations on the biliary passages, and the above description of the pathology of our observations, both during life and on the autopsy table, only emphasizes how important it is for both the surgeon and the internist to have a thorough understanding of these changes if we wish to have: first, more satisfactory results following our gallbladder operations; and second, to lower the mortality not only of drainage and removal of the gallbladder but of drainage of the common duct.

In closing let me hope that this paper may be of service to both the internist and surgeon in showing the former why he must not expect too much from surgical interference in cases of long standing, biliary infection and point out to the surgeon why our operations upon the biliary tract at the present day should be as thorough as is compatible with the condition of the patient. In other words, the more radical procedures should never be performed upon patients who are in a septic condition from biliary infection of long standing.

REFERENCES.

1. Aschoff: *Die Cholelithiasis*, Jena, 1909.
2. Ehrhardt: *Archiv. f. klin. Chir.*, 83:118, 1907.
3. Rosenow: *J. Infect. Dis.*, 19:527, October, 1916.
4. MacCarty: *Ann. Surg.*, 51:651, 1910.
5. Henes: *Surg. Gynec. and Obst.*, 23:91, July, 1916.
6. Gorham and Meyers: *Arch. Int. Med.*, 20:599, October, 1917.
7. Eisendrath: *Ill. Med. Jour.*, October, 1917, p. 272.
8. ———: *J. A. M. A.*, Vol. 69, p. 1752, Nov. 24, 1917.

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THE PROBLEM OF SYPHILIS.

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SYPHILIS has been definitely known to our civilization since the last half of the 15th century¹ at the time of the famous siege of Naples. The soldiers of the different countries engaged in this struggle became the victims of the disease and those of one nationality called it by the name of one of the others. The most lasting of these terms was "Morbus Gallicus," or the "French disease"; and even at this day, in the Spanish-speaking countries, it is known by the name of Gallico.

It was thought at that time to be a disease having its origin among the American Indians, and that the Spanish sailors who accompanied Columbus on his later voyages acquired it in North America, and spread it among the people of Southern Europe

on their return. There are really no authentic facts to substantiate this theory, although certain investigations were made among the graves of the mound builders in the southern parts of the United States by certain students of the subject, who found the bone lesions resembling those of the tertiary stage in abundance among the skeletons discovered in these mounds. Obscure references⁷ to ulcers and other affections are found in the early writings of the Hebrews, Greeks, and Chinese, but they cannot be interpreted as belonging to the disease in question.

This is, after all, a rather unimportant phase of the subject at hand, and it is at the most more satisfactory to the raconteur, perhaps, than to the student. Suffice it to say that whatever its origin, having reached Europe, it spread rapidly from Italy, as the best known focus, over the whole world until it has come down to us as one of the gravest problems which confronts us, not only sociologically and economically, but from a mortality standpoint as well. It is seriously occupying the minds of medical men and of intelligent and thoughtful laymen in every country of the world. On every side the subject is being discussed. Plays have been written; eugenic societies are active; charitable organizations are concerned; laws have been passed, and courses given in schools. The introduction of scientific hygiene has, to some extent, curbed its spread, but in no country within recent years has the problem been effectually and adequately grappled with.

Those of us who have much to do with the problem of syphilis cannot fail to be impressed by the fact that ignorance of the subject, despite a very voluminous bibliography, is not limited by any means to the laity. A repetition of a few sentences and statistics showing its etiology and method of transmission, together with its magnitude and prevention may, therefore, be well tolerated.

Primarily, syphilis must be considered, if we are to make any rapid strides so far as prevention is concerned, as a specific, highly contagious, constitutional disease of a slow and of a fairly typical course. The causative factor was absolutely unknown until 1905 when Schaudinn⁸ discovered a spiral-shaped organism in the serum of a secondary papule, to which he gave the name of *Treponema pallidum*. Naturally, this opened up a great field of research work which has yielded such wonderful results in the last decade. The biological and cultural characteristics of this spirillum are now so well known that it is unnecessary to discuss them here.

In the vast majority of cases the disease is transmitted by sexual congress. This is the so-called acquired syphilis which is practically always initiated by a chancre of the genital organs, the result of an infection or an abrasion or other solution of the continuity of the epithelial surface of the glans penis during coitus. It remains to be seen whether the remarkable advances in syphilography have in any way modified the much debated point as to whether or not syphilis can be contracted without the occurrence of a primary lesion. There is no doubt that many alleged cases depend wholly on imperfect observation, but it has always been known that in many infected women no port of entry can be found. Several such cases have been reported in the literature.

Following the initial lesion, there is a period of quiescence during which time the virus first extends from the lymphatics connected with the initial lesion to the first group of glands. As the primary sore is usually genital, the glands first involved are those of the inguinal region. From this point the infection extends up the main lymph channels and plexuses to all parts of the interior of the body tissues and to the periphery.

Whether syphilis is a hematogenous infection, starting at the point of inoculation and becoming generalized very rapidly throughout the tissues of the body, the chancre developing later; or whether the infection remains localized at the initial lesion for a certain time and then spreads slowly through the lymphatic channels and glands, through the thoracic duct, and finally into the subclavian vein, is not yet definitely determined. By experiments on animals, according to Neisser, it has been shown that the syphilitic virus circulates free in the blood in the very beginning. We find that the Wassermann reaction of the blood is negative during the first two or three weeks, which may mean that the specific lipotropic substances are not circulating in the blood or have not yet developed. The *Treponema pallidum* is essentially a lymph organism, but it seems probable that its generalization takes place in the early period through the blood stream, and from time to time it probably appears in the blood in the later stages of the disease.

It must be remembered that in a certain number of cases the disease not infrequently results from accidental infection. In such cases the primary lesion is usually extragenital, being located on the lips, fingers, eye, etc. This type of infection is seen in surgical and midwifery practice. Wet nurses are sometimes infected on the nipple, and it occasionally happens that relations of a syphilitic child are accidentally contaminated. An infected glass or pipe may transmit the disease and it may be carried by a third person who does not acquire the disease himself. The barber is a source of danger, and cases are reported as following razor cuts, and particularly the application of the alum stick to arrest bleeding. The stick is used over and over again and dried blood is often found upon it.

The question of hereditary transmission is also important from many angles. The transmission is most common from the father, the mother being healthy. *Treponema pallidum* has not been found in the sperm cell, but from what we know of syphilis all of the sperm cells must be infective. A syphilitic father may beget an apparently healthy child even when the disease is fresh and in full bloom. On the other hand, in many instances a man may have syphilis when young, undergo treatment, and for years present no signs of the disease, and yet his first-born may show the characteristic lesions. As a general rule, it may be stated that with judicious treatment the transmission power rarely exceeds three or four years.

In a large number of instances both parents are diseased, the one having infected the other, in which case the chances of fetal infection are greatly increased. Heredity through the mother alone is more fatal to the offspring than paternal heredity. It is a remarkable and interesting fact that a woman who has borne a syphilitic child is herself immune and cannot be infected though she may pre-

sent no signs of the disease. The mother may be infected after conception, in which case the child may be, but it is not necessarily born syphilitic. If the infection is late in pregnancy, after the seventh month, the child usually escapes.

At the present time no nation is free from the taint of syphilis, and the universal character of the scourge must be granted. Prevailing as it does on such a widespread scale, it is not only a menace to health, a handicap to progress, but a disgrace to civilization, somewhat of a slur on the skill of the medical profession, and a reflection on the intelligence of the people at large. Sir William Osler (quoted by Irvine¹) states that "Among the serious constitutional diseases, syphilis ranks next to tuberculosis, pneumonia, and cancer, from a standpoint of mortality." At first glance this seems like a startling statement, but emanating from such an authority we cannot doubt its accuracy.

An accurate statement of the amount of the disease among the various groups of our population is at the outset difficult to obtain. In regard to hospital cases, it has been shown that a large number are syphilitic, while usually entered under some other diagnosis. Thus, out of three hundred cases admitted to the Children's Hospital, Boston, Mass., Lucas² found 31 per cent. infected with lues. Churchill,³ in a hospital in Chicago, found that, of 102 children, thirty, or nearly one in three, were infected, although none were admitted for syphilis. In New York, Holt⁴ found a much smaller number, 6 per cent., among the more acute cases. Irvine¹ declares that, "In medical wards, in which patients are not admitted primarily for syphilis, 30 to 40 per cent. of all cases undergoing treatment show positive blood tests." These figures do not agree with those of Stokes,⁵ as he is of the opinion that only 6 per cent. fall within the category of the so-called accidental syphilis. Field,⁶ in a large series of miscellaneous cases, admitted to the Bellevue Hospital, found that the Wassermann reaction was positive in 25 per cent. Gerrish⁷ claims that, in 1911, 10 per cent. of the population in New York were syphilitic. In the light of these figures it seems conservative to say that there are ten million people in this country suffering from the disease. Fisher⁸ places the figure at 18 millions, while Church⁹ estimates it at 20 millions.

There seems to be comparatively little accurate information regarding the prevalence of syphilis among the insane population probably because of the fact that few asylums are doing routine Wassermanns. Ivey¹² found, among the negro insane in Alabama, 25 per cent., of 470 patients examined, positive. Mitchell,¹³ using the Wassermann test for over a year in the Warren State Hospital, found 18.5 per cent. positive among the admitted females, and 22.3 per cent. among the admitted males. Wender¹⁴ states that in 106 cases of colored male patients admitted to the Government Hospital for the Insane, for the fiscal year ending June 30, 1916, one-half were infected with lues. From these figures it is fair to assume that at least 20 per cent. of our insane in institutions are syphilitic. Syphilis was the principal cause of insanity in 19.8 per cent. of the males and 7.2 per cent. of the female patients admitted to the New York State Hospital in 1913.¹⁵ The United States Government reports for 1910

show 187,191 insane in asylums. In a former survey it was shown that the cost per capita was \$160 a year. We can, therefore, estimate that over \$30,000,000 was spent in 1910 by the States, and that \$6,000,000 went to care for syphilitics whose insanity might have been prevented. Vedder and Hough¹⁶ found, out of 616 cases examined at the Government Hospital for the Insane, 16 per cent. positive reactions. Southard¹⁷ makes the following statement: "The best information available to me as to the general percentages of syphilis is that afforded by our experience at the Psychopathic Hospital, covering 1,671 separate random tests on different persons, 14 per cent. being syphilitic."

Venereal diseases exert each year a heavy toll upon the health of the Army and Navy. In fact, Gatewood¹⁸ states that "the diseases resulting from prostitution take more of the strength of nations than all the wars and accidents." The report of Vedder¹⁹ in syphilis among recruits at Fort Slocum near New York, and at Jefferson Barracks, near St. Louis, shows that, of the entire number applying, only 17 per cent. were accepted. Among those rejected were a number who gave evidence of a history of syphilitic infection. On those recruited, Wassermann tests were performed, and it was found that 16.7 per cent. were syphilitic. Reasoner²⁰ made a survey of one regiment, showing 5 per cent. syphilitic, while Bartlett, in a year's study, found 10 per cent. of one command infected. Mudd²¹ states that, "At Schofield Barracks, during the past eight months, there have been available for continuous observation and treatment a daily average of 170 cases of syphilis." In the Navy, for the decade from 1895 to 1905, the admission ratio of syphilis was 17.5 per 1,000, and the damage figured in percentage was 7.28 per cent. In the report of the Surgeon General of the Navy for 1914, the admission rate for syphilis was 13.3; in 1915 it was 21.35, and in 1916 it was 19.83.

Such figures as these have drawn to the services an undeserved and unenviable reputation in regard to venereal disease. There are many people who believe that all the military surgeon does is to treat genito-urinary cases. It is desirable to correct this impression wherever it is possible to do so. In an ultimate analysis, an equal or even greater toll is exerted from civil life, but, owing to the interdiction which hangs over any degree of publicity on such matters, we are without adequate means of measuring it. The inexorable rule in the military services that each day of a man's time must be accounted for, and if loss of time be due to ill health it must appear in the statistical returns, has given reliable means to form an estimate of the magnitude of the scourge in the Army and Navy. There are no reliable means for making comparisons with any corresponding class in a civil community. It is evident, however, that such communities suffer much greater damage from these diseases than is generally supposed and recognized. With the system of prophylaxis now in vogue it is safe to say that a recruit is less liable to contract a venereal disease under the influence of station environment than he is under the environment of civil life.

The problem of the control and prevention of syphilis has been approached from every conceivable angle. Physicians, scientists, sociologists, and leg-

islaters of all countries have studied the question and directed their best efforts towards lessening the evil. International conferences have been held and numerous societies organized whose object has been the eradication of the great "social evil" and the consequent decrease in the enormous amount of mental, moral, and physical suffering which it leaves in its wake. Despite these facts, however, it seems to be the general opinion that preventive efforts along these lines have not met with much success. This seems strange, too, for in no disease is the sanitarian any better supplied with epidemiological information than he is in the case of syphilis. He is familiar with the germ; there is no mystery concerning its method of transmission; the remedies for its cure are efficient, and, lastly, there are efficient means of artificial prophylaxis which may be resorted to whenever exposure to infection takes place.

The only way, it seems to me, in which to attack the problem is from a therapeutic standpoint. Indeed, the most hopeful outcome of all the recent work in syphilis is the possibility of spotting the disease in the primary stage and of making an immediate and radical cure by the combination of salvarsan and mercury. Abortive treatment has been the dream of syphilographers for many years, but, so far, nearly all attempts have failed. With our present sure methods of diagnosis, however, by finding the spirochaetae and using salvarsan, the dream has at last come true, and this method of handling syphilis rests on a firm basis.

I am convinced that in early diagnosis, especially when combined with intensive and prolonged treatment, we have an effective measure for the sanitary control of this plague. That this should be so is perfectly clear, logical, and in every way obvious. It needs no explanation. The earlier a diagnosis is made, the sooner treatment may be instituted, thus healing up the open lesions quickly, making the spirochaetae less active, and rendering the chances of spreading and disseminating the infectious material from place to place and person to person very much less.

The importance of early diagnosis depends, then, on the fact that the disease, in many instances, can be aborted by early intensive treatment; but the injunction to "wait for secondaries" has been so ingrained in generations of medical men that an early recognition is not made as often as it should be. The diagnosis of syphilis in the primary stage can be established with absolute certainty, just as can the diagnosis of typhoid fever in the first week, by finding the cause of the trouble, and to-day there is no excuse for waiting until the system is thoroughly permeated with spirochaetae before giving the patient the benefit of treatment.

The initial lesion appears at varying intervals after exposure, the period of incubation being from one week to three months, with an average of twenty-one days. It is at this stage that a diagnosis can and must be made if we ever hope to make any progress in the solution of the problem at hand.

Clinically, the typical chancre begins as a minute, erythematous, painless papule, which, as it enlarges, becomes indurated, and loses its epithelial covering, appearing as a round, oval or linear erosion, whose center is covered by a grayish, glistening film, and

whose border is the color of raw muscle. Suppuration is slight or absent, the discharge being scanty, thin, and watery. Chancre is usually, but not invariably, single. When multiple, all the chancres appear at the same time, as the infection is not autoinoculable. It should be remembered, however, that a chancre does not always present the same appearance, being modified according to its situation and the presence or absence of complications which are rare. Indeed, it is generally conceded that there are three chief forms of initial lesions: a purple patch exposed by peeling epidermis without ulceration—a rare form; an indurated area under the epidermis without ulceration, a very common form, and a round, indurated, cartilaginous area with an elevated edge which ulcerates, exposing a velvety surface looking like raw ham. This is the so-called Hunterian chancre.

In this connection, it should be remembered that there are several strains of the *Treponema pallidum*. It follows, therefore, that there are many varieties of chancre. To-day, for instance, in Washington, in the laboratory of the Army Medical School, the investigators can produce several strains and varieties. They can breed a variety which will produce a chancre lacking the old Hunterian characteristics of a saucer-like indurated base, or they can produce a spirochaetae which will give a rich mucocutaneous efflorescence, or one which will be poor in cutaneous manifestations, with a tendency to confine its influence to the nervous system.

In some cases it is particularly difficult to differentiate chancre from chancroid. The latter, however, has no period of incubation, is rarely seen except on the glans penis or prepuce, commences as a pustule or ulcer, is frequently multiple, and is autoinoculable; it is usually irregular in shape, punched out and excavated, with a dirty yellowish inner base and a copious purulent discharge; if induration is present, it is softer than that of chancre, fades off gradually into the surrounding tissues, and disappears with the healing of the ulcer; it is painful, does not confer immunity against a second attack, is more frequently complicated by extensive ulceration and suppurative bubo, is healed by local measures and uninfluenced by mercurial treatment, and the bacillus of Duerrey may be found in the discharge.

Herpetic ulceration about the genitals follows fevers, neuralgia, or irritation from dirt or discharge, and has no period of incubation. It commences as a number of vesicles which may run together, forming a large, irregular ulceration, whose edges are made up of segments of circles. The discharge is purulent, but not abundant; vesicles which have not burst may be found; bubo is commonly absent, the ulceration is painful, superficial, and not indurated, but heals under local treatment.

Despite the varied manifestations of the numerous diseases which might be confused with it, a diagnosis of lues can always be made on the first day. The attempt to distinguish a syphilitic from a non-syphilitic sore by clinical appearances is in the same class with an attempt to distinguish a fracture and a sprain without the aid of the Roentgen ray. Sometimes the attempt is necessary, and often successful. As a routine measure, however,

why should we guess when we can know; and, more important still, why should we lose critical time when we can act immediately? The practice of cauterizing or powdering venereal sores before a positive diagnosis is made is worse than treating a case of fever with quinine before the malarial parasite is found, because if a sore is syphilitic the treatment not only lessens the chances of finding the spirochætæ, but has no effect on the disease. The discharge from all venereal sores should be examined microscopically, at the earliest moment, before any local treatment is used.

In former years, when our knowledge of the pathogenesis of syphilis was rather vague and limited, there was some excuse for conservatism in arriving at a definite diagnosis. In these modern times, however, with the up-to-date serological methods at our disposal, failure to suspect or even recognize a specific luetic infection in the primary stages should be considered nothing short of a crime. The demonstration of the treponemata in smears from the untreated initial lesion, either by the india-ink or by the Giemsa formula or by the dark field illumination, is comparatively easy, and involves no laborious technique. Sections cut from the chancre and stained after Levaditi's method will also show the causative organisms in great numbers, and quite recently cultural methods have been suggested.

Dark field illumination is the method of choice for examination of primary lesions on account of its rapidity and ease. A large proportion of chancres can be easily diagnosed in this way in a very few minutes. It is necessary, however, to secure a good specimen. This can best be obtained only if no antiseptic or caustic have been used for at least 24 hours. It is also necessary to use some care in taking a specimen. As the lesion is usually situated on a very sensitive part of the body, the patient may become faint and sick unless care is used to prevent unnecessary pain. The lesion should be sponged off with salt solution, and sometimes a drop of serum can be squeezed from the ulcerated area with a pair of forceps or by the patient's fingers, and can be taken up on a cover glass or in a capillary pipette. In the other cases it is necessary to puncture the indurated edge of the lesion with a broad-pointed needle, to squeeze the area, to wipe away the first drops of blood, and to continue the pressure until a drop of clear serum is obtained.

When no dark field apparatus is available the spirochætæ can be found by stained smears. A great many stains have been devised, but perhaps the most satisfactory is Giemsa's, used as follows: Serum is obtained as outlined above, spread in a thin film on a glass slide, dried in the air, fixed for one hour in methyl alcohol, and then washed and put in the staining solution for 2-24 hours. The solution consists of one drop of stain for each cc., usually 30-40 cc., of distilled water, and one drop of 1 per cent. potassium carbonate is added for each 10 cc. of water; after staining, the slides are washed off and dried in the air. The organism stains a pink to red color, and the preparation is clear, and shows well-stained cells by way of contrast.

Levaditi's stain for tissues may be of value when a suspicious lesion can be excised, but it occasionally happens that this stain will not show organisms

when they are known to be present by a previous dark field examination. In other words, the stain is not absolutely reliable, and a negative result is not nearly so conclusive as a positive one. Moreover, nearly a week is necessary for the technique.

The value of the Wassermann reaction, of course, cannot be overestimated. It is generally recognized by the profession as one of the most reliable and valuable laboratory aids that has yet been brought into use. A positive reaction means the presence somewhere in the system of living spirochætæ. The exceptions to this rule are so few, and the other diseases in which it occurs are so easy to differentiate from syphilis by the symptoms and history, that their importance may be considered negligible. Indeed, it is so nearly specific in differentiating between syphilitic and non-syphilitic conditions, that for all practical purposes one may conclude that a positive Wassermann reaction means syphilis. I have long since come to recognize in this test a splendid method of syphilitic diagnosis. At the same time, however, I have come to regard a negative reaction, in many instances, as a sore disappointment in clinching a diagnosis in which almost absolute clinical evidences of the disease are at hand. In other words, like others, I have been forced to conclude that a positive Wassermann is laboratory proof of syphilis, but that a negative Wassermann is by no means a method of proving that syphilis does not exist. The Wassermann reaction, therefore, while a boon to us in diagnosis, is at the same time in other instances a crushing disappointment.

It is almost impossible to estimate the percentage of positives that are to be found in all syphilitic cases that are daily examined throughout the medical world. Gradwohl²² estimates it in terms of 60 per cent. This is partly due to fault in the technique and partly due to a temporary or permanent disappearance of the reaction in certain persons and in certain phases of the infection, regardless of the application of specific medication. Too much dependence has been laid on the Wassermann reaction, and too many physicians rely altogether for their diagnosis on the positive or negative reports. As a result, clinical interpretations have been more or less neglected.

At the same time, serology should not be a side issue. It is too important to be anything but the main work of the physician. Frequently, with the various techniques and reagents used by different individuals, it is not at all unusual to receive different reports on the same specimen from one or two serologists. Kaplan²³ says: "I believe that the attitude of the serologist is a greater factor in the Wassermann reaction than is the standardization of the reagents. Syphilis should not be diagnosed in the laboratory, nor should the laboratory worker consider himself competent to give the final decision. The general function of the laboratory worker is not so much to detect every syphilitic, but to protect the non-luetic individual from a wrong diagnosis and useless treatment."

I am fully aware of the fact that a majority of physicians do not have the facilities at hand for carrying out the procedures mentioned in the above paragraphs. This is especially true of the general practitioner. It takes but little equipment, how-

ever, to install in an office a dark field apparatus, stains, a few slides, etc. Indeed, at the present time opportunities for arriving at a diagnosis are entirely inadequate, and unequal to the needs of the situation. In 1903, Swift²¹ published figures collected in New York in eighteen dispensaries which treat these cases. Routine examinations for spirochætæ were made in only five; only five had dark field microscopes, and only five treated cases early. Surely such a situation is indefensible on either scientific or social grounds. I believe, therefore, that the State authorities should intervene and take a hand. Syphilis is preeminently a public health question, and once it is recognized as such its eradication will be but a question of time. The establishment of municipal laboratories under the supervision of competent serologists, where tissues could be examined, Wassermann tests performed, and various other procedures for the diagnosis of syphilis carried out, would be beneficial not only to the public at large but also to the medical man himself. These examinations should be free to those who could not afford to pay for the same. A regular fee, however, charged to the patients who possess the wherewithal would be only fair, and at the same time would go a long way toward the maintenance and upkeep of the laboratory. In addition to this, the various hospitals, especially those connected with universities and schools, should have ample facilities for conducting serological and microscopical examinations, so that once a case presents itself it can be properly catalogued. Furthermore, special opportunity should be afforded to practitioners and students to attend lectures and clinics in the diagnosis of venereal diseases, especially syphilis, delivered by competent authorities.

Hand in hand with early diagnosis goes intensive, continuous, and prolonged treatment. To be effective in controlling the public dangers of syphilis it must, of course, be continued until either a cure or freedom from infection is attained. It is not within the scope of this article to discuss the different methods by which a final and complete cure will be established. They will naturally differ with the various syphilologists; whether we use salvarsan alone, or in combination with mercury and the iodides, really makes very little difference in the general scheme of things. In passing, it may be well to note that salvarsan and neosalvarsan are the most effective drugs yet discovered in the treatment of syphilis. Alone they have completely eradicated the infection in early cases before the Wassermann reaction has become positive; a large number of reinfections testify to this. Yet, even in these, mercury is recommended as an adjunct. In all other cases mercury should always be an accompaniment of salvarsan, and in many cases potassium iodide is indicated, especially in the so-called tertiary and latent cases and those involving the nervous system.

We shall leave this to the various observers to work out. We are concerned here primarily with preventing its spread, and from the purely scientific point of view we are in an excellent position to control syphilis. When a case presents itself with lesions on the surface of the body and on the mucous membranes, the first consideration in the matter of treatment and prevention is to render the patient sterile as quickly as possible, so that he will no

longer be a menace to others. In salvarsan we have a most powerful agent with which not only to accomplish this, but effect a symptomatic cure as well. It is an established fact that within a few hours after the injection of one of the arsenical preparations the spirochætæ will disappear from the lesions. To be of real and lasting value, however, such treatment must be intensive and radical. I would recommend that as soon as a case is diagnosed, whatever the stage, that the patient be given a series of three doses in a period of six days. Temporary sterilization in the dispensary or elsewhere by a single dose carries with it serious risks of neuro-recurrences, and is certainly not a substitute for the inhibitory effect that a number of injections would have.

This intensive treatment is best carried out in the hospital, for many reasons. There may be a sharp reaction following the injections, and the intervals between doses can be materially lessened. Indeed, as a contagious disease, syphilis needs hospitalization and temporary quarantine. I believe earnestly in taking the extreme medical position that syphilis should be treated in the same way as other infectious diseases, such as tuberculosis, typhoid fever, or diphtheria, by isolation, prompt and radical treatment, and by various methods of protection. If we could have a firm hand to apply well-known medical measures, we could appreciably reduce the amount of the disease. If the full force of our sanitary organizations were directed against syphilis as they would be against an invasion of cholera or plague, who can say that the disease would not be greatly restricted? To deny this is to ignore the splendid triumph of preventive medicine in other diseases.

Haphazard and incidental care mars the whole modern scheme for the effective treatment and cure of the disease. A little treatment is worse than none at all. Yet this is all the patient gets. Pillar to post truly summarizes his fate. I should like to urge, then, the possibility of the hospital, not only as a center of quarantine, but also as a center of treatment and control. Here again, however, we are confronted with lack of facilities. In 1914 it was estimated that the city of London, with a population of 9,000,000, had 163 beds actually available for the care of sexual diseases. Of 80 general hospitals in New York, a recent investigation showed that only ten received recognized cases of syphilis in the active stages. Thirteen of thirty will not even receive medical cases with known syphilis. Detroit until recently made no provisions for hospitalizing active sexual diseases, but has now developed two clinics. Chicago⁸ has the Cook County Hospital, two hundred beds to 2,000,000 people. It is estimated that one bed to 2,000 population is inadequate for the care of sexual diseases.

The State should make widespread provisions for the handling of the cases. Wherever possible, existing municipal hospitals should be utilized; if inadequate, they should be enlarged; venereal clinics should be started as a part of the general hospital, and not stigmatized by being devoted to venereal diseases alone. Such measures are more or less socialistic in their tendencies, but so are most measures for the public good, and they are justified on the ground of their importance as sanitary measures.

It is a well-known fact that at present persons affected with syphilis, in the overwhelming majority of cases, receive inadequate treatment. Indeed, the occurrence of tabes, cerebrospinal syphilis, and general paresis, is proof positive of this. Syphilographers of an earlier date and those of the present time agree that by far the most important factor in the occurrence of the late accidents of syphilis is the lack of or inefficiency of early treatment.

The question naturally arises what shall we adopt as a standard of cure. Observations over a long period of time, and repeated serological and bio-serological examinations, must be the only factors in determining the ultimate efficacy of the treatment. The treponemata may be so inactive or so locked up in the tissues that they give no symptoms, clinical or serological, for the time being. In such cases an injection of salvarsan will usually be followed in 2 to 5 days by a positive Wassermann test. This provocative injection is now recognized as essential before any case can be discharged as cured. The minimum requirement adopted by the army is "one year without treatment, no manifestations, and several Wassermann tests, none of them positive." A tentative standard of cure adopted by the army includes a negative provocative Wassermann reaction, a negative luetin test at the end of this period, and, when practicable, a negative spinal-fluid examination.

It is self-evident that in a disease so amenable to treatment as syphilis everything depends on getting all the persons affected to take treatment. With this, and only this, is it possible to restrict the spread of the plague, the enormous prevalence of which is suspected only by a few. The fact that they do not receive adequate treatment is due not so much to the fact that they do not seek medical aid as that they think they are well when the acute manifestations have subsided. Syphilitics seldom find it convenient to repeat the course of treatment necessary for a cure unless unmistakable recurrences of the manifestation drive them to the physician's door. The carrying out of adequate treatment will be impossible so long as it is optional for the heedless, the unreasonable, and the indifferent to let themselves be treated or not. I would therefore advocate in the most forceful manner legislative measures empowering the authorities to compel syphilitics to take proper and adequate treatment, and to see to it that they are kept under medical control until they are cured and no longer a menace to others.

Compulsory treatment, of course, presupposes compulsory notification. The chief objection to these measures is that it would prevent those affected from seeking the aid of a physician. It is argued that they would apply to quacks or else let the disease go untreated. That the latter would not occur is guaranteed by the pains and fear of the disease, which will be more and more effectual the more the public is enlightened on the subject of venereal diseases. Even now nearly all apply for treatment so long as there are appreciable manifestations of the disease.

The details can be worked out by the legislators. This principle of compulsory notification and treatment has proved its usefulness with other contagious diseases. It is impossible to understand why, for the sexual diseases alone, we should renounce the

principle just on account of tender solicitude for the false shame of those affected. The sexual diseases are among the worst scourges of humanity. It is our imperative duty to restrict their devastating actions on the strength of the nation. Compulsory notification and treatment are the only measures which promise effectual results, so they must be introduced, trampling down deep-rooted and otherwise justified ethical considerations. The supreme law which has facilitated so many decisions in the past must prevail here: "Health is a public question."

A discussion of the subject of prevention would be incomplete did I fail to mention artificial prophylaxis. This is practised particularly in the army and navy, and has met with considerable success. I have personally seen its efficiency in many instances. We owe this important way of combating syphilis to Metchnikoff, who proved its value experimentally. The method consists in washing the penis with soap and hot water, sponging with bichloride, 1-2000, and the application of calomel ointment 33 per cent. to the glans and shank of the organ. The shorter the interval of time elapsing since sexual intercourse the greater the certainty of escaping infection. The employment of this means of reducing the amount of syphilis has given rise to much discussion, and the question has been raised by those who regard venereal infection as a just punishment for those who have transgressed as to the justifiability of this way of prevention. It has been urged that the elimination of the danger of infection will have the effect of increasing vice. The fact that the effects of venereal disease are not confined to the individual himself, but extend to his associates, his family, and descendants, should be sufficient grounds for the use of preventive measures of this nature.

And last, but by no means least, comes the question of the education of the public; of moral prophylaxis, as it were. The mass of the people is sorely in need of systematic training and instruction in sex hygiene. We are in the midst of a reform movement at the present time. Some of the activities are admirable, and especially where medical measures are involved they are already producing results. In some quarters, however, it has been overdone and a reaction may be felt. Some enthusiasts have gone beyond the bounds of decency in their discussions of the subject. They seem to think that the naked truth has some special virtue, and, if sufficiently paraded, will automatically settle the question. I see no warrant for any such position. The deeper one goes into human nature the nearer he approaches the savage and the further he gets from morality and manners.

It is always a moot question as to what constitutes proper material to present to people in lectures, periodicals, and pamphlets devoted to a consideration of the fundamental principles of sex hygiene. We believe, of course, that the dangerous consequences of venereal infections should be neither minimized nor exaggerated. We must avoid exciting an unfavorable curiosity or giving a false sense of security, the latter being a frequent source of criticism of instruction in the methods for the use of artificial prophylaxis. It is especially an exceedingly difficult and delicate question as regards teaching hygiene in the elementary schools. I be-

lieve that a national council should be established, and recognized by the Government, as an authoritative body for the purpose of spreading knowledge and giving advice in regard to questions of venereal disease, especially syphilis, in its varied aspects.

Every effort should be made to enlighten the public as to the seriousness and the contagious danger of this disease and its distressing after effects. There should be a much franker attitude toward the venereal diseases in general. Indeed, it is not the sanitarian's armament which is to blame for the remarkable prevalence of syphilis; nor does it seem that there is any blame for indifference on the part of the individual. The fault lies hidden in the taboo that has always opposed fighting venereal disease in the open. The veil of secrecy which has spread over the subject, the zeal with which the press avoids discussion of it, and the care which is taken to keep the public from becoming acquainted with the facts in the case, have served to produce a medium in which these diseases flourish and multiply, sheltered from the sunlight of publicity, and kept at their optimum temperature for propagation by the professional secrecy with which each case is surrounded.

Let us impress upon mankind, young and old alike, the importance of selecting proper associates, and of not frequenting places where the environment is known to be questionable or vicious. Emphasis should be laid upon the remarkable prevalence of venereal diseases in general. Syphilis should be briefly described, and the public taught that it is caused by germs; that these germs obey the laws of nature as the germs of other diseases; that there is nothing mysterious about them; and that they will grow wherever they find suitable soil. Let every one know that practically all prostitutes are diseased, and that alcohol and syphilis are close allies.

In this scheme of education I believe we can appeal to the higher senses with a great deal of success. Make the young man realize that the continent life—and by a continent life I mean one in which the individual masters his impulses, and refrains from all forms of sexual indulgence—is not incompatible with good health. The impression which is so widespread that sexual intercourse is necessary to the development and maintenance of the powers of manhood should be at once corrected. Indeed, the continent life is the only rational one in relation to character. Anything which degrades the love instinct necessarily coarsens and degrades the whole of character. Right thinking, pure imagination, unselfish desires, manly conduct—these are the bricks and mortar of the character of the real man. The sensuous mind, the selfish purpose, the degrading influences which go with illicit relations, are not calculated to bring out all that is best in a man.

Then, too, an unchaste life is one of the greatest destroyers of personal efficiency. The reason is that such a life disorders the imagination. This latter is perhaps the most wonderful power peculiar to man. It may be a source of striking originality and productiveness, or it may completely sap and disorganize a man's efficiency and power. An unchaste life leads to dominance of the imagination by mental imagery of a selfishly sensual character. It weakens the will, destroys the power of applica-

tion and concentration, and dissipates high purpose.

The real test of a man's character is the way he governs his native instincts and desires and keeps them true to the ideals of his best self under unusual conditions. His primitive inclinations are the raw material out of which his character must be forged, good or bad. They may become his most loyal friends or his most relentless enemies.

Every one of us can by self-control restrain the indulgence of those imprudent and reckless impulses that so often lead men astray, and he who resists is a better man than the man of weaker will who allows his bodily appetites to rule him, and who lacks the strength of character to resist temptation and to refuse any bad example he may see before him.

Let us see to it that these great truths and principles are kept ever before the eye of the rising generation. Let us pound them relentlessly into the ears of the public whether it will or not. Then we shall have done our duty, and after we have instructed and educated the mass of the people in the ways of clean living let us put the question squarely up to the individual, and let each man consider for himself whether indulgence is really worth the price which has to be paid for it in disease, in punishment, in injury to himself, his wife, his children, in destruction of his personal efficiency, and in degradation of his own body and mind and soul. The medical profession is anxious, willing and ready to do more than its share in the teaching and treatment of this pest and scourge of the human race.

REFERENCES.

1. Garrison: *History of Medicine*. W. B. Saunders & Co., Philadelphia. 1913. P. 128.
2. Guiteras: *Urology*. New York and London: D. Appleton & Co. 1912. Vol. II, p. 675.
3. Craig and Nichols: *Studies of Syphilis*. Surgeon General Bulletin, No. 111, p. 14.
4. Irvine: *Notes on the Teaching and Treatment of Syphilis*. *Journal A. M. A.*, Vol. LXVII, No. 27, Dec. 30, 1916, p. 1987.
5. Lucas: *Boston Medical and Surgical Journal*, 1913, Vol. XXIV, p. 423.
6. Churchill: *Tr. Am. Pediat. Soc.*, 1912, Vol. XXIV, p. 149.
7. Holt: *Amer. Jour. Obst.*, 1913, Vol. LXVII, p. 128.
8. Stokes: *Hospital Problems of Gonorrhea and Syphilis*. *Journal A. M. A.*, Dec. 23, 1916, p. 1960.
9. Field: *The Use of Cholestrin Antigen in the Wassermann Reaction*. *Journal A. M. A.*, May 23, 1914, p. 1620.
10. Quoted by Patterson: *An Economic View of Venereal Infections*. *Journal A. M. A.*, Vol. LXVI, No. 21, May 20, 1916, p. 1596.
11. Church: *Some Modern Views of Syphilis of the Nervous System*. *Journal A. M. A.*, Vol. LXVI, No. 21, May 20, 1916, p. 1596.
12. Ivey: *The Wassermann Reaction in the Negro Insane*. *MEDICAL RECORD*, 1913, Vol. LXXXV, p. 712.
13. Mitchell: *General Paralysis of the Insane*. *New York Medical Journal*, 1914, Vol. "C," p. 605.
14. Wender: *The Role of Syphilis in the Insane Negro*. *New York Medical Journal*, Dec. 30, 1916.
15. Riggs and Hammes: *Shall We Treat the Parietic?* *Journal A. M. A.*, Vol. LXVIII, No. 13, Jan. 30, 1917, p. 196.
16. Vedder and Hough: *Prevalence of Syphilis Among the Inmates of the Govt. Hospital for the Insane*. *Journal A. M. A.*, Vol. LXIV, No. 12, March 20, 1915, p. 972.
17. Southard: *Boston Med. and Surg. Journal*, 1914, Vol. CLXX, p. 947.
18. Gatewood: *Naval Hygiene*. P. Blakiston Son & Co., Philadelphia. 1909. P. 37.

19. Vedder: Prevalence of Syphilis in the Army. Surg. Gen. Bul. No. VIII, June, 1915.
20. Reasoner: *New York State Journal of Medicine*, 1916, Vol. XVI, p. 6.
21. Mudd: Some Experiences with Venereal Diseases at Schofield Barracks. *Military Surgeon*, Vol. XXXIX, No. 6, December, 1916, p. 608.
22. Gradwohl: The Hecht-Weinberg-Gradwohl Test in the Diagnosis of Syphilis. *Journal A. M. A.*, Vol. LXVII, No. 7, Feb. 17, 1917, p. 514.
23. Kaplan. Serology in Nervous and Mental Diseases. W. B. Saunders & Co., Philadelphia. 1914.
24. Swift: *New York Medical Journal*, 1913, Vol. XCVII, p. 102.

COMMON DEAFNESS; ITS MORE ACCURATE HANDLING.

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FROM the writer's experience in the nose and throat field during the past few years, he has come to the conclusion that the majority of cases of deafness, of either the milder or the more pronounced types, whether acute or chronic, are due to three, and in a very small percentage of cases, to four abnormalities, found in the nose and throat. These abnormalities are: *First*, and of greatest importance in most cases, are the two faucial tonsils. In all these cases the tonsils are chronically diseased, with a history of acute exacerbations at shorter or longer intervals, as a careful inquiry into the patient's history will disclose.

The *second* cause is the presence of adenoid tissue, or their remains, and adhesion bands found in the vault of the pharynx.

The *third* cause is the presence of a deflected nasal septum; this includes the presence of spurs or ridges on the septum, which are merely modifications of the deflection. This third factor is found in a large percentage, if not in all, persons suffering with deafness, and in certain cases the writer has met, he found it impossible permanently to influence the hearing beneficially, until a complete submucous operation was performed on the septum, and that in spite of the fact that proper and perfect attention was previously given to the other two cardinal factors mentioned.

The *fourth* factor is a rare one, and is found only in a small percentage of all cases and only in those persons whose deafness can be but little relieved; it consists of an inveterate and intractable disease-infected state of the anterior and posterior ethmoidal sinuses, and probably other sinuses of the nasal fossæ and cranial bones. Diseased conditions of these sinuses are really produced by the first three abnormalities mentioned, and in most cases, when not too severe, are cured by attention to these three factors, especially if the work is perfectly successful.

1. The first step, therefore, the *sine qua non* of the attempts to cure deficient hearing, as ordinarily met with in the vast majority of cases, is the complete removal of both faucial tonsils. One of the most encouraging facts met with daily in working along the lines suggested, is that the patient will feel grateful for the improved hearing to the spoken voice in a large percentage of cases in from one to a few days subsequent to the complete removal of the tonsils. This will be greatly enhanced by thoroughly clean-

ing out the vault of the pharynx, by means of both the adenoid curette and the index finger as suggested.

2. The second step is the thorough cleaning out from the vault of the pharynx of every trace of adenoid tissue present, and at the same time breaking up and removing the bands of adhesion tissue found stretching between the Eustachian tube and pharyngeal vault; this is best accomplished by the use of the adenoid curette and is immediately followed by scraping the entire vault, but especially the crevices between the Eustachian tube and the vault with the nail of the index finger (finger-scraping). This last step may be taken either at the same time the tonsils are removed or from a few days to a few weeks later. It may require repetition at stated intervals, varying from two to three months to longer periods.

3. The third step is the production of a straight and thin nasal septum. In adults this is accomplished by a complete submucous operation, and in children more or less successfully by the Ashe operation, or other means.

The removal of turbinate tissue is seldom necessary, and then only in cases wherein the inferior or middle turbinates are distinctly larger than they normally should be; and then the only work to be done on them is to reduce them to the size of normal turbinates. In operating on the turbinates it is well to remember not to remove any of the bony structure of the turbinate body, if this can possibly be avoided, during the process of reducing the turbinate to its normal size. Another point of vast importance in this connection is that all work on the turbinates should be done only from two to six weeks after the first three cardinal points mentioned have been attended to. The reason for this is, that successful attention to the aforementioned three points, *i.e.* the tonsils, the pharyngeal vault, and the septum, cures to the greatest extent the chronic nasopharyngeal catarrh from which the patient has so long been suffering; and owing to the fact that a great deal of the swelling of the turbinate bodies is due to catarrhal inflammation of its mucous membrane and substance, and that this catarrhal inflammation simultaneously disappears with the removal of the catarrhal state from other parts of the nasopharyngeal mucous membrane, the turbinates will, for this reason alone, grow smaller in size. The mucous membrane of the turbinate bodies and that of the balance of the nasal fossæ having become thinner, the nasal fossæ consequently becomes freer, "open up," as the patient says. This process, just discussed, can be materially hastened by the use, once or twice daily, of a fine nebulizing spray of 1-5000 to 1-2000 corrosive sublimate solution, applied to both nasal fossæ and throat. Thus the reason it is wrong to remove turbinate tissue, as a primary step in attempting to cure the nasopharyngeal, Eustachian tube, and middle ear catarrh, is because this catarrh cannot be cured by such removal since it is not caused by the hypertrophied turbinate tissue, as a primary and fundamental factor, but is caused in the final analysis by the three cardinal factors mentioned, *i.e.* the tonsils, the adenoid tissues and bands, and the deflected septum, and can therefore be cured radically and fundamentally only by completely removing the tonsils, thor-

oughly cleansing out the vault of the pharynx, and straightening the septum where necessary.

Another fact of supreme importance to be constantly kept in mind, when dealing with enlarged turbinate tissue is, that the complete removal of the tonsils has a greater influence in the reduction of the size of the turbinates, than any other method we may know of. The point I wish to make is the following: Frequently the turbinates will continue enlarged after a successful submucous resection of the nasal septum; bilateral nasal breathing is still found to be interfered with, the nasopharyngeal catarrh continues, and the patient is uncomfortable and dissatisfied. There is only one explanation and remedy for this, and that is the tonsils have not been removed. In fact it is best to remove them from two to six weeks preceding the submucous operation. This should be an established rule, never to be deviated from even in cases wherein the tonsils appear perfectly well and harmless. This obviates the necessity of removing much turbinate tissue, especially the entire turbinate body except in extremely rare cases. As a rule only after the tonsils and vault of the pharynx have been carefully attended to, and the nasal septum successfully operated on where necessary, may we begin to consider the removal of turbinate tissue, if necessary to reduce the turbinate bodies to the state they normally should possess, and even this should not be done until the use of a fine (1-2000) bichloride spray has been used once or twice daily on the nasal fossæ and throat two or more weeks subsequent to the successful completion of all operative work.

The removal of the tonsils has the same draining and drying effect on the nasal fossæ that a rubber drain and free opening have on an abscess cavity. In fact, the writer considers the complete removal of the tonsils the underlying and controlling key to all successful and satisfactory nasal fossa work.

The explanation of the above matter lies in this fact: Usually the patient knows and admits the need of, and comes to, the surgeon for a submucous operation; he cannot, however, understand and will not admit that his tonsils need removal. He states they have never given him any trouble, hence why should they be removed. In most cases he, however, must take this piece of advice on faith. The surgeon tells him they must be removed to obtain satisfactory nasal fossa results, *i.e.* free nasal breathing and relief from the nasopharyngeal catarrh.

In only two other instances it may be found necessary to remove turbinate tissue: (1) in cases afflicted with polyps; (2) in that type of intractable anterior and posterior ethmoidal sinusitis, wherein the three cardinal points have first been faithfully attended to and this sinusitis still persists; in such cases it may be necessary to remove the anterior tips or more of the middle turbinates in order to open up the ethmoidal sinuses. These cases, however, are made quite rare, by performing the other work as outlined. These nasty chronic types are extremely difficult to heal in some cases, except by a very successful submucous operation on the nasal septum, producing a perfectly straight and thin nasal septum, and reinforced by a perfectly complete enucleation of the tonsils, and likewise a complete removal of all adenoid tissue and adhesion

bands from the pharyngeal vault. In a very small percentage of cases even this is not sufficient, and after all the above work has been carefully and successfully done, it may be found necessary as a last resort to remove the anterior tips or even most of both the middle turbinates and open up the anterior and also probably the posterior ethmoidal sinuses in order to clean out these germ breweries. These facts will be found to be the case only in the weaker type of people, possessing poor general health.

The removal of the anterior tips or more of the middle turbinates and opening up the anterior ethmoidal sinuses, for the cure of the inevitable catarrh found in the nasopharyngeal passages of all people afflicted with acute or chronic deafness should never be done as a primary step; instead of this the work outlined above should first be done; this is the proper and rational method of cure, it will remove this so-called chronic nasopharyngeal catarrh in the vast majority of cases, if not completely, in at least from 50 to 90 per cent. of its former profuseness.

The disappearance of the swelling of the nasal fossæ mucous membrane, brought about by the removal of the catarrhal inflammation subsequent and thanks to the proper execution of the work outlined, is equally true of the mucous membrane of the Eustachian tube; the lumen of these tubes consequently becomes greater, rarefaction of the air in the middle ear, which is purely a result of interference with the size of the lumen of the Eustachian tube, does not occur so readily, and finally in many cases not at all, as the catarrhal state of the mucous membrane disappears; the middle ear is then blown out as it would be normally, as a spontaneous and automatic act, which every normal ear is capable of. Hence we see in this that the usefulness of the Eustachian catheter as an instrument in the treatment of deafness is greatly diminished, since we have so readjusted conditions that nature automatically blows out the ears. Another point based on these observations is that the writer has found that examination of the Eustachian tubes (probing) for strictures is a process seldom necessary, since in most cases a few weeks after the proper performance of the necessary work just mentioned, the tubes will be found to be patulous, and the middle ears blow out freely. For this reason the writer believes that strictures of the Eustachian tubes are of extremely infrequent occurrence. The deflected septum is injurious to the organs of hearing for two reasons: First, its deviated form shunts the air past the pharyngeal entrance of the Eustachian tube in such a manner that it assists in rarefying the middle ears; secondly, it helps to produce the diseased and catarrhal state of the nasal-fossæ structures and sinuses, thereby producing a proportionate reduction in the patient's general health. This catarrh, as explained, in conjunction with the untoward effects produced by the deflected septum, the diseased tonsils, and abnormal tissues found in the pharyngeal vault is the fundamental cause of most cases of deafness. These factors produce a catarrhal or purulent inflammatory process of the Eustachian tube and middle ear, acting to a great extent on the principle of contiguity and continuity of inflammation.

The *discharge* found in so many cases of chronic catarrhal or purulent otitis media will be greatly

diminished and practically disappear from almost all of these cases in from a few days to a few weeks subsequent to the complete tonsil removal and a thorough cleaning out of the vault of the pharynx. It may recur or not completely disappear in a small percentage of cases, but this will happen only in those affected with an acute deflection of the septum, with or without a prominent ridge, and then the desired result will sometimes not be attained until the deflection has been straightened out. These facts are equally true of cases afflicted with granulations, polypi, or both, of the middle ear. Naturally, the question of chronic mastoiditis enters here, and these cases of polypi of the middle ear, or old, nasty, chronic discharging middle-ear cases are frequently considered to be such. However, this should not frighten us, for experience teaches us that they are just as amenable to treatment along the lines suggested as the less chronic cases. The aural polyps and granulations should be thoroughly cleaned out, the three cardinal factors attended to, and we can then rest assured that neither the polyps nor the granulations will return; the chronic aural discharge will disappear very quickly—in most cases a few days subsequent to the tonsil removal. The hearing will improve more rapidly and to a greater degree than under any other means of treatment. The explanation for this is that ventilation and drainage of the middle ear and mastoid antrum and cells are established just as successfully by this internal route as they would be by the more disfiguring and graver radical mastoid operation through the external route.

Working along these lines, the writer has found it unnecessary to advise the radical mastoid operation in a single case of a large series of discharging ears of both the chronic catarrhal and chronic suppurative types. This included patients of all ages, with a history of discharging ears of both the continuous and intermittent kind, ranging from a few months to many years in duration. The length of the history did not matter as to relief from the otorrhea. The discharge would quickly disappear in all if the work was properly executed. The hearing, however, would return directly in proportion to two facts: first, the duration; and secondly, the age. The younger the patient, and the shorter the duration of the discharge, the greater would be the amount of improvement in the hearing in the shorter period of time. The older the patient, and the longer the duration of the discharge, the less could be expected as to return of hearing. Internal ear involvement, as suggested, had taken place here, however, to a greater extent; likewise, in these old cases irreparable destruction of the drum and middle-ear structures was present.

After using all agents to assist in making the otorrhea disappear more rapidly, the writer finally decided that a 1/1000 to 1/5000 bichloride of mercury solution was the best. Five drops of this instilled into the ear, after first carefully syringing with warm water and then drying with pledgets of cotton, to be used once or twice daily.

These statements, the writer has found from experience, are equally true of nearly all cases of discharging ears, as found in acute inflammatory infections of the middle ears, only the results are obtainable, as a rule, more easily, quickly and accurately.

Hence it is just as advisable to remove the tonsils and adenoids completely in cases of acute catarrhal or purulent otitis media, as soon as the patient's condition will permit this to be done, as in the chronic types. For instance, acute cases of middle-ear inflammation, requiring opening of the drum, whether in children or adults, should invariably have the vault of the pharynx thoroughly cleaned out immediately following the incision in the drum. The adenoid curette and finger should both be thoroughly used in all these cases. As soon as the pain and fever are gone the tonsils should be completely removed. Surgical attention to the septum or other nasal fossæ structures may come subsequently.

Politzerizing these acute cases as soon as the pain permits will greatly hasten the return of hearing, especially when the vault has been attended to as directed, and particularly so after the tonsils have been removed.

Judging from the truth of the above mentioned facts concerning chronic discharging ears, the method recently suggested of closing the Eustachian tube by means of producing occluding strictures in its lumen, for the purpose of relieving the chronic aural discharge, is unnecessary. This method ingrafts an abnormal state on an already existing abnormal one, whereas the steps suggested by the writer institute normal conditions, and in its final analysis is nothing more nor less than work of reconstruction, putting the parts into as normal a condition as nature herself would have them. The aural discharge disappears with more or less of a successful attempt on the part of nature to restore all parts to normal.

Regarding the *closure of drum perforations* resulting from the more accurate results obtained from the above outlined work, the writer has found that in all acute cases perforations will close with mathematical certainty in a relatively short time where a subacute or chronic mastoiditis does not remain, and will even do so in the larger percentage of these cases with an attempt on the part of nature to cure the mastoid. It is, however, a debatable question whether this should be permitted to continue, and the only solution to this problem is that each possible case of mastoid involvement is a law unto itself, and must be treated accordingly. (S. Oppenheimer.)

In chronic middle-ear cases the drum perforation will close in all persons up to about 27 years of age, and sometimes in even older people, depending on the chronicity of the case and the ability to obtain perfect results regarding the three cardinal factors mentioned. As a rule, it is in young people only, between the ages of 6 and 21 years, that great difficulty will be experienced in attempting to attain perfect results in one of the three cardinal factors, and that is in the straightening of the deflected septum, usually of the high acute type, which I have never yet failed to find present in them. In these young people it will be found impossible or difficult to close the perforation, due to the fact that the septum is deflected. One of the most difficult matters we have to contend with at present is the production of a straight and thin nasal septum in patients under 18 to 21 years of age. The aural discharge will disappear even in most of these cases under the simple but complete removal of the tonsils

and all tissues found in the vault of the pharynx; but sometimes, in a small percentage of cases, the drum perforation will not close; neither will the middle ear readjust itself to a normal state, because of the bad influence the deflected septum exerts on the ventilation and drainage, and hence the state of health of the nasal fossæ and also the Eustachian tube and the middle ear. The deflected septum shunts the air in so peculiar a manner that it rarefies the air of the Eustachian tube and middle ear, thereby interfering with the proper ventilation and drainage of the latter, leading on to disease of the middle and internal ear. It is the surgeon's duty to remedy this serious defect of the nasal septum, and it can be accomplished, though it is by far more difficult than in the adult. The facing of this difficult problem in young people is not so gloomy as at first blush it would appear to be, for the simple reason that we are dealing in these cases with young living material; and from experience we know the complete removal of the tonsils and abnormal tissues of the vault of the pharynx is nine-tenths of the battle won in most cases. It makes them safe from a standpoint of good health; it is five-eighths of the treatment leading toward a cure of the ear disease, in many cases effecting it to even a greater extent as the intervention of a few months always shows. Hence in most cases we can safely wait without anxiety, with the correction of the septal deformity, until the individual grows older.

Nerve Deafness.—From 90 to 95 per cent. of all cases of deafness, as met with daily, are due to either catarrhal or suppurative inflammation of either the acute, subacute, or chronic type, taking its origin in a diseased nasopharynx and extending into the middle and internal ears through the Eustachian tube and surrounding tissues and fundamentally dependent on the three abnormalities named. When this inflammation has invaded the vestibule and cochlea it is known under the general term of nerve deafness, this invasion occurring on the principle of inflammation of contiguity and continuity of tissues. The percentage of true nerve deafness is, however, small, and it is about as frequent as similar diseases of the optic nerve. Most cases of nerve deafness are due to disease of both the middle ear and the vestibule and cochlea, and both are due to fundamentally the same causes.

Most cases of derangements of the internal ear leading to deafness are caused by similar processes of inflammation extending from the middle ear. The internal ear is easily inflamed in this manner, most frequently by quite non-acute types of inflammation, but occasionally by acute or subacute forms. Thus deafness of the perceiving apparatus of the organ of hearing is produced. This is by far the most difficult to heal and restore to a serviceable state. These cases, however, are not so frequent by any means as cases of middle-ear disease, that is, where the disease is restricted to the middle ear only. Internal ear disease occurs, or rather let us say complicates, very acute or extremely chronic inflammatory diseases of the middle ear or improperly treated or neglected cases of middle-ear diseases, or intractable chronic catarrhal or suppurative infections of the tissues of the nasopharynx which have gone untreated, or are irremediable; for instance, old chronic abscesses of the tonsils,

acutely deflected nasal septa uncorrected, producing extremely rebellious cases of anterior and posterior ethmoidal sinusitis.

The commonest forms of deafness, therefore, are those due to inflammatory processes of the middle ear. In fact, 90 per cent. or more of the cases as met with daily are originally due to middle-ear inflammatory trouble; they may subsequently become complicated by internal ear diseases, but this is likewise due to an extension of the disease from the middle ear into the internal ear by the principles of contiguity and continuity of tissues; that is, most of the deafness is at first, for a longer or shorter period of time, due to middle-ear involvement only, but if allowed to continue too long, or in very acute cases, it will become complicated by internal ear trouble or nerve deafness.

Therefore, the next most frequent form is nerve deafness of the type consisting of disease processes in the vestibule and cochlea, structures which house the terminal nerve filaments of the auditory nerve. Diseases of these structures are due, in most cases, to similar inflammatory processes extending through contiguous and continuous structures situated between the middle and internal ears, hence such cases of nerve deafness (internal ear disturbances) are always associated with more or less middle-ear deafness (middle-ear disease), and the total deafness is the combined result of the interference with the functions of both the middle and internal ear; hence any steps that will beneficially influence the middle ear will likewise exert a benign influence on the internal ear disease, but of course not to so marked an extent, because the structures of the internal ear are by far more delicate and highly specialized than those of the middle ear, since they are actually extensions of the brain substance itself.

In fact, almost every case of middle-ear deafness which is due to inflammatory disease of the middle ear will sooner or later become complicated by internal ear deafness (by means of extension of the inflammatory process from the middle ear into the internal ear), if permitted to continue long enough; the degree of internal ear deafness will be of a milder or severer type, depending on the degree of severity and chronicity of the middle-ear disease.

Certain forms of nerve deafness are the only exceptions to this common cause of nerve deafness just described; this refers to deafness resulting from disease, injury, or disturbed function of the body of the auditory nerve itself, or of the brain centers devoted to hearing, or primary disease of the vestibule or cochlea, which should be known as pure nerve deafness. These conditions are rare when compared to the great frequency of cases of catarrhal or purulent deafness as met with daily. Pure nerve deafness is probably less frequent than optic atrophy or optic neuritis.

By nerve deafness is ordinarily meant disease or deranged function of the sound-perceiving apparatus. This is a general term, and may mean trouble located in one or more parts of the sound-perceiving apparatus, such as the vestibule, cochlea, auditory nerve, or the brain centers devoted to the function of hearing. From the pathological standpoint this can be divided into two classes: (1) Disease of the vestibule or cochlea, which is actually disease of the auditory nerve filaments or endings, and is the

most common form of nerve deafness met with; it is due to involvement of these structures by extension of similar inflammatory processes working through the middle ear; in other words, it takes its origin through the external route. (2) Disease of the auditory nerve itself, or auditory brain centers, or both, which is rare, and is caused by the disease gaining entrance through the internal or blood route.

Most cases of nerve deafness come under the first heading, and are really aggravated cases of inflammatory disease of the middle ear, which has extended into and involved the vestibule and cochlea to a lesser or greater degree by contiguity and continuity of inflammation, and has destroyed the auditory nerve filaments. These cases of nerve deafness were primarily ordinary cases of poor hearing due to catarrhal or suppurative diseases of the middle ear, and if they had been properly treated, as above suggested, at this early stage, the more serious and irremediable condition of nerve deafness would not have supervened.

Diseases causing primary permanent injury to the body of the auditory nerve or to the auditory brain centers are classified under the rarer diseases, with one exception, and that is syphilis. They take their origin internally and not externally, as do most cases of diseases of the middle ear and of the cochlea and vestibule. Syphilis is the cause of very few cases of permanent deafness through involvement of the internal auditory apparatus or central organs. This situation is comparable to primary disease of the optic nerve or other structures of the brain devoted to the function of sight, which, as we all know, are rare conditions when compared to the frequency of similar lesions produced by other causes.

The diseases injuring these aforementioned central structures are brain diseases; for instance, in the fetus, congenital brain diseases leading to lack of development in the structures devoted to the function of hearing; they may be of a syphilitic nature or other infectious type; in the infant or child they may be such diseases as cerebrospinal meningitis, anterior poliomyelitis, or other rare and insidious diseases of this nature. In the writer's experience, he is thankful to say, he finds these conditions occupy a small percentage of all cases of deafness. The diseases that commonly destroy the hearing are produced by the common ordinary infectious type of germs encountered daily, and which get into the structures of the hearing apparatus *not* through the internal or blood route, but by means of the external route—through the nose and throat—and they do this only by the assistance rendered them by the three, or sometimes four, abnormal structures mentioned; these three or four factors are the levers which the disease germs use to break into the structures of the hearing apparatus and destroy them; hence, if we remove these three or four abnormalities we can very frequently prevent deafness, which would of necessity come on either early in the individual's career or as he grows older. If deafness is already present, the patient will obtain relief to a greater or lesser extent, or even complete cure, all depending on how much destruction of the hearing apparatus has already taken place.

Hence, deafness is caused most frequently by invasion through the external route, and this includes most cases of deafness due to destruction of the internal or third division of the auditory apparatus (nerve deafness), particularly restricting ourselves to the structures composing the vestibule and cochlea. Since pathologically and clinically it can easily be proved that either acute, subacute, or chronic inflammatory processes of the internal auditory apparatus are produced by the spreading of similar processes from the middle ear through the foramen ovale and foramen rotundum and the other contiguous tissues, both bony and soft, which make up the structures situated between the middle and internal ears, and this by the well-established principles of inflammation of contiguity and continuity of tissues.

Without a doubt it is an extremely difficult matter to improve a patient's hearing whose deafness is due to a diseased state of the structures of the internal ear. But, as shown above, most of these cases of disease of the internal auditory apparatus are due to extension from the middle ear, and if the middle ear is benefited by the above work, and the hearing thereby improved, it will be observed to be true that in practically all cases of deafness due to disease of the internal auditory apparatus produced as explained above, there is also, after a longer interval of time, a small amount of improvement in the hearing; and what is of more importance, the patient does not continue to grow steadily deafer and deafer until the stage of absolute deafness is reached. Therefore it is only logical and fair to remove the causes, if we are positive that those are the causes underlying the whole trouble and producing the disease in both the middle and internal divisions of the auditory apparatus. This should be done even though it is rather late in the stage of the disease, since a little improvement is better than none at all. Our indications for operating are the usual ones. Age is only a factor from the standpoint of the patient's willingness or ability to stand the strain. The younger the better. Those less than forty are preferable. Well-selected cases well past forty should not deter us. The writer has grown so optimistic that he has done the work, in well-selected cases, even in patients well advanced in the middle span of life.

Furthermore, the writer believes that this work has the greatest tonic effect on the patient's system he can possibly obtain, as an interval of six months to two years after the operative work has been completed will show. The individual's health in general is vastly benefited, colds and infectious diseases become less and less frequent, and the resistance continues to increase steadily. It is all work of reconstruction, attempting to make the patient's nasopharynx as nature herself would have it; the patient receives his air in normal quantities and in a properly prepared form, so the oxygen can be assimilated by the lung tissues in normal quantities; oxygen, as we all know, is by far more important than food. This normal state of the nasopharynx reflects itself on the patient's system generally, making him as normal as can be, providing too much destruction in other systems has not already taken place.

Work of this type should, of course, be preceded

by general and special thorough scientific and painstaking examinations and investigations. In this connection the various tests for hearing, such as the Schwabach, Rinne, acumeter, whistle, spoken and whispered voice, etc., should all be carefully recorded at the proper intervals. The watch tick is extremely satisfactory for use in one's daily work; it is second to none in obtaining quick and accurate information during the general progress of the case, especially in younger people, who are affected mostly with middle-ear disease. It will divulge a world of information in a few moments. One must be careful in using it, and the eyes should be shut, so as to avoid innocent self-deception. The Schwabach and Rinne tests are, of course, our best means for distinguishing between internal and middle-ear lesions, or recognizing a combination of the two, as most old cases will disclose; the watch tick can be used for quick, accurate determination of the improvement in middle-ear cases, which are the more recent cases, and which are found mostly in younger subjects.

Regarding the tests for deficient hearing, we must remember that their principal value rests on their ability to distinguish between middle and internal ear disease. But after looking at it as pictured above, we must come to the conclusion that it is scarcely necessary to lay too much stress on their importance in this respect, for the simple reason that internal ear deafness is merely an extension of middle-ear disease in most cases. Hence, in most cases where we find internal ear trouble we shall find middle-ear disease, and in a large percentage of middle-ear cases that have stood long enough, or have been sufficiently acute or chronic, there will be found more or less involvement of the internal ear.

A word as to one of the most annoying symptoms invariably found in people growing deaf, and that is the tinnitus. I know of no treatment which will exert as beneficial an effect on the tinnitus as that suggested. The patients will all admit, some after rather short intervals subsequent to the completion of all the work, others after two or more years, that the sounds are milder, less annoying, and not quite so loud; and many lay their improvement in hearing to the fact that the sounds are not so loud or annoying, and heard less frequently.

Summary.—Most deafness is due to from two to four abnormalities to be found in the nasopharynx; this is true of both middle-ear and internal-ear (nerve) deafness. They are all capable of relief to a greater or less extent, and frequently can be completely cured by the methods suggested above; middle-ear cases from a few weeks to longer periods, middle and internal ear cases requiring two or three years before satisfactory results appear.

2626 BROADWAY.

Dysenteric Rheumatism.—Dorendorf has seen 59 cases of this affection which he also speaks of as a "rheumatoid." It is essentially a phenomenon of convalescence and is more prone to attack the rheumatic than the hitherto normal subject. A bacterial cause or infectious nature has not yet been shown to exist. The affection does not yield to antirheumatics or to specific antisera. It is very obstinate toward treatment but will end in recovery with time.—*Correspondenz-Blatt für Schweizer Aerzte.*

A NATIONAL BUREAU FOR THE WAR CRIPPLES OF FRANCE.

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DURING the first year and a half of the war the efforts of the French government in behalf of disabled soldiers were directed by at least four different ministries. The Ministry of the Interior was engaged in the work because the extension of aid to discharged soldiers was within the scope of the *Bureau d'assistance publique*; the Minister of War had a part in it because soldiers still in military hospitals were under his jurisdiction; the Minister of Commerce, because the supervision of technical instruction was one of his functions; the Minister of Labor, because the placement of men in industry was obviously a labor question. This dispersion of efforts resulted inevitably in overlapping or conflicting activities, in confusion, and in waste. To prevent the continuance of these conditions it was clearly necessary to combine the activities of the different ministries in reference to disabled soldiers into some central co-ordinating department.

Accordingly, in March, 1916, the *Office National des Mutilés et Réformés de la Guerre* was created by inter-ministerial decrees, with the expressed object of coordinating the work of the ministries and of public and private institutions dealing with the *mutilés*, and of centralizing all useful information on the subject. Headquarters of the *Office* are at 95 quai d'Orsay, Paris, and sub-offices or committees have been formed in nearly every department in France. The work of the main office is divided among a committee of administration, a committee of re-education, and a committee for looking after the general interests of the *mutilés*.

One of the first tasks undertaken by the administration committee was to keep a registry of every invalided soldier. To this end it prepared a blank on which could be indicated a man's residence, his dependents, his civil or military status, his schooling, the nature of his disability, his former occupation, the re-education that he had received, and what kind of employment he desired. This blank is filled out by the medical service for every man in hospital before he leaves; to it is attached a card of "medical observation" describing his prosthesis if he has one, his functional capacity, and his aptitude for vocational re-education, and both cards are then sent back to the *Office National*. When a man finds employment a placement card describing his situation completes the record.

Along with this registry work the committee went into the question of possible occupations for variously disabled men, and by means of extensive inquiries among manufacturers was able to draw up tables showing on the one hand the occupations open to men with all the different kinds of disabilities, and on the other the disabilities compatible with different occupations. Cases of victims of industrial accidents who were earning a good living were brought to light by this investigation and are made to serve as encouraging examples to the victims of the war. At the same time the manufacturers were informed of ways in which they might help to in-

crease the country's available labor supply. It was suggested that they might reserve certain places for soldiers, make changes in their machinery to adapt it to the disabled, or equip workshops for apprentices.

The re-education committee of the *Office National* is occupied with the organization and control of schools for vocational re-education. It recognizes four types of institutions found in so-called "centers" of re-education; the school with attached workshops, conducted solely for disabled men, the boarding-house which supplies maintenance to men serving as apprentices in private shops or attending regular technical courses, the guild schools opened to disabled men by the trade unions, and the system of providing maintenance to men living at home on condition that they pursue a faithful apprenticeship in some trade. The *Office* further classifies re-education schools by their financial and administrative control. Thus there is one, the *Institut* at Saint-Maurice, founded by the national government, which is under the direct control of the Minister of the Interior; others are under the authority of a department, municipality, or chamber of commerce; and still others are wholly in private hands. Schools of the latter two classes receive a subvention from the Ministry of the Interior on the submission of their program of instruction, their regulations, and a statement showing their resources and probable expenses. It is the task of the re-education committee to investigate schools applying for or receiving a subvention and to advise the Ministry of the Interior.

In order to obtain precise information about the work of the various schools and the state of vocational re-education in France, to know whether new schools should be started or whether a certain kind of instruction should be developed at the expense of another, the *Office National* sends out about twice in the year a questionnaire by which it collects many valuable statistics. Each school is asked to furnish information on the number of its boarding and day pupils, the composition of its teaching force, the machinery and tools at its disposal, its financial situation, the trades taught, the number of disabled men re-educated during the last six months, the number of days of attendance, and the list of men placed in positions on the completion of their course, with a note indicating whether they were placed in their former trade or a new one. The questionnaires answered during 1916 disclosed the small number of disabled soldiers undergoing re-education compared with the number of those incapacitated for their former trade, and indicated the necessity of propaganda to induce men to enter the schools. For this purpose the *Office* drew up and posted in all hospitals and public places a notice informing wounded soldiers that the state wished to aid them not only with a pension but with the means of learning a trade, and including directions for taking advantage of the opportunity. The notice of course stated decisively that the amount of the pension would be in no way diminished by the recipient's increased earning capacity. As a result of this advertisement the *Office* has received a large number of requests for further information from men interested in a means of obtaining trade training.

In the matter of placement the role of the *Office National* is, again, to coordinate the work being done by existing bodies. On the basis of reports transmitted to it by the various institutions occupied with placing disabled soldiers, it publishes every month an "Employment Bulletin," containing a record of all the placements made throughout the country with a description of the disabilities of the men placed, a list of the positions that have not been filled, and a list of the demands for employment that have not been satisfied. By means of this Bulletin every employment bureau can know what the others are accomplishing, and demands that cannot be met by one can be passed to others.

An even closer coordination has been effected among the employment bureaus of Paris. For them a bulletin is issued every day, and is distributed to all the bureaus participating in the service before two o'clock every afternoon. It contains a list of the offers of employment which have not been met by the bureaus where they were received, a list of the positions published as open in preceding bulletins, which have since been filled, and a list of those to which candidates have been sent and which are possibly no longer vacant. Any office receiving the bulletin has, therefore, at its disposal for the benefit of the men it wishes to place all the offers of positions recorded in the different employment bureaus of Paris.

In looking after the general interests of the *mutilés*, the committee in charge attempts to coordinate the work being done by the different aid societies and to avoid the abuses which often accompany charitable giving. Its efforts are ably seconded by the "Departmental Committees," whose chief mission is to see that every disabled man of the department receives the guidance and aid he needs. The Departmental Committee is also a coordinating agency for the various societies and institutions dealing with the *mutilés* in the department; it oversees their activities, and when necessary initiates new organizations. It is usually composed of the Prefect as president, of men representing the government—the different ministries, the medical service, the departments of public and technical instruction—and of members of the medical profession, employers' associations, insurance societies, trade unions, and rural credit banks. The duties of the Departmental Committees, as determined by the *Office National*, include visits to the men in hospitals with the object of influencing them toward re-education, investigation of industries, and advice about choosing a new trade, maintenance of close relations with the re-education school if none exists to serve the needs of the department, collaboration with the departmental employment bureaus, investigation of all offers of positions with reference to their permanence, wages, and neighboring living conditions, help in the enforcement of the law which reserves certain positions to disabled men, examination of artificial limbs distributed to men in the department and the encouragement of new inventions and improvements, publishing information on laws from which the *mutilés* may benefit—concerning insurance, workmen's compensation, rural credits, and the like—and watching helpfully over their future welfare after they are settled in industry.

THE NEED FOR AN INTENSIVE STUDY OF THE MORTALITY ASSOCIATED WITH CHILDBEARING.*

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CONTEMPORANEOUSLY with the wastage of human life that is now going on in the world war, perhaps the greatest in all history, we meet with numerous expressions directed to the necessity for replenishing the resultant shortages in population, for each affected nation recognizes the fact that unless its birth rate exceeds the death rate it must succumb in the struggle for national existence. Even a life half extinguished in the mortal conflict that has now involved the greater portion of the surface of the habitable globe, is sought to be restored to some degree of usefulness and the maimed, the crippled, and the blind are being reeducated by elaborately devised measures to resume their functions, in part at least, in the economic life of their respective countries. And so in civil as in military medicine the triumphs of recent generations are centered in the efforts to reduce the mortality from diseases that may be prevented or if not entirely preventable, at least to reduce the number of their victims. No greater honor attaches to medicine of the past century than the recognition of the fact that typhoid, diphtheria, tuberculosis, smallpox, and numerous other diseases are in a large measure preventable and, if these become a scourge, it is largely due to the circumstances that human neglect has in great part entered as a factor in their spread. So, likewise, the wastage of infant life has been made an object of preventive medicine with results so well known that they need not be referred to here.

But the attention directed to the reduction of infant mortality has conclusively demonstrated the necessity for a more complete supervision of the mother, both before and after labor, and as a result of this study, facts have been uncovered with reference to the mortality of childbearing that demand our best efforts for their recognition and possible correction. It is now well known and admitted that in this country no such decrease in the number of deaths associated with pregnancy has occurred as compared with those due to other causes; for while in the United States the death rate for typhoid fever between 1890 and 1913 fell from 46.3 to 17.9 per 100,000 of the population, for diphtheria from 97.8 to 1.8, for tuberculosis from 252 to 147.6, for pneumonia from 186.9 to 132.4, the total mortality associated with childbearing has not undergone any corresponding change for the better. Thus, in 1891 the total mortality associated with the childbearing function was 15.3 and showed little variation up to 1913, when it was 15.8 in the same ratio of population. These rates refer to the so-called registration area, which in 1913 included between 65 and 70 per cent. of the total population of the United States. A further study of the mortality tables presented in the last national census shows that the death rate per 100,000 women of childbearing age in 1900 totaled 50.3 and included 21.6 for puerperal sepsis alone. These figures may, perhaps, be criticised for lack of sufficient detail and

a more accurate estimate would be one based on the number of deaths of mothers per 1000 live births. This has only been done in a very few States, but even here we note a rate of 6.5 per 1000, or in larger figures and round numbers, about 3,600 out of 562,000 pregnancies with live births had a fatal termination. Here, again, we find that in about one-half of this number puerperal septicemia in some form or other was shown to be the cause of death. Attention has also been called to the fact that among the sixteen leading nations of the world an examination of the death rate associated with pregnancy shows that the United States stands fourteenth on the list.

If we admit the facts as stated what can be done to correct the same? I believe that in the first place an attempt should be made to disseminate a more widespread knowledge of the comparatively high mortality associated with the function of childbearing, so that the medical profession and the public, as well, shall be made aware of the necessity for concerted action and take steps to attain the same. Secondly, the preventable character of many of the fatal complications of pregnancy should be emphasized and due recognition accorded to the necessity for providing skillful attention for every pregnant woman. Thirdly, it seems essential that a more detailed study be made of the mortality statistics of pregnancy and labor, in order to determine among other things the antecedent history of the fatal cases and to separate in greater detail the various causes of death, for, at the present time, the usual classification includes merely septicemia on the one hand and the remaining factors on the other. This is extremely unsatisfactory, for it gives us little idea of the direction in which to apply prophylaxis, either in a medical or social sense.

The intensive study of the subject herewith proposed is based on the mortality associated with childbearing in hospitals of the Borough of Manhattan of this city during the half decade from 1913 to 1917, inclusive. Only those deaths which occurred in the hospitals of this borough are included, as this for obvious reasons, probably represents the more serious phases of the situation. In the belief that the hospital records are necessarily more complete than those derived from private practice, deductions may be possible, which could not be obtained otherwise. Moreover, a study of the hospital statistics will show how many cases originated in the institutions or were referred to the same from outside sources, and in this way an idea may be gained as to what proportion of fatal cases might perhaps have been saved with earlier and, let us say, more skillful treatment. The care of a woman in labor has usually been considered as coming within the province of the general practitioner to be conducted at home under conditions that even under the most favorable circumstances can scarcely be described, in many instances at least, as meeting the demands of aseptic surgery. The poor and the well-to-do can command the services of competent obstetricians, but the great middle class must still depend on what may be charitably termed "average ability or talent", and it is along these lines that the campaign of education for better obstetrics must be conducted. If the detailed mortality statistics of a great metropolitan center can be gathered and classified, their publication will un-

*Read at a meeting of the New York Obstetrical Society, Feb. 12, 1918.

doubtedly lead to similar efforts elsewhere, and a problem that now appears vast will assume limits that permit of closer study. Hospital statistics afford material for analysis that will be productive of greater certainty and more satisfactory deductions than that secured from the official death certificates on file at the Board of Health, as the latter failed to give the very much desired information about the antecedents of the individual case. Where hospital records are faulty in this respect, it is to be hoped that such publication will lead to reform in their future preparation.

The Public Health Committee of the New York Academy of Medicine, in a most public-spirited manner, has undertaken this investigation. From it we ought to obtain certain definite information of the proportion of the various etiological factors that have contributed to the mortality of pregnancy and labor, to know of what value prenatal work has been, whether previous neglect of the attendant before referring the particular case to the hospital is a factor in the situation, how many operative deliveries ended in fatalities, and what are some of the underlying conditions in the production of puerperal septicemia. For this purpose, a questionnaire has been prepared as affording the most satisfactory and easiest way to collect these statistics, which it is our intention to assort and arrange without reference to the hospital from which they are derived. The purpose is not to criticise any individual institution, but to present a set of collective statistics that will serve as a basis for a constructive reform in reducing childbirth mortality, if this is possible. We trust that the work will be accepted in this spirit by the profession, and we are glad to acknowledge the practically complete cooperation of all the hospital authorities who have been appealed to for their assistance. The New York Obstetrical Society has likewise given its indorsement to this important investigation. It is hoped that within six months these statistics will be available and ready for publication.

23 EAST NINETY-THIRD STREET.

STANDARDS FOR SWIMMING POOL LEGISLATION.*

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THE writer has been consulted a number of times by the health authorities of various communities concerning the requirements of public health ordinances relating to swimming pools and bathing beaches. The widespread interest which has been shown in the proper safeguarding of swimming pools has prompted the brief detailing of the standards up to which the laws enacted should measure. While it is recognized that the requirements of different localities may make the modification of the standards below suggested a necessity, neverthe-

*The present paper was compiled through the facilities of the Research Laboratory of the New York Department of Health. Many valuable suggestions have been made by Dr. Haven Emerson, former Commissioner of Health, and by Dr. William H. Park, Director of Laboratories, to both of whom thanks are herewith given.

less, in the main, the problem of pool sanitation is the same in all communities.

Swimming pools may be classified as indoor and outdoor pools, fresh and salt water pools, wading pools, and mikveh baths. The regulations concerning mikvehs have been published in a previous issue. For details concerning outdoor bathing beaches, consult the laws of the State and City of New York.

The regulations concerning pools can be conveniently divided as follows: (1) Regulations concerning the management of the water; (2) regulations concerning the construction of pools, including the reduction of fire hazard and the provision of safety devices; (3) sanitary control of premises and bathers. No attempt is here made to set forth the regulations, merely standards are suggested.

A. *Standards Concerning the Management of the Water.*

1. The bacterial contents of the water supplied to a swimming pool must conform with that of drinking water, or, if polluted, must be disinfected before use.

2. The water in the swimming pool during use must be continuously diluted by adding fresh water, or, by re-using the water from the swimming pool after filtration. (Note: It is preferable to keep re-using the pool water by a process of circulating it through a filter—refiltration. This will conserve both the water and the fuel for heating.)

3. The water must be maintained clear at all times to an extent at least sufficient to see a submerged person in any part of the pool. (Note: The manner of accomplishing this should be left to the proprietor of the establishment; however, the most satisfactory method so far introduced is by the continuous circulation of the water through a filter—refiltration.)

4. The water must be either periodically and regularly or continuously disinfected, unless emptied daily. The bacterial count must not exceed 10 colon bacilli per cubic centimeter. (Note: No upper limit for total bacterial count should be set until further experience has been accumulated on pool sanitation. The frequent emptying of the pool should not be compelled or encouraged because disinfection and refiltration give as good results as frequent change of water and because the frequent change of water causes needless waste of water, fuel, power for pumping, etc.)

5. The method of disinfection must be satisfactory to the Department of Health. (Note: No method should be prescribed in view of the advances constantly being made on this phase of pool sanitation; chlorine and other chemicals, ultraviolet light, and particularly ozone, all have their advantages.)

6. The water from the pool must, when discharged, cause no contamination of any stream used for drinking purposes and should, if possible, be disposed of as sewage water.

B. *Standards Concerning the Construction of Pools, etc.*

1. The lining of the pool must be white or nearly so, smooth (readily cleansable), and impervious to water. The corners of the pool should be rounded.

2. There must be no obstructions in the water. Stair and stair supports must be of metal or stone.

3. Water from the floor surrounding the pool must not drain back into the pool.

4. The floor must be constructed of material impervious to water, must be adequately drained and composed of material designed to prevent slipping, and, if possible, a poor conductor of heat.

5. There must be a scum gutter on at least two opposite sides of the pool, and preferably completely surrounding the pool, for the purpose of draining off surface dirt and of affording a place for bathers to spit. The scum gutter must drain into the sewer or cesspool and not back into the recirculation system.

6. Construction should be made with due regard to the elimination of fire hazards, taking into account the providing of sufficient exits to accommodate the largest crowd that would be likely to attend exhibitions, etc.

7. The pool should be shallow at one end and deep enough at the other to permit diving with safety, unless constructed as a wading pool for children.

8. Dressing room compartments in indoor pools must be constructed vermin-proof.

9. Bathing establishments should be under permit of the Department of Health to include construction and operation.

10. Adequate shower baths and toilet facilities must be provided; also hot water for showers in indoor pools; toilets must be screened against flies, unless water-flushed and covered by toilet seats.

11. Sanitary drinking fountains with pure water must be supplied.

C. Sanitary Control of Premises and Bathers, etc.

1. Adequate light and ventilation must be provided.

2. A temperature of the air during the winter in indoor pools of between 70 deg. and 80 deg. F. must be maintained.

3. No common towels, combs, brushes, or drinking cups may be provided.

4. All towels, suits, etc., provided by the establishment for public use must be sterilized after each separate use.

5. Anti-spit signs must be conspicuously posted. Signs in large letters must be posted in dressing compartments directing all bathers, men and women, to take a preliminary cleansing shower in the nude with warm water and soap and to empty the bladder before going into the pool. All bathers must rinse off the soap before entering the pool room.

6. No diseased or intoxicated person should be permitted to use a swimming pool.

7. Only persons dressed for bathing may enter the pool room.

8. Men and boys must bathe in the nude or be provided with sterilized suits. Suits for men and women must be of fast color and of a lintless material.

9. A life guard must be present at all times. He must be acquainted with the technique of resuscitation of the apparently drowned and have equipment at hand for rescuing and resuscitation. He, or some attendant, must supervise the incoming bathers to enforce the regulation concerning the preliminary bath and to exclude undesirable and diseased persons.

10. The room must be locked during the emptying and refilling of the pool, or other steps be taken, so

that bathers will not accidentally dive into an empty pool.

10. The pool when emptied must be well scrubbed,

12. No smoking should be allowed in indoor pools,

13. Cuspidors must be provided in the dressing rooms and pool rooms.

14. If the tub baths are supplied they must be disinfected after each separate use.

2350 DAVIDSON AVENUE.

Medicolegal Notes.

Physician's Representations Leading to Release.—In a passenger's action for injuries, to avoid a release the plaintiff pleaded false and fraudulent representations by the defendant's claim agents and its physicians as to her physical condition. It was held that the burden of proof rested on her to prove that the doctors and the claim adjusters deliberately and consciously misrepresented her physical condition, with intent to induce her to make the settlement, and that she was thereby induced to make it. To prove fraud the evidence must be clear, precise and indubitable. It was held that such evidence had not been presented. The plaintiff herself testified only that the physician who had entire charge of the case after her first day in the hospital and during her stay there stated "as his opinion" that the injuries were not serious. She complained at the trial that she was, in fact, suffering from internal injuries, but in at least two places in her brief it was said that the defendant's physicians failed to discover such injury. Clearly, then, they were not and could not be guilty of fraudulent misrepresentation as to that injury. If they failed to discover it, that might indicate negligence on their part, but that was no part of the issue made by the pleadings.

If the physicians were negligent or incompetent, the defendant would be liable for the results of such negligence or incompetence only in case it appeared that the defendant knew or should have known of the physicians' unfitness, and that, too, in a case where the pleadings presented that question. A physician's diagnosis is necessarily a matter of opinion, except where the ailment is external and visible. There was no evidence which even raised a suspicion that the statements made to the plaintiff as to her condition were not made in perfect good faith. Neither of the physicians who attended her for the defendant was present at the settlement, nor did they at any time take part in the negotiations for it. The attempt to invalidate the settlement was held to have wholly failed.—*Denver & R. G. R. Co. v. Ptolemy*, Colorado Supreme Court, 199 Pac. 541.

Care by Hospital of Delirious Patient.—In an action for damages for the negligence of a hospital in allowing a delirious patient to wander and hurt himself, it was held proper to allow practising physicians who qualified as experts to testify as to the character of attention a patient should receive at a hospital. As to whether such a patient, supposed to be dying, was delirious when he wandered and fell to the ground, or whether he did fall, and whether the hospital was negligent in not keeping closer watch over him, and whether such fall was the cause of his death, were held to be questions for the jury.—*Durfee v. Dorr*, Arkansas Supreme Court, 199 S.W. 376.

Unsuccessful Operation—Tort or Contract.—A complaint alleged that the defendant physician was employed by the plaintiff "to cure him of bladder trouble," that the defendant advised an operation, that the operation was performed, but left the plaintiff in a worse condition, that the plaintiff had suffered and still suffered great pain and had become weakened in body and his physical health and constitution had been greatly impaired, and that by reason thereof the plaintiff had suffered damages in the sum of \$10,000. It is held that the complaint did not state a cause of action for breach of contract to effect a cure, but an action sounding in tort for damages for the defendant's act or negligence, governed by the California statute requiring such actions to be brought within one year.—*Marty v. Somers (Cal.)*, 199 Pac. 411.

Military Medicine.

TREATMENT OF WOUNDS OF THE KNEE-JOINT IN WAR.

AFTER three years of warfare a large experience has been gained in the treatment of injuries to the bones and joints, and the knee, perhaps the most frequently involved of all, has come into its full share of study. The question of amputation in traumatism to the knee-joint may, after a careful survey of the practice of many experienced surgeons, be summed up as follows: Since any operation is usually performed on a subject in a very critical condition, the technique must be simple and carried out with celerity, but care must be taken to assure a thick flap. Such an amputation can be done by a good operator in about two minutes, more time than is required for the guillotine method, which is now looked upon with much less favor on account of the generally poor ultimate results obtained. The flap in case of knee joint amputation must be broad and circular, the bone being divided high up, in order to avoid an ulterior conical stump. No sutures should be used, and after hemostasis the wound is left completely open and dressings applied over all.

It is incumbent upon the surgeon to decide within the first few hours after seeing the case upon the treatment to be adopted. If there are extensive articular abrasions with a gaping joint, shattering of the epiphyses and diaphyses to a considerable extent, with vast laceration of ligaments, muscles, and skin, no hesitation should be permitted. The menace of infection rapidly increases after the lapse of the first ten hours, or even less, as the bacteriological researches of Lumière, Feisinger, Carrel, Policard, and Philip have amply demonstrated. The first three days following the receipt of the trauma are unquestionably the most critical and during which surgical activity should and must offer its greatest usefulness.

Some are of the opinion that arthrotomy, even for bone lesions, will result in recovery by first intention when resorted to within the first three days, if the joint wound is very carefully and exactly cleansed, and it is maintained that no matter how serious the infection, the process develops sufficiently slowly for the surgeon to be able to adopt conservative treatment if such seems feasible. Other equally competent surgeons believe that the synovial membrane is less resistant than the peritoneum and that after the lapse of twenty-four or thirty-six hours the results of arthrotomy are less favorable. At this phase the rapid progress of the infection may force the surgeon to discard arthrotomy and resort to the highest degree of joint drainage, namely, typical resection. But arthrotomy, when properly carried out, will expose the lesions perfectly, and not a few successful results may be obtained by this conservative procedure. As to amputation, it is indicated much more than during the first twenty-four hours following the injury. If the patient is not seen until after the lapse of three days a purulent arthritis will have developed, but even then a complete arthrotomy, with minute surgical cleansing of the joint, may still be essayed. All pus tracts must be followed up and freely ex-

posed and perfect drainage established. If the lesions to the bones composing the knee-joint are very extensive, if the attrition of the soft structures is considerable, and if the patient's general condition is precarious, typical or atypical resection must be done without delay. At a more advanced degree, and if smashing of the bones composing the joint is more extensive than the limits offered for resection, namely, from 5 to 8 centimeters for the femur and from 2 to 3 centimeters for the tibia, amputation must be done.

If now the case is not seen until after the lapse of a number of days, the infection has had free play so that one of three conditions will be offered to the surgeon. In the first, the infection, being of a mild type, has remained localized and the joint and muscular tissue will be seemingly in fair condition. Such cases should be examined by radiography, and pyoculture, cytodiagnosis, and all other means of clinical investigation will be of great help. If the bacteria are few and mild in virulence, if phagocytic action is good, if radiography and exploration of the joint do not reveal a foreign body or osteoarticular lesions of serious nature, immobilization of the joint may be sufficient, but more frequently the knee is swollen and painful on palpation, while the slightest movement causes suffering. One or several wounds from missiles will be seen or the joint may have been incised and drained, usually inadequately. If now an arthrotomy is done at once and freely enough to expose the joint cavity in its entire extent, the pathologically changed structures can be completely excised and all foreign material removed. But very often the pus will have burrowed between the muscles of the thigh and leg, the knee is distended, and radiography reveals great damage to the epiphyses.

In some cases the patient possesses sufficient physical resistance to withstand resection of the joint. Pyoculture and the clinical signs present indicate a mildly virulent infective process so that a conservative treatment can be essayed with the hope of saving the limb. But other subjects will be worn out physically, and the menace of septicemia is serious. The temperature chart of the "church spire" type tells the true situation, and amputation, as a life-saving measure, must then be done without delay.

Tropical Affections Observed in the Adriatic-Balkan War Zone.—Dr. Azzi, in *La Riforma Medica* for December 22, gives a synthetic review of this subject. The maladies in this zone pursue somewhat atypical courses. To possess value such observations should be made by men thoroughly conversant with tropical medicine, like Professor Castellani, who, as head of the Marine Hospital Service, has made numerous reports on the subject during the past two years. The first affection mentioned is a hemorrhagic type of malaria which simulates purpura and scorbutus. In 1915 a Servian regiment was attacked with what appeared to be scorbutus. The victims were pale and weak, covered with petechiæ and extravasations, presented epistaxis, hematemesis, melena, hemoptysis, and hematuria. Not a patient had

fever, but enlarged spleen in two patients promptly caused a blood examination to be made with the result that a quinine cure soon came to pass. Malaria has also simulated pernicious anemia, polyneuritis, and delirious and comatose states; not only did these types present no fever, but the spleen was often normal. Among other affections simulated were cerebral apoplexy and cerebrospinal meningitis, while among rare expressions were simulation of typhoid fever, Malta fever, tetanus, and sleeping sickness. The treatment-test is not infallible, for in certain of these expressions quinine failed to cure. Malaria can also simulate many local affections as indigestion, gastric ulcer, cancer of the stomach, cholecystitis, acute enteritis, dysentery, abscess and cirrhosis of the liver, acute hemorrhagic pancreatitis, appendicitis, etc. In cases in which quinine alone was inert it was given with benefit combined with methylene blue, arsenic, antimony, phosphorus, and picric acid. Nevertheless, quinine given by all of the routes and in high dosage was able to control the majority of cases, however severe.

Typhus and recurrent fevers occurred under numerous obscure expressions which are also described, but these affections cannot be termed tropical and we do not understand why Dr. Azzi includes them in his review unless it is because they cause much confusion in diagnosis. Pappataci fever is readily mistaken for typhus, but the latter is readily excluded by blood tests, since the leucopenia of Pappataci fever is replaced by a leucocytosis.

Among other tropical maladies encountered on this front are the following: febris columbensis (originally isolated by Castellani), Malta fever, kala-azar, quartan and intermittent fevers of non-malarial nature, spirochetic purpura, scorbutus, beriberi, splenomegalic icterus, filariasis, elephantiasis, endemic funiculitis, icterus as a clinical entity, when grave, is of spirochetous origin, and when mild appears to pass most frequently for paratyphoid. Among numerous diarrheas some are due to special parasites—flagellates like *Lamblia*, *Trichomonas*, and *Heteromita*. Notable in general is the pathogenic activity of the protozoa, whether flagellates, amebæ, or spirilla.

So-called tropical skin diseases are well represented, as numerous forms of tinea, tropical ulcer, Madura foot, saccharomycoses, aspergilloses, blastomycoses, sporotrichoses, and other dermatoses due to fungi. Some of the fungi give rise to chromatic lesions, red, black, etc.

Spirochetoses of the bronchial mucosa originally isolated by Castellani appear to have been well represented; these simulate the ordinary types of respiratory affection of the temperate zones more or less closely so that the sputum must always be closely studied for the presence or absence of the parasite. What is true of this protozoa also holds good for certain fungi, many of which attack the respiratory tract and simulate the familiar bronchopulmonary affections. Both types of parasite cause benign and malignant forms.

Prosthesis for Extensive Injuries Involving the Orbit.—While glass eyes answer for cosmetic eye

prosthesis when a stump can be fashioned, other resources are in demand for many war wounds in this region of the face. Cosmetic defects cause a profound psychic reaction when the subject feels himself repulsive to others. The familiar green patch or colored glasses of the unsightly blind man are examples of this character. The one-eyed man is the worse mental sufferer of the two, because for one reason the loss of one eye is a handicap in securing certain kinds of work. It must be remembered that wounded vanity is the least of the troubles of the blind, who may suffer from difficulties of facial mimesis and expression from the lack of both eyes and eyelids in addition to the consciousness of being repulsive. According to Angelucci in the *Giornale di medicina militare* for December 31, the lack of mimetic power must be keenly felt by the Italian who "suits the action to the word" with his ocular and palpebral movements in addition to the play of other facial muscles, hands, and shoulders. When a glass eye can be made to serve these troubles largely disappear. One outcome of the present war is a prosthesis much more extensive than a simple glass eye when fitted to a bulbar stump. When the orbit has been practically excavated an entire prosthesis is contrived to fill the orbit and this is enhanced by blepharoplasty. A further illusion is furnished by wearing a pair of ordinary spectacles. Comparative photographs show under the prosthesis great improvement in mimesis. The face shows natural repose instead of a set, strained expression. The subject once more is conscious of the presence of eyes even if he does not see. If one eye only is lost a monocle diverts attention from it and he will wear this only in company. The idea is by no means new, for according to the Talmud a gold eye was used—at least once—to mask the repulsiveness of an empty eye socket. The technique of blepharoplasty, as a result of the great demands upon it, should at least secure good cosmetic effects, even if functional restoration is necessarily in abeyance.

War Bacteriology in the Military Hospitals of Venice.—Bacteriological reports should give a fair idea of the morbidity of an army community from contagious and infectious diseases. A report published by Sangiorgio in the *Giornale di medicina militare* for December 31, shows that over 20,000 laboratory tests were made in the military hospitals of Venice during the year. Of this number two-thirds of the reports had to do with tests of the feces for the causes of choleric affections. The number of examinations made showed a great reduction in comparison with the previous year, which is well borne out by the fact that no case of cholera or of a cholera carrier came to light during the year. Whence it is evident that a great number of tests may or may not connote an absence of a given disease. In this connection may be enumerated 2,232 miscellaneous examinations of urine and 1,207 of sputum. Of serodiagnostics there were 135 Widal's for typhoid and 386 Wassermann's. Blood tests for bacteria were relatively few in number.

Next in frequency to stool tests for cholera and choleric affections come various tests for men-

ingitis. The actual number of cases of this disease seems to have been but 8, with 2 deaths; yet once again we see that a low morbidity can bring about an extraordinary amount of bacteriological activities. Of 2,487 tests for the presence of meningitis the vast majority must have consisted of examinations of the secretions of the nasopharynx for carriers. There is some doubt as to the efficacy of this form of prophylaxis, especially as the question of louse transmission has been raised. Such a theory would account in part for certain defects in our knowledge of this disease were it not for the fact that meningococcus disease is seldom a sepsis. The author, without giving figures, mentions bacteriological examinations for dysentery which may perhaps be included under "miscellaneous tests for bacteria" which number 267. Aside from 97 blood tests for malaria there is no specific mention of hemocultures. But four microscopical examinations were made in connection with skin lesions and but five for suspected food articles, in which the tests were evidently chemical.

The conclusion in regard to the great number of bacteriological tests with small number of positive results is entirely favorable and does not indicate a waste of effort. Eternal vigilance is the price of freedom from pestilence. We can conceive of an ideal community in which analysis might be overdone, but this could hardly be the case in a community engaged in active warfare and menaced constantly by epidemics which often have all the conditions which favor their development.

The Soldier's Heart.—Dr. I. Strickland Goodall in the Chadwick Lecture delivered for 1917 treated of the hygiene of the Soldier's Heart and formulated the following rules: (1) Insist on the more thorough and careful examination of recruits, not paying attention merely to valvular lesions, but to the history, form of heart, and especially its capacity for work. (2) Carry out the training of recruits more slowly, grading them according to their previous modes of life, physique, occupation, and age. (3) Insist on adequate rest during training, and periodic examination of the men. (4) The heart of a man of forty may be healthy but it will not stand the same strain as even a defective heart in a man of twenty. (5) Particularly examine and rest men after a febrile attack. (6) Treat all septic conditions of the mouth throat, etc.

Training Discharged Soldiers.—British Army Council Instructions have been issued relating to the continued treatment and training of discharged soldiers. The Ministry of Pensions and War Pensions Committees in the boroughs and county boroughs and in other large towns are charged with the duty of securing any medical treatment on training for industrial life that a discharged soldier may need. The instructions suggest that officers in charge of hospitals should be placed in touch with such committees. So long as in-patient treatment is required and accommodation is available, soldiers will be retained in appropriate hospitals, and, if considered unfit for further service, will be brought before the invaliding board. In addition to hospital treat-

ment, an appropriate course of technical training may for many cases be desirable. The provision of such means of training rests with the Ministry of Pensions and officials of hospitals are advised to assist such cases with advice.

Hospital Ship Torpedoed.—The British hospital ship, *Glenart Castle*, was torpedoed in the Bristol Channel and sunk within seven minutes. She was outward bound and had no patients on board. None of the seven nurses that were on board are reported saved. Of the 182 persons on board only 38 have been reported as saved thus far.

Glasses for the United States Navy May Be Sent to New York.—Owners of sea glasses and binoculars who may wish to respond to the appeals that they be loaned for use in the navy may send or leave them at the naval recruiting station at 34 East Twenty-third Street, New York City. The need for these glasses is still very urgent.

Gift for Relief Work in Palestine.—A gift of \$100,000 for the medical unit of Hadassah has been appropriated by the Joint Distribution Committee of the American Jewish Relief Committee. The medical unit expects to leave for Palestine in a few weeks. The British Government has given assurance that it will cooperate in every way to secure a safe and speedy transportation of the medical unit.

In Favor of the Owen and Dyer Bills.—The New York State Committee of the medical section of the Council of National Defense, of which Dr. George D. Stewart is the chairman, is sending a letter to all medical organizations in the State urging them to send to the New York Senators and Representatives in Congress resolutions endorsing the Owen and the Dyer bills recently introduced into the Senate and House respectively providing that officers of the Medical Reserve Corps be given equal rank with those of the Regular Army and that they have the same eligibility to advanced rank as is now provided for the line officers. It is pointed out that the passage of these bills is of the highest importance to the medical profession as an evidence of the recognition of the patriotic services of that profession which has furnished to the Federal Service a greater proportion of its members than any other.

Federal Board for Vocational Education.—This body has made public its plans for the re-education and rehabilitation of disabled soldiers and sailors. It estimates that 100,000 out of every 1,000,000 soldiers sent overseas will return to the United States during the first year of fighting, and that 20,000 of these will need some kind of vocational reeducation. The first of these men will come back during the summer of 1918, and adequate provision must be made for them before they are actually in hand for training. A comprehensive Federal system for the reeducation and placement in wage-earning occupations is presented which involves a central administrative agency in Washington, the coordination of that agency with similar public, semi-public, and private agencies, the establishment of "curative workshops for the treatment of war cripples, to-

gether with a complete system providing for subsistence and pay during the period of reeducation." Emphasis is placed on the immediate and pressing demand for the training of teachers of occupational therapy to take care of the handicapped men on their return. It is estimated that for every 1,000,000 men overseas 1,200 teachers will be needed. The Federal Board presents in this bulletin an outline of an emergency course covering eight weeks for the training of teachers. The bulletin discusses therapy and the equipment needed for the various groups of disabled men.

Medical Officers Discharged Since War Began.

—A statement issued by the Committee on Public Information shows that from the declaration of war to February 23 the Surgeon General of the Army has discharged 1,050 officers of the Medical Reserve Corps other than 31 removed by death. Of these discharges, 411 were for physical disability, 154 for inaptitude for the service, 306 to join other branches of service, 59 because of domestic difficulties, 32 because they were needed by committees, hospitals, schools, etc., and 88 resigned. All of those whose dismissal was in considerable degree due to inefficiency or incompetency are not isolated under "inaptitude for service," since the latter reason had weight in many cases otherwise classified. During the same period there have been 2,265 promotions of Medical Reserve Officers. The total strength of the Medical Corps on February 23 was 15,694. At the outbreak of the war there were 877 medical officers, including Regulars and Medical Reserve Officers on active duty.

Rockefeller Gifts to War Work.—At the annual meeting of the Rockefeller Foundation, on March 1, additional gifts to war work to the amount of \$187,281 were announced. Of this sum, \$125,000 is to continue the war demonstration hospital of the Rockefeller Institute, \$50,000 for the medical division of the National Research Council of the Council of National Defense, and \$12,281 for other medical war research and relief work. Dr. Hermann M. Biggs was elected a member of the International Health Board of the Foundation. The Executive Committee of the Foundation for the year 1918 has among its members Dr. George E. Vincent and Dr. Simon Flexner.

New Naval Hospital.—A number of frame buildings have been acquired by the Government on a site adjoining the naval cantonment at Pelham Bay Park, which are to be used as a general hospital for the United States Navy. The hospital is to be similar to Base Hospital No. 1, better known as the Columbia University Base Hospital. The proposed naval hospital will accommodate 2,000 patients.

Deaths in the Service.—Captain Frank S. Pratt of North Bend, Ore., died of pneumonia, at Fort Russell, Wyo., on February 11, aged 54 years. He was a graduate of the University of Oregon Medical Department in 1908. He enlisted in the service last fall and was recently advanced to the rank of Captain.

Physical Examination for Red Cross Aids.—Arrangements have been made by the American Red Cross whereby the Life Extension Institute

of New York will make a physical examination of applicants for service in relief work overseas. The examinations will be made not only at the head office of the Institute in New York, but in the home towns of the applicants when this is necessary. All such examinations will be arranged by the Bureau of Personnel of the Red Cross. The Life Extension Institute will make arrangements with physicians examining applicants for their immunization against typhoid and paratyphoid fever and smallpox. The workers who pass the physical examination will be given such instruction and suggestions in hygiene as will tend to make them better able to bear the strain of war work.

Public Health Service Plans to Combat Meningitis.—The United States Public Health Service has issued a statement which gives the assurance that it has a definite plan for dealing with epidemics of cerebrospinal meningitis. When an epidemic threatens to exceed ordinary proportions the service will detail an epidemiologist, with the necessary laboratory equipment, to investigate and cooperate with local authorities in the control of the disease.

McGill University, Montreal, has been presented by the Carnegie Corporation with a gift of \$1,000,000 in recognition of its devoted services toward Canada's part in the war. In addition to its active part in military affairs, McGill University has maintained a general hospital in France with more than 2,000 beds.

A Study of Trench Fever has been undertaken by American surgeons in France. Sixty enlisted men of the Sanitary Corps, U. S. A., have volunteered for the experiments; some have received injections of blood taken from men suffering from trench fever, and others are serving as hosts to body lice taken from men with the disease. With the approval of General Pershing a call for volunteers was made and virtually every member of the 101st, 102d, and 104th Field Hospitals and the 101st, 103d, and 104th Ambulance companies offered to submit to the experiment.

Coast Hotels for War Hospitals.—A preliminary survey of the New Jersey Coast resorts has resulted in four well-known hotels being designated by Surgeon General Gorgas as peculiarly adapted for use as army hospitals. These hotels include the Lakewood Hotel, at Lakewood; the New Monmouth and the Essex and Sussex, at Spring Lake; and the New Monterey, at Asbury Park. General Gorgas has also asked authorization to establish hospitals at Cape May and Colonia. These hotels will afford accommodation for more than 5,000 men and can easily be arranged to provide for 7,500. It is probable that Surgeon General Gorgas's recommendation will be approved by the Government within two weeks.

Gift to Hospital Ships.—The National Society of the Colonial Dames of America has raised \$50,000 for the purpose of equipping the operating rooms of the two hospital ships, *Comfort* and *Mercy*, now being fitted out for the use of the Navy. The gift not only provides the ordinary equipment, but is supplying moving picture reels, phonograph records, and other articles for the entertainment of the men.

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ENCOURAGING THE PARALYTIC TO RECOVER.

WE are all aware by now of the possibilities of re-education in compensating for loss of tissue. Such surprising results have been obtained both experimentally, where first one motor area and then both were excised in monkey's brains, and practically, where paralytics of the sort usually termed chronic and hopeless have been restored to comparative health, that we look upon even the least promising case with a fair degree of optimism. The secret of the method lies in keeping everlastingly at it, working with the patient every day, and setting the mark of progress a little farther ahead all the time. One point, however, is entitled to special comment, and that is the matter of enlisting to the utmost the patient's aid.

So often in these cases we have to do with a temperamental laziness or indifference or pessimism, or else an apathy closely associated with and perhaps caused by the actual damage done to psychic centers by the cerebral lesion responsible for the paralysis, that we are apt to be discouraged at finding our efforts nullified to some extent by the *vis inertiae* of the patient. In such cases there are three ways of getting cooperation: holding out the prospect of recovery, making the exercises interesting, and representing progress graphically.

The first method it is probably unnecessary to emphasize, as it is such an integral part of the practitioner's armamentarium. The second method is one whose importance should never be underestimated. All of us who have at various times in the past decided that our biceps needed hardening, or our chest expanding, and to that end have purchased wall exercisers or dumbbells, with the praiseworthy intention of devoting 15 minutes a day to them, know how difficult it is to keep such a resolution. Likewise, the patient, if put at doing exercises over and over of whose rationale he is unaware and the effects of which he cannot see, is apt to grow extremely bored with them, and either neglect them altogether or slight them fearfully. On the other hand, by utilizing the "play spirit" we can be assured of his unflagging devotion to the business in hand. Even so simple a game as trying to pitch

a tennis ball into a basket several yards off, and registering the number of successes, will rouse interest; or casting a dart at a target; anything, in short, which permits of a score being kept will rouse the patient to efforts to "beat his own record."

Finally, the recording of the patient's progress by means of charts is helpful. The larger and more striking these are the better. Big black and red lines, showing decided upward sweeps, are good. If the patient is able to pick up a tennis ball with the paralyzed hand in 40 seconds the first day, for example, and 38 the second, and 30 the third, this progress should be represented by a curve going upward, and the patient will soon feel eager interest in it, and try each day to force it higher.

The ingenious physician will thus find many ways of stimulating the patient's interest, and be rewarded by finding that his paralytic patients make remarkable progress on the road to recovery, and that he does not have to be constantly urging them to persist in their exercises.

THE MANAGEMENT OF ABNORMAL BLOOD PRESSURE

IN the discussion of high blood pressure and its significance it is sometimes forgotten that hypertension is an effort to establish circulatory compensation and therefore is in itself physiological. According to Thomas E. Satterthwaite, in an article published in *International Clinics*, Vol. III, Series 27, this point should be always remembered in the management of hypertension. The diet should be regulated so as to limit the amount of protein and in general to prevent the formation of acids in the system resulting from the development of putrefactive processes. Bulgarian sour milk or ordinary buttermilk is sometimes useful in combating intestinal toxemia, and it is best combined with vichy in the proportion of from one-eighth to one-half. Fresh vegetables and milk should be taken freely. No pastry, coffee, tea, alcohol, or tobacco should be permitted, or very sparingly taken. The Karell treatment of a glass of milk at 8, 10, 4, and 8 for two consecutive days may be helpful in acute cases, the patient resting in bed. Rest is also important, but properly controlled exercise, active or passive, according to the severity of the symptoms, may be of service. No excitement of any kind should be permitted. Constipation should be avoided and care should also be taken to see that there is no excessive functioning of the adrenals and the other ductless glands, the secretions of which, if in excess, produce hypertension.

Satterthwaite is greatly in favor of the use of the high frequency current, given two or three times a week in seances of eight to ten minutes. As for drugs, iodine should be administered in moderate doses, and iron if a tonic is required. Nitroglycerin, alone or with other drugs, may be given in sufficient doses to reduce the pressure, if that is desirable,

but it should not be administered in doses sufficient to produce a prolonged headache. On the other hand, the use of digitalis need not be feared in cases of high blood pressure. According to Burnet, writing in the *Medical Press* of August 21, 1912, the tincture of digitalis does not raise the pressure—a fact, if it be a fact, which is not generally known. The use of chloral hydrate is not recommended, but sometimes the bromides give satisfactory results. Satterthwaite uses aconite in one-minim doses more than any other drug.

Of course, in the treatment of hypotension, rest, mental and physical, is very important, and digitalis, strychnine, and preparations of iron or manganese are helpful. If the hypotension is due to adrenal insufficiency, Satterthwaite has found two-grain doses of the dried gland three times a day useful, or $1\frac{1}{2}$ grains of the dried adrenal with $\frac{1}{10}$ grain pituitary gland about three times a day. Such patients should have plenty of outdoor air and mild passive exercises and massage.

It should be borne in mind that in all cases of abnormal blood-pressure hypertension has, on the whole, a far more unfavorable prognosis than hypotension, which, except after loss of blood in shock, in acute cardiac dilatation in the course of infective diseases, is not a cause of immediate alarm. For the most part, hypotension indicates mathematically the degree of exhaustion in wasting diseases, such as tuberculosis. On the other hand, hypertension is usually associated with arteriosclerosis, when the degree of it measures approximately the danger from nephritis or cerebral hemorrhage.

TUBERCULOSIS AND MILITARY ORGANIZATION.

PULMONARY tuberculosis is still the most prevalent, and, on the whole, the disease which is most destructive to human health and life in civilized countries. So far as the spread of tuberculosis is related to war, the situation is somewhat confused. It has been widely advertised that the influence of war on tuberculosis has been powerful, and evidence in support of this assertion has been adduced from France. The statement has been frequently made that since the war tuberculosis has increased enormously there, and that this increase is due entirely to the non-enforcement of well-timed measures by the responsible authorities. On the other hand, Dr. Arnold C. Klebs (*Naval Medical Bulletin*, Vol. II, No. 4) agrees with many of those who have the best means of knowing, in the opinion that this view is not correct, or, at any rate, is greatly exaggerated, and he thinks that the "war tuberculosis program" formulated by the Army and Navy authorities in this country is not altogether wise, and he lays emphasis on the fact that an attempt to base the prevention of tuberculosis on methods of prophylaxis against acute diseases would be a short-sighted blunder.

Klebs points out that the assumption that the

healthy life led by the enlisted men of the army and navy tends to good health, while it contains the elements of truth is somewhat exaggerated. When, however the service is prolonged, and especially in actual warfare, the strain becomes great, sanitation and hygiene are neglected, particularly in trench warfare and when billeting in private houses has to be resorted to.

Training at home should anticipate these conditions, and therefore, in Klebs' opinion, "health-resort standards," or the elaborate hygienic and sanitary arrangements of many of our public institutions, ought to be barred from military establishments. To teach men to harden themselves, to avail themselves almost instinctively of healthful opportunities wherever they are present—washing, bathing, etc.—is essential. In our aim at simplification it ought to help when we realize that practically all our prophylactic measures come under the heading "cleanliness." Thus cleanly habits and clean open air are now our mainstays against tuberculosis. The relative importance which the specific and non-specific factors have in the production of tuberculosis must determine our preventive measures, as it should guide also our therapeutic methods.

The writer thinks that a new profession, that of the medically trained educator, the "social physician," will have to cope with the problem of the general management of the tuberculous, for which the general physician, with his specialistic preoccupations, is little fitted. The new army and navy might well offer an immense and most fertile field for the raising of such a profession, which, at present, is recruited almost entirely from amateurs—well-to-do, philanthropically-inclined physicians, who will give some of their precious time to committee meetings, but to very little independent thought or work. The tuberculosis problem is an important phase of military organization, and the suggestions made by Klebs are valuable.

REPORT OF THE SURGEON GENERAL OF THE NAVY.

THE report of the Surgeon General of the Navy for the fiscal year 1917, which has been published recently, gives interesting information regarding the increase of the activities of the bureau owing to the conditions of war. The personnel of the Medical Corps of the Navy had long been insufficient for its requirements, and the material increase in total personnel and the reapportionment of grades and ranks in line and in staff corps, established by the act of August 29, 1916, relieved an embarrassing situation. Prior to the passage of this act the authorized strength of the Medical Corps was 345. The increase provided for an immediate allowance of over 600, with a permanent increase, at the discretion of the President, to over 800. This latter figure, by executive order, has been made permanent, and by the act of May 22, 1917, a considerably further temporary increase has been authorized. An

energetic campaign was inaugurated to secure desirable candidates but up to early in 1917 it seemed that there would be a good deal of difficulty in obtaining the necessary quota. However, at that time the Secretary of the Navy requested all the State boards of licensure to approve the advance graduation of selected medical students who would be recommended for enrollment in the Naval Reserve Force with a view to subsequent examinations for appointment. The State boards immediately fell in with this plan, as did the deans and faculties of all the class A medical colleges and special examinations were arranged for the selected students. In this way three hundred and twenty-nine officers were obtained for the Naval Reserve Force, all of whom have been reexamined recently for commissions in the Medical Corps of the Navy, and 70 per cent have been passed as assistant surgeons in the Navy.

It would be impossible here to do more than touch upon some of the activities of the Medical Corps of the Navy connected with war service, and it will suffice to refer to a few of these. Great care has been taken to protect recruits from contracting contagious diseases, but in view of the fact that such diseases have been very prevalent throughout the United States during the past winter, and that a large number of enlisted men in the incubation stage were massed together in training camps, it was impossible to prevent epidemics. Consequently, the exercise of great sanitary skill was required to stamp them out and at the same time to permit the training to proceed without serious interruption. At the present time it is stated in the report that health conditions in the service are excellent, and the sick rate compares favorably with that under peace conditions.

The Hospital Corps has been enlarged to adequate dimensions, so far as personnel is concerned, but a system of training had to be initiated. Now the Hospital Corps of the Navy has a proper number of men and a fairly effective system of training. Finally, it may be said that the situation as regards venereal diseases has considerably improved.

THE FRANCE OF TOMORROW AND THE DOCTORS.

A WRITER in the *Journal de médecine de Bordeaux* for January, 1918, states that he has rarely seen the members of any profession more discontented with the outlook than are the medical men of France. This feeling is expressed by a caustic railery, which is heard especially in the fighting zone; but the discontent finds no expression in insubordination. The motivation of this feeling is due to several factors. After the tremendous exertions of the war, the return of peace will bring a reaction in which the medical man will find himself in a peculiar position. The artisan will be confronted with no problem, nor will the bureaucrat, for they will step naturally into their former spheres. Intellectuals will resume their writing and teaching. But for the physician the struggle for existence will be intense, and neither the extent nor complexity of

the problem can now be foreseen. Many medical men have devoted the years of war to a narrow routine of work, such as applying first dressings. They have, of course, become experts along certain lines. But the physicians who were sent home as unfit, or who were too old for service have had special opportunities to build up followings, and there is not much likelihood that they will lose by the return of the military men. These, who have been shoulder to shoulder with the actual fighting men, must, like the latter, be favored in some way. The State can aid them, as can also corporations, and they should be given preference as city physicians, railway surgeons, etc. A point scale should be created, so that the longer the service at the front the better the claim to some salaried position, as an employee of the State, department, or municipality. Such an arrangement would, of course, bear hard on those who from shortness of term would be ineligible, but no scheme can be devised that will work for the good of all.

News of the Week.

Funds Needed to Fight Tuberculosis.—The Society for the Study and Prevention of Tuberculosis is making an appeal for funds to increase the facilities for care of tuberculous patients. A statement issued by the association claims that recent medical examinations in the new army and navy bring out the fact that there are about ten active cases of tuberculosis for every death from it. According to estimates by the association, there are in the United States at the present time between two and three million tuberculous individuals. An average of about 2 per cent. of the men of draft age are found to be tuberculous.

Deaths from Illuminating Gas.—During the eight weeks ending February 26 the number of deaths due to illuminating gas in New York City has been 232, according to the records of the Health Department. This is 87 more than during the corresponding period of last year, when there were 145 fatalities from this cause. An investigation of these deaths by the Health Department shows that practically all of them could have been avoided had the danger been understood and simple precautions taken. Health Commissioner Amster has asked the acting school superintendent to aid in instructing the public regarding the danger of illuminating gas poisoning and how the peril may be avoided.

"Adequate Ventilation" Defined.—A resolution adopted by the Health Department of New York City on December 11 states that in the interpretation of the Sanitary Code the term "Adequate Ventilation" will be as follows: (1) The temperature of rooms during periods of occupancy should register preferably from 60° to 70° Fahrenheit at all times, except when the outside temperature exceeds 60 degrees. This does not apply to rooms used for special purposes, such as industrial places where high or low temperature are essential and unavoidable. (2) The relative humidity in occupied rooms should not exceed 70 per cent., except when the outside bulb temperature exceeds 59°. (3) The carbon dioxide in occupied rooms of all classes should not at any time exceed 10 parts in 10,000 volumes of air in any part of the occupied spaces

of the rooms. (4) The dust particles in the air of occupied rooms in all classes of buildings should not exceed 1,000,000 per cubic foot. (5) The bacterial content should not exceed 100 per cubic foot. (6) The air of occupied rooms should be free from objectionable odors.

Plans for Drug Control.—The Whitney Committee has presented its report to the Legislature, together with a plan for the control of the drug evil. According to the proposed plan, a board is to be appointed within the State Department of Health. There is to be a commissioner of drug control, with a sufficient administrative force to provide for co-operation with the Federal Internal Revenue Bureau to use as far as possible the information obtained by Federal agents and inspectors. The drug commissioner is to have power to make rules and regulations for the control of the drug traffic. According to estimates furnished by the committee, about 2 per cent. of the population of New York City are drug habitués, and a larger percentage of the population of smaller communities and rural districts. The committee finds that the use of narcotic drugs is greatly on the increase, and ascribes this to the war and the lack of proper regulation of the traffic.

New York Health Records for 1918.—In response to a request from the Mayor that the heads of all city departments give an accounting, Health Commissioner Amster reported that for January and February, 1918, the death rate of the city was 15.51, as against 16.97 for the first two months of 1917. This represents an actual saving of over 2,600 lives for the first two months of the present year. The report states that the number of deaths from lobar pneumonia for these two months is 450 less than for January and February of 1917, when the rate was unusually high. The death rate from tuberculosis for these two months gives promise of an improvement over 1917, when it was a little in excess of the rate for 1916. There were 22,021 births reported for January and February, 1918, as against 24,227 for the corresponding months of 1917. The marriages for these two months, in 1918, numbered 8,389, as against 11,187 for the same period of 1917. The cause of this falling off is being studied by the Health Department.

Courses of Instruction in Contagious Diseases.—The courses of instruction in contagious diseases given at the Willard Parker Hospital for the past three years are to be repeated this spring. The courses are designed to meet the demands of physicians for opportunities to perfect themselves in their knowledge of contagious diseases. Each course will consist of eight lessons, six of which will be devoted to clinical and bedside instruction. The first course will begin on March 5, at 2 P. M., at the Willard Parker Hospital. Similar courses will be conducted in April and May, if there are a sufficient number of applicants. Those wishing to participate may do so by registering with the Bureau of Public Health Education, Department of Health, 139 Centre Street, New York City.

A Cure for Malta Fever.—Prof. M. A. Vincent of the Paris Academy of Medicine is reported to have found a curative and preventive vaccine for Malta fever.

Dr. Leo Buerger of New York has been ap-

pointed professor of genitourinary diseases in the New York Polyclinic Medical School and Hospital.

Dr. A. I. Ringer, formerly Assistant Professor in Physiological Chemistry at the University of Pennsylvania, has been appointed special consultant in Diseases of Metabolism at the German Hospital, New York City.

Dr. Seth M. Milliken has been appointed assistant attending surgeon of the First Surgical Division of the Roosevelt Hospital, New York.

Dr. William J. Robinson of this city, editor of the *Critic and Guide*, is reported in the *New York Times* to have been arrested for sedition, and released under 5,000 bail.

Charitable Bequests.—The will of Mrs. Mary Elizabeth Turnure bequeaths \$10,000 to the New York Association for the Blind, a like sum to the Home of Rest for Consumptives, and to a hospital in Syracuse, to be designated by Grace Church of Baldwinsville, N. Y., \$5,000.

The Stamford, Conn., Hospital is the recipient of a bequest of \$5,000 by the will of Mrs. Enos B. Lockwood.

Opportunity to Study Pediatrics.—The Home of Hebrew Infants, with an average census of 400 children under five years of age, seeks a resident physician, man or woman. The service offers an exceptional opportunity to study pediatrics and to participate in research work. The position carries a salary of \$75 to \$100 a month, with maintenance, depending upon the applicant's ability and previous experience. Applications may be made to Alfred Hess, 16 West Eighty-sixth Street, New York City.

Civil Service Examinations.—Examinations for superintendent of County Tuberculosis Hospitals of Niagara and Steuben Counties, at salaries of \$1,500 to \$3,000, and maintenance, have been announced by the Civil Service Commission. An examination will also be held to provide eligibles for the position of assistant physician in the State hospitals and similar positions in various State and county institutions. The salary in the State hospitals is \$1,200, with a yearly increase to \$1,600. These examinations are open to men and women. Application should be made to the Civil Service Commission, Albany, N. Y., before March 18, 1918.

The Tri-State Medical Association, which met in Charleston, S. C., on February 21, elected the following officers: *President*, Dr. Robert S. Cathcart of Charleston; *Vice-Presidents*, Dr. F. A. Coward of Columbia, S. C., Dr. L. A. Crowell of Lincolnton, N. C., and Dr. Douglas Vonderhoof of Richmond, Va.; *Secretary-Treasurer*, Dr. Robert E. Hughes of Laurens, S. C. The new members of the *Executive Council* are: Dr. R. C. Bryan of Richmond, Va., Dr. E. C. Register of Charlotte, N. C., and Dr. F. H. McLeod of Florence, S. C.

Obituary Notes.—Dr. JAMES G. RIDDICK of Norfolk, Va., died at his home, after a lingering illness, on February 15, aged 56 years. He was a graduate of the College of Physicians and Surgeons, Baltimore, in 1883. He served as Mayor of Norfolk for ten years and as health officer for twelve years.

Dr. THOMAS C. BIDDLE died of pneumonia at his home in the Topeka, Kan., State Hospital, of which he was superintendent for nineteen years, on February 16, aged 60 years. He was a graduate of Rush Medical College, Chicago, in 1881, and for-

merly superintendent of the Osawatomie Hospital. He served for some years as physician and surgeon with the Twenty-first Kansas Volunteers. Several weeks ago he was appointed chairman of the Kansas State Medical Advisory Board.

Dr. ARTHUR J. HOLMQUIST died suddenly at his home in Denver, Col., on February 13. He was a graduate of the Denver College of Medicine in 1897.

Dr. AMBROSE J. GALLISON, a graduate of the Dartmouth Medical School, in 1887, and for fifteen years secretary of the Thurber Medical Association of Milford, died of angina pectoris, at his home in Franklin, Mass., on February 15, aged 62 years.

Dr. CHARLES GUSTAVUS McMANAWAY of Charlotte, N. C., a graduate of the Medical College of Louisville, Ky., in 1883, died of cancer of the liver, on February 15, aged 60 years.

Dr. WILLIAM J. CRONYN, a graduate of the University of Buffalo Medical Department, in 1870, and a Civil War Veteran, died at his home in Milwaukee, on February 20, aged 69 years.

Dr. ELBRIDGE H. KING, a graduate of the Detroit College of Medicine in 1870, and for some years coroner of Muscatine County, died at his home in Muscatine, Wis., on February 13, aged 73 years.

Dr. WILLIAM BUTLER PRATHER, a graduate of the Atlanta Medical College, Georgia, in 1874, died, following a stroke of paralysis, at his home in Seale, Ala., on February 19, aged 71 years.

Dr. AUGUSTUS STEELE ROSE of Fayetteville, N. C., a graduate of the University College of Medicine, Richmond, Va., in 1901, died following an operation for appendicitis, at the Highsmith Hospital in that city, on February 15, aged 45 years.

Dr. HENRY B. STEHMAN, a graduate of Jefferson Medical College, in 1877, died at his home in Pasadena, Cal., on February 16, aged 66 years.

Dr. ELLA ELIZA SEVERANCE, graduate of the Boston University School of Medicine, in 1901, died at her home in Lynn, Mass., on February 18, aged 61 years. Dr. Severance practised medicine for some years in Camden, N. J.

Dr. JOHN H. McMULLEN, a graduate of Harvard Medical School, in 1900, died suddenly at his home in Lynn, Mass., on February 21, aged 41 years.

Dr. GEORGE ROEHRIG, a graduate of Jefferson Medical College, Philadelphia, in 1890, died, after a long illness, at his home in Denver, Col., aged 56 years. He was for many years a member of the St. Luke's Hospital staff and surgeon for the Burlington Railroad.

Dr. AUGUSTUS P. TAYLOR died at his home in Thomasville, Ga., after a lingering illness, at the age of 71 years. He was a graduate of New York University Medical College, in 1870, and for a number of years a member of the State Board of Health.

Dr. JOHN A. STEVENS, a graduate of Jefferson Medical College, in 1883, died at his home in Clinton, N. C., on February 13, aged 58 years.

Dr. EDWIN I. HARRINGTON died at his home in Yonkers, N. Y., after a prolonged illness, on February 24, aged 62 years. He was a graduate of Jefferson Medical College in 1881, former health commissioner of Yonkers, and ex-president of the Jenkins Medical Society of Westchester County. Dr. Harrington was consulting surgeon to St. Joseph's Hospital, and consulting physician to the Home for the Aged at Yonkers.

Dr. HARRY VARLEY BINGHAM, a graduate of the New York Homeopathic College, in 1905, died suddenly at his home in Madison, N. J., on February 24, aged 41 years.

Dr. GEORGE FRANCIS MORRIS of New York City died suddenly on February 25, at the age of 65 years. He was a graduate of the Albany Medical College in 1878, and for many years connected with the Department of Health of New York City.

Dr. RACHEL B. LAIN, a graduate of the Hahnemann Medical College, Chicago, in 1890, died following a stroke of paralysis, at her home in Vallejo, Cal.

Dr. GRANT T. JOHNSON, a graduate of the Kansas City Medical College, in 1893, died of pneumonia at his home in Wamego, Kan., on February 14, aged 55 years.

Dr. JOHN C. MCGILLIVRAY, a graduate of Trinity College, Toronto, in 1889, and for many years police surgeon of Denver, Col., died of erysipelas, at his home in that city, on February 11, aged 54 years.

Dr. WILLIAM SEIDLER, a practising physician of Minburn, Iowa, died at his home in that town on February 13, aged 91 years.

Dr. EDWARD MILTON RICHMAN, a graduate of the University of Pennsylvania Medical Department, in 1898, and one of the founders of the Newark, N. J., Private Hospital, died in that institution on March 2, aged 45 years.

Obituary.

SAMUEL GIBSON DIXON, M.D., LL.D.

BRYN MAWR, PA.

DR. SAMUEL GIBSON DIXON, Commissioner of Health of the State of Pennsylvania, died in Philadelphia on February 26, at the Hospital of the University of Pennsylvania, at the age of 66 years. He was graduated from the law department of the University of Pennsylvania, in the class of 1877, and from the medical department in 1886. In 1888 he was elected professor of hygiene and dean of the auxiliary department of medicine in the University, but he soon took up independent laboratory investigation at the Academy of Natural Sciences, where he made intensive and productive studies of the tubercle bacillus and the experimental production of immunity to tuberculosis. In the course of this work he devised a lymph from the bodies of dead tubercle bacilli that has been used successfully in the treatment of tuberculosis. He had been Pennsylvania State Commissioner of Health since the creation of this office in 1905. He was president of the Academy of Natural Sciences in 1896. He was a councillor of the American Philosophical Society, one of the founders of the Pennsylvania Society for the Prevention of Tuberculosis, a director of the Philadelphia Zoological Society, a trustee of the Wistar Institute of Anatomy, a Fellow of the College of Physicians of Philadelphia, a member of the Philadelphia County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association. The degree of Doctor of Laws was conferred on him by the University of Pennsylvania in 1909. He was the author of "Physiological Notes," 1886, and of many articles on bacteriology, hygiene, and other subjects in medical journals and in the volumes of the Proceedings of the Academy of Natural Sciences.

Correspondence.

OUR LETTER FROM PARIS.

(From Our Regular Correspondent.)

MAKING SURGICAL DRESSINGS—PHYSICAL TRAINING OF THE MEN.

PARIS, Jan. 8, 1918.

UNDER direction of the Red Cross the women of the American Colony have organized to make surgical dressings for the army hospitals. The American Ouvroir, organized by Mrs. E. W. Wilson, has been doing more than its bit recently to meet the demand for surgical dressings for the American troops. The appeals from women who are doing their bit, as well as Mrs. Austin's personal calls for dressings, have spurred American women on so as to have the number of dressings ready for American hospitals by the time our soldiers require them. The French members of the ouvroir as well as the Americans have worked with the utmost energy for the first gift to the United States fighters.

In acknowledging this gift the Red Cross wrote that it was a joy to handle such beautifully made things and at the same time urged upon the workers the urgent necessity for more dressings. The first American troops had fallen and at any moment they might be called upon to supply dressings in large quantities.

Mrs. Wilson's ouvroir was one of the first to open under Miss Thackara at the outbreak of war, and has been doing a good share of the surgical dressings work ever since. A group of about twenty women meet on Mondays, Wednesdays, and Fridays to carry on the work.

It is a good augury for the morale of our troops that everyone seems particularly interested in their welfare, and recently quite a discussion has sprung up as to the best form of physical training to employ to make them fit and equal to the unusual strain they are to be put to. Quite an effort has developed to introduce the employment of jiu-jitsu, not only as an exercise but as a useful means of self defense in personal encounter of which there is a great deal in the present form of warfare.

Dr. James H. McCurdy, director of physical exercise in connection with the American army in France, said upon this subject that the first thing was to obtain military efficiency. That is what all looked for and the best step in individual efficiency had been bayonet exercise. Nothing would give the American soldier so much confidence as this. The pushing of mass athletics would be also a great help.

This mass athletics is athletics carried out for the majority and not for the minority of the men; for the mediums and not for the pick of the lot. In mass athletics every man in the company gets into the game. The kinds of sport adopted are running in the different classes for speed and for endurance; jumping in various classes, wall-scaling, trench jumping, climbing out of the trenches and so on. Men can learn to do these things. We must build up the men who are inferior in sports and exercise, and it is remarkable how much can be done to build up the physique of ordinary men by keeping them massed together. A big improvement is always possible. And this class of men will do

as much good as the best athletes, if not more. The men are being made efficient in that they are able to do what they are expected to do in the army and to do it well and quickly. The Y. M. C. A. has a regular schedule of games in the rest camp for men who have returned from the fighting line. This type of work is being pushed by Major G. Goulin, of the Third British Army, and by Captain E. N. Smith, athletic director for the Y. M. C. A. in the Canadian army. The best company should represent the regiment rather than the best men from all company teams. This makes training and discipline easier. Wherever possible the cooperation of the Y. M. C. A. is recommended in the organization of the mass games as a part of the physical drill periods for all men, involving activity which will increase alertness and physical efficiency. This has been done in some of the camps in the United States. The British army has also added to the ordinary drill games which increase agility and endurance. The mass regimental games recently organized at one of the ports of entry in France consisted of trench jumping, running, and company soccer.

In a recent trial of mass athletics in a port in France 28 per cent. did not qualify in a jump 6 ft. wide; out of 1,400 men competing in the 220 yards dash 17 per cent. did not qualify in 30 sec. In an attack, Dr. McCurdy says, it will save lives if we can improve the poorer athlete serving as a soldier. The lower-grade athlete in the army, say 40 per cent. in physical efficiency, is the element that often holds it back from aggressive work where high physical efficiency is required. Bayonet exercise gives the soldier confidence in his ability to look after himself. On the other hand, mass athletics has a counteracting effect to the softening tendency, physically speaking, of trench life. In the recent test referred to 1,400 men jumped over a trench 6 ft. wide in less than ten minutes. That gives an idea of what not only the best man can do, but all the men can do. Then the same 1,400 men ran 220 yards, and then they played soccer. I devised an arrangement for keeping up interest in company soccer, where one company plays against another company. It has had fair trials and the results are very satisfactory.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

February 21, 1918.

1. Acute Lobar Pneumonia. F. C. Shattuck and C. H. Lawrence.
2. Recent Treatment of Lobar Pneumonia. Thomas F. Leen.
3. Recruiting Notes. Harold W. Dana.
4. The Army Surgeon of Other Days. Howard Dudley King.
5. Gonorrhea in Young Male Children, and Its Treatment. Walter D. Bieberbach.

1. Acute Lobar Pneumonia.—F. C. Shattuck and C. H. Lawrence refer to an analysis of 1000 consecutive cases of lobar pneumonia treated at the Massachusetts General Hospital from 1822 to 1889, made by Coolidge and Townsend, and say that the present paper, comprising an analysis of all the cases treated at this hospital from 1889 to 1917, may, in comparison with the former paper, be said to represent the results of the new régime in medicine as contrasted with the old. Parenthetically it may be remarked that the contrast reflects no great credit upon modern medicine, for it has effected no improvement in the death rate, which is higher

now by far than it was at the beginning of Coolidge and Townsend's series. The following are the author's conclusions: (1) In the 4000-odd cases of lobar pneumonia treated at the Massachusetts General Hospital from 1822 to 1917 (inclusive) the mortality has gradually increased from 10 per cent in the first decade to 28 per cent. at the present time. (2) Since 1881 there has been no significant change in the death rate. (3) The number of cases classed as delicate or intemperate has been decreasing during the same period. (4) The apparent increase in complicated cases is probably due to increased accuracy of diagnosis and recording. (5) The relative number of foreign-born patients is increasing, the mortality among them diminishing. (6) The death rate among American-born patients has increased slightly, as has the mortality among men as compared to women. This may be due to a corresponding increase in vascular diseases during the period studied. (7) The mortality rate for pneumonia in the entire series has shown no permanent important change. (8) Treatment has done nothing toward diminishing the mortality from pneumonia in the past ninety-five years. Bleeding, purging, fresh air—the result has been the same. Of particular interest is the evidence offered by our figures upon the effect of alcohol. Its habitual use during health in more than moderate amounts is shown to diminish the patient's chances of recovery. But the mortality rate among those patients who were given large amounts of alcohol during their illness is no higher than among those given no alcohol and large amounts of fresh air. Our figures do not indicate that alcohol is harmful to those sick with pneumonia. They suggest that the effect of the drug varies with the conditions under which it is given, and that it is not poisonous to those who have high temperatures and are taking insufficient nourishment. (9) No change is to be expected in the results of treatment until a specific is discovered which will neutralize the toxins of the pneumococcus. (10) The results from the serum now in use are encouraging, but limited, and until its use becomes accepted the treatment of pneumonia must be that best suited to the individual. No routine treatment has been justified by its results.

New York Medical Journal.

February 23, 1918.

1. The Demons of Heresy and the Demons of Disease in the Process of Thought. Jonathan Wright.
2. Pericholecystic Adhesions Dyspepsia and Its Diagnosis. G. A. Friedman.
3. Subconjunctival Injections. A. Morgan MacWhinnie.
4. A Case of Meningitis Due to Bacillus Influenzae. Rollin Hills.
5. Hydatid Pyopneumocyst of the Liver. Marcelino Herrera Vegas.
6. Treatment of Painful Dysphagia in Tuberculous Laryngitis. Robert McD. Lukens.
7. Thrombophlebitis of the Inferior Vena Cava Complicating Varicella. S. A. Blauner.
8. Syphilitic Blood on the Surgeon's Fingers in the Intravenous Administration of Arsenicals. N. B. Jenkins.

6. Treatment of Painful Dysphagia in Tuberculous Laryngitis.—Robert McD. Lukens discusses this subject with special reference to nerve blocking. He says that in all cases of painful dysphagia the internal laryngeal nerve should be blocked. There are no contraindications to nerve blocking, and this procedure aids the dietetic treatment by removing or lessening dysphagia sufficiently to allow the patient to eat necessary food. More rest is obtained, due to cessation of pain from the throat, and any number of injections may be made and the patient kept in constant comfort by injecting as soon as the pain occurs. Histological examinations of injected nerves showed that the results modified the nerve trunk very little and was usually fibrosis, and in some cases numerous spaces within the bundles of the nerve fibres. Lukens urges the wider use of this method of treating painful dysphagia in tuberculous ulceration of the larynx, as it is a procedure which can be learned easily and practised by the average practitioner.

Journal of the American Medical Association.

February 23, 1918.

1. The Treatment of Hookworm Infection. Samuel T. Darling, M. A. Barber, and H. P. Hacker.

2. Balantidium Coli Infection in Oklahoma. Antonio D. Young and O. J. Walker.
3. Circulatory Failure: The Differentiation Between that Due to Shock and that Due to Other Causes. Carl J. Wiggers.
4. Intestinal Toxemia of High Obstruction. Robert A. Keilty.
5. Determination of the Type of Pneumococcus in the Sputum of Lobar Pneumonia: A Rapid, Simple Method. Charles Krumwiede and Eugenia Valentine.
6. Hemorrhagic Disease in New-Born, Treated by Injection of Citrated Blood in the Superior Longitudinal Sinus. Oscar Berghausen.

1. The Treatment of Hookworm Infection.—Samuel T. Darling, M. A. Barber, and H. P. Hacker present these data dealing with the therapeutics of oil of chenopodium and thymol, which are derived from their report to the International Health Board, Rockefeller Foundation, on the subject of the effect of hookworm infection on the working efficiency of the people of the Malay Peninsula, Java, and Fiji. The subject is of importance on account of the presence of hookworm infection among our soldiers at this present time. The work has covered a period of about two and a half years and included observations on the natives of the Malay Peninsula as well as Chinese and such East Indians as Tamils, Telegus, Malabaris, Pathans, and Sikhs. As a result of these extended experiments in treatment, these investigators have found that the half maximum dose (0.5 c.c. three times, or 1.5 c.c.) of oil of chenopodium is the treatment for recommendation as a routine vermicide. It does not have the toxic effects of the full dose, and two treatments have the very satisfactory result of removing 99 per cent. of all worms present. It has the additional advantage of a more uniform action, a greater effect on ancylostomes, and of being less unpleasant to take than thymol. Thymol shows an advantage over this half maximum dose of oil of chenopodium in that, without producing toxic effects, the 90 grains' dosage produces a better result when single treatments are compared. This advantage disappears, however when two half maximum treatments of oil of chenopodium are given. Smaller doses compare unfavorably with a single half maximum dose of oil of chenopodium. A dose as large as 90 grains of thymol, if administered indiscriminately throughout the population, would probably give rise to serious symptoms.

Crónica Médico-Quirúrgica de la Habana.

December, 1917.

1. The Cuban Medical Congresses. J. Santos Fernandez.
2. The Fourth Cuban Medical Congress. F. M. Fernandez.
3. The Utility of Scientific Congresses. J. E. Lopez.
4. The Third Cuban Congress of the Medical Press. F. M. Fernandez.
5. Pleurisy During the Puerperium. Gabriel Casuso.
6. Auditive Examinations of Aviation Recruits. Emilio Martinez.
7. Typhus-Uric Reaction. Victorino Cabrera.
8. A New Diagnostic Sign in Gastric Ulcer. F. Grande Rossi.

5. Pleurisy During the Puerperium.—Gabriel Casuso describes the case of a young pregnant woman in her seventh month of gestation who had severe pains in the chest, difficult breathing, a temperature of 103°, and a swelling in the whole left side of the chest. Puncture gave exit to some pus and an operation was made, resecting about eight centimeters of the sixth, seventh, and eighth ribs. The patient recovered and was well in a month, giving birth to her child normally.

8. A New Diagnostic Sign in Gastric Ulcer.—F. Grande Rossi describes a new sign which he claims to have discovered in the diagnosis of gastric ulcer and which consists in painful reaction to pressure made at a point four centimeters to the left of the navel and in the bisecting line of the second quadrant. To obtain it, pressure should be made with one or two fingers backwards and inwards towards the spinal column, the patient being lying down and with the abdominal walls relaxed. Grande Rossi says that the sign is very constantly present in all cases and he has obtained it in over 400 cases. The intensity of the pain decreases as the patient becomes better and returns with the relapses. The sign is present even in some cases in which other classical symptoms may be absent, and he has proved it to be true in all cases by the use of other methods, as Einhorn's thread examination of

the gastric juice, and of the feces, hemorrhages, x-ray examination, etc.

Crónica Médico-Quirúrgica de la Habana.

January, 1918.

1. After-results of Cataract and Means of Preventing Them by the Study of the Etiology and Pathology of the Lens. Juan Santos Fernandez.
2. Hess's Sign in Subacute Ricketts. Carlos Manuel Garcia.
3. Allen's Method in Cutaneous Lesions of Diabetic Origin. Ramon Grau.
4. The Autogenous Treatment of Uncomplicated Trachoma. Dr. Jesús M. Penichet.
5. The Glands of Internal Secretion. Antonio M. Crispin.
6. Fibrous Cysts of the Ovaries. E. R. de Aragón.
7. Prophylaxis and Treatment of Tuberculosis. Emilio R. Coni.
8. Cutaneous Diseases. José E. Lopez Silvero.
9. The Treatment of Filariotic Hematuria. Gutierrez Lee.

3. Allen's Method in Cutaneous Lesions of Diabetic Origin.—Ramon Grau mentions several cases. The first was a pruriginous eczema of the prepuce in a case of diabetes of long standing, which with Allen's method was cured very rapidly. The second case, that of an elderly lady of 65, suffering from diabetes for fourteen years. She was subjected to the plan of starvation for the relief of an abundant eruption of itching macules, and was cured in three weeks. The third case was that of a lady with a necrotic zone on the left side of the chest; the starvation plan was maintained for some time after the glycosuria had disappeared, the patient making a good recovery.

6. Fibrous Cysts of the Ovaries.—E. R. de Aragón concludes that sclerous cysts of the ovaries are more frequent than was thought, and that they may occur in complications of all other genital affections. He recommends that in every case of appendicectomy and laparotomy in women the ovaries should be examined and fibrous cysts, if present, should be removed together with the appendix.

9. The Treatment of Filariotic Hematuria.—Gutierrez Lee describes eighteen cases of this affection, due to several species of the Filaria. The disease is obstinate, being quiescent in the cold climates, to reappear when the patient goes again to a warm country. The finding of the filariae in the blood is almost certain in all cases. Gutierrez Lee has cured all his cases by the use of large doses of potassium iodide, beginning with small doses, increasing every day. All fats were excluded from the diet.

Berliner klinische Wochenschrift.

December 10, 1917

On Tuberculosis (continued from Dec. 3).—E. Schloss continues to discuss his findings in the epidemic of tuberculosis occurring among the nursing infants contaminated by a phthisical nurse. He insists upon the mildness of the symptoms observed, the infection remaining absolutely latent in the majority of cases. As to diagnostic means Schloss places the tuberculin test in the first rank, after which comes radiographic examination, which, in the cases studied, revealed an enlargement of the lymph-nodes around the pulmonary hilum. The prognosis is less dark than is usually thought. In nursing infants, as in the case of adults, there are defensive powers which may overcome the infection when there are no unfavorable constitutional factors present. The writer, in passing, refers to the present increase of tuberculosis in general, which he attributes to a multiplication of bovine infections. Treatment does not appear to influence the progress of the disease, which undergoes its evolution according to the gravity of the infection and the constitutional capacity of resistance. The factors which appear to favorably influence tuberculosis in adults (air, sun, rest, etc.) seem to be valueless in tuberculosis in nursing infants. However, hygienic measures of a general nature are not without good effects.

Gouty Feet and Hands.—E. Pfeiffer refers to his former paper on "Gouty Subjects" published in the *Lancet* April 11, 1891. He studies the deformities first described by Heberden, but supposed by him to be gouty in nature. Pfeiffer publishes photographs and radiographs of some typical cases, their characteristic points residing deposit outside of the metacarpophalangeal region, which results in the formation of

a real projecting angle. The writer explains this peculiarity by a laxity of the articular ligaments and by the progressive deformity resulting from continual movement.

Münchener medizinische Wochenschrift.

December 11, 1917.

The Relationship of Infectious Icterus (Weil's Disease) to Acute Yellow Atrophy of the Liver and Hepatic Cirrhosis.—C. Hart reports the case of a man who presented icterus and hemorrhages, pains in the calves and an increase in size of the liver. At autopsy Hart found a dysentery combined with Weil's disease. Microscopical examination of the liver revealed destruction of the hepatic lobules and an atrophic, degenerated aspect of the cells. There was a commencement of cirrhosis, in the form of neoformed bilious canalicules. After having remarked that such pathologic changes do not belong to the picture of dysentery, the writer admits that they are to be attributed to an infectious icterus. This case sustains Pick's opinion, namely, that following upon an acute destruction of the hepatic parenchyma, recalling an acute yellow atrophy, a cirrhotic process may arise. Hart concludes that in very rare cases a hepatic cirrhosis succeeding upon an infectious icterus should be regarded as a new pathologic process of the present war.

The Use of Sacral (Epidural) Anesthesia in the Hospitals at the Front.—Thomashke has at length come to operate all pelvic wounds and those of the lower limbs by this procedure, and has found it particularly advantageous. In the cases he reports general narcosis was given up, much to the betterment of the patients. If the technique is exact and prudently carried out, no untoward complication will ensue. The writer has performed amputations with a dose of 70 to 80 c.c. per injection, using a 1.5 per cent. solution of novocain with 0.0004 adrenalin, which assures an anesthesia of two hours' duration extending quite high up on the trunk.

Deutsche medizinische Wochenschrift.

December 13, 1917.

Bier's Treatment of Wounds of Soft Structures and Bone.—G. Martius finds that certain wounds are bound to become fistulous, necessitating innumerable curettages and sequestrotomies. In such cases the writer has obtained good results with the method proposed by Bier, namely leveling down the borders of the wound and curettage; then closure of the cutaneous wound by some sort of impermeable membrane (thin rubber for example) held in place with collodion or surgeon's plaster. The surface around the wound is covered with zinc paste. The wound is thus protected from the air and undergoes regeneration just as if the process took place subcutaneously. The dressings are changed about every six days. The writer has observed neither elevation of temperature nor pain from the procedure. At each change of dressing a large amount of granulation tissue in full development is seen, even growing on the secretions of the wound. The ultimate result is excellent. An even cutaneous cicatrix is obtained, movable over the underlying parts. Finally, the method is a great economy for dressing material.

The Influence of Flying on the Hematology of Man, Rabbits, and Mice.—Kaulen, from his examinations, shows that the practice of aviation produces an increase of the red blood corpuscles and the percentage of hemoglobine. This phenomenon is distinctly noticeable after three months of aviation and is not due to a concentration of the blood from thickening. The leucocytes do not follow a parallel increase. The phenomenon does not occur during a single ascension. This multiplication of the red blood cells is not accompanied by the appearance of uncleaned cells, but on the other hand polychromatophiles may appear. The blood of rabbits and mice carried in the aeroplanes was found to offer similar changes to those met with in man.

Wiener medizinische Wochenschrift.

December 15, 1917.

Sawdust Bread and Its Digestibility.—H. Salomon

has had a bread prepared containing 10 per cent. sawdust. Given three times to a patient suffering from rheumatism and constipation and afterwards quantitatively estimated in the stools, this bread did not cause any decrease in the absorption of other foodstuffs. It is pleasant to the taste, only becoming somewhat bitter after having been kept for some time. Its effect on the constipation was very favorable, but it results from these essays that the absorptive capacity in man for this sawdust flour is far inferior to that of the dog as has been shown by Rubner. Salomon's patient eliminated about 100 per cent. of the ingested cellulose in the feces. If, therefore, this flour cannot take the place of bread, it can at least be utilized in the treatment of chronic constipation and as a preventive of constipation which is liable to occur in diabetic subjects on account of their lack of ordinary ration of diabetic bread and fruits. The writer withholds any opinion as yet relative to the question of the assimilability of sawdust flour bread prepared according to other receipts, Hoffmeister's among others.

A Short Note by E. Friedberger (à Propos of Weil's Paper on "Statistics of Cholera").—From this article it would appear that the writer has a very mediocre esteem for both antityphoid and anticholeric vaccination. He quotes his original article in the *Zeitschr. für Aertzliche Fortbildung* No. 10, 1917. E. Weil concurs in Friedberger's opinion as far as anticholeric vaccinations are concerned (*Wiener med. Woch.* Nos. 32 and 33, 1917).

Correspondenz-Blatt für Schweizer Aerzte.

January 5, 1918.

Deafmutism in Switzerland.—According to Siebenmann goiter, cretinism, idiocy, and deafmutism have long occurred side by side in some of the Swiss cantons. A census of deaf mutes has never yet been made, and the author wishes to bring one about. Even in the eighteenth century there were 200 deaf mutes in Freiburg at a very low estimate. In Aargau, in 1813, there were 104 deaf mute cretins, and in 1843 the number had increased notably. In 1798 these two cantons appealed for government aid in educating these unfortunates, and the last concerted effort in this direction, which involved the entire country, was in 1870. At this period some of the cantons showed 42, 44, 49, etc., respectively, of cretin deaf mutes for each 10,000 inhabitants, although the general European average of deafmutism was but 8. But whether the Swiss figures were confined to cretins or for some other reason not suggested it is believed that even these high percentages represented only a half of all the deaf mutes. The cretins, being already wards of the state, their deafmutism could be readily estimated. The next census should enumerate cretins, cretinoids, and all others who furnish contingents of deaf mutes. In 1914 there were in the country 15 institutes for the instruction of deaf mutes, with a total of 814 pupils. There are to-day 3 institutions for deaf mute idiots, two of which have 57 inmates (the third is of recent origin). But many of the pupils in the 15 schools have mental defect. A distinction between endemic deafmutism, which is correlated with cretinism, and outstanding forms must be made in a country like Switzerland. If 8 per cent. presumably noncretinoid is the average for Europe, and if this figure holds good for Switzerland, then an overwhelming percentage must be endemic, and variations in individual cantons due to variations of endemicity. Of noncretins the author alludes to scattered cases due to meningitis, but otherwise is silent on the subject.

Cutaneous Allergy in the Differential Diagnosis between Variola and Varicella.—Tièche, who has been a smallpox expert for many years, and claims to have discovered an allergic phenomenon before von Pirquet's day, presupposes that his readers are familiar with his methods, which he has already published. Hence his statements are not always lucid. The allergy is recognized not entirely by the appearance of the skin, but by a microscopic study of lymph or pustular contents—although details fail. The tests require controls who are free from varicella or nonspecific vesicular outbreaks. The allergic reaction is obtained as early as ten hours after the inoculation. The author alludes

here and there to his method of obtaining human serum by curetting deep lesions, also of preliminary treatment with carbonic acid snow. Nevertheless, despite the accuracy of his method, he seems to depend largely on ordinary clinical diagnosis, especially when the latter must be promptly made. The basic facts seem to be that ordinary vaccine, variola virus, humanized lymph, and rabbit lymph, cause precisely the same allergic reaction in ordinary conditions. The author finds that his own allergy is constant. Varicella lymph, on the other hand, causes no allergy on an average control subject. Whether there is allergy in a varicella subject is not made clear, but the diagnosis of varicella appears to rest on the negative result of inoculating a control which would be positive if the subject had varioloid. The author's critics claim that his method is unnecessary, while he himself admits 2 per cent. of missed diagnoses.

Nederlandsch Tijdschrift voor Geneeskunde.

January 5, 1918.

Sporotrichosis in the Dutch East Indies.—Ten Brink publishes a brief but well-illustrated article on this subject. The disease in question is readily confounded with lues or tuberculosis in certain of the external aspects. It is common, and the different incidence in different races appears to be due to differences in the mode of living. In a total of 1553 patients treated in 1913 at the skin dispensary at Weltevrede there were 53 cases of sporotrichosis; in 1914 there were 41 cases in a total of 1307; finally in the first six months of 1915 there were 65 cases in 827 patients. The totals were 159 cases in 3687 patients, or 4.3 per cent. The diagnosis is made without difficulty by the presence of the fungus, especially in culture, as described by Beuermann. Brief notes are given of numerous cases. One patient greatly resembled a syphilitic, ulcers on the lower leg resembling ulcerated gummata. The second case was also very suggestive of lues, as was also the third. In all this series the lesions were seated on the leg and foot. In a fourth case the fungus was found with no trouble in an abscess-like formation. In another series of illustrated cases tuberculosis was simulated and in a third both diseases were suggested. In a certain acute type clinical ringworm was present. Elephantiasis (Madura foot) is another manifestation of this protean dermatosis.

Familial European Chyluria.—Koopman reports an episode of this nature. A youth of 19 was admitted to the Military Hospital at Amersfoort. He complained of a pain in his back at the level of the twelfth dorsal vertebra, also headache. The backache was never absent, and his father and father's father had suffered in the same way. He presented an angina (diphtheria bacilli found) with fever of 103.5° F., and mitral insufficiency. The angina soon passed off, but the temperature remained high. The case suggested sepsis, but no cause could be found. The sudden passage of milky urine threw light on the affection, which had become a complete riddle. No filariae embryos could be found in the blood. There are now, including the author's observation, fifty-seven cases on record of European chyluria. It is held to be due not to parasites, at least as a rule, but to an anomaly of metabolism. or to the passage of chyle from the lacteals to the urinary passages through some irregular lymphatic arrangement. The author can find no record of any familial cases other than his own. But little is said in reference to other cases in the family, aside from the bare fact. But this incidence naturally raised the question of a parasitic cause, and this, as already stated, was not at all in evidence.

Malignancy of the Hypophysis and Progressive Paralysis.—Goldstein appears to have shown that an adenocarcinoma of the hypophysis acted as a factor in lighting up metasyphilis. The spirochetes, doubtless long present in the cortex, were not roused to virulence until the tissues had reacted to the presence of the intracranial tumor. Or the latter may have acted indirectly; destruction of the hypophysis may have deranged the endocrine organs and through them the metabolism.—*Gaceta Médica Catalana*.

Book Reviews.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles, etc. Edited by H. R. M. LANDIS. VOLUME III. Twenty-seventh Series. 1917. Price, \$2. Philadelphia and London: J. B. Lippincott Co.

MANY of the contributors to this volume stand at the head of the profession, and this is true especially of the clinical lectures. Material of this sort is easily obtained, for it is only necessary to take notes on the lectures by distinguished clinicians, which would be delivered irrespective of the demands of the book. De Schweinitz states that almost every case of inflammation of the uveal tract is septic, very many being traceable to dental foci. Beifeld makes venesection the rational treatment of polycythemia. Christian distinguishes between disordered renal function and nephritis. We may see in enlarged prostate or pernicious anemia practically the same chart as in actual nephritis. Grulee would abstain from catharsis in infantile constipation and depend upon diet and mechanical agencies like paraffin oil and glycerin suppositories.

The articles written especially for the clinics, while of a high class, lack some of the interesting quality of the clinical lectures. The subject of the treatment of hyper- and hypotension, by Satterthwaite, is, of course, somewhat trite, but the eminence of the author makes it worthy of a careful perusal. The article on pseudochylous ascites, by Weber of London, consists chiefly of case histories. Fondé of Mobile injected enormous quantities of antiphtheritic serum into the peritoneal cavity in an exceptionally malignant case of diphtheria. On the sixth day the quantity injected was 344,000 units, and on the seventh day 560,000 units, etc. Life was prolonged until the tenth day. The total number of units injected was 2,679,000, beginning on the third day. Sharpe's results in the surgical treatment of spastic paraplegia by cerebral decompression have appeared before. Steele's case of true hermaphroditism in a negro, confirmed by operation and the microscope, seems genuine. Psychically the subject is a woman, and menstruation occurs regularly. Maleness is shown only in the musculature, pelvis, and pubic hair. There is also a pseudopenis, while the vagina is rudimentary. Sexually the subject is neither male nor female, or at least had never had true coitus in either capacity.

SURGERY AND DISEASES OF THE MOUTH AND JAWS. A Practical Treatise on the Surgery and Diseases of the Mouth and Allied Structures. By VILRAY PAPIN BLAIR, A.M., M.D., F.A.C.S., Professor of Oral Surgery in the Washington University Dental School, and Associate in Surgery in the Washington University Medical School. Third Edition. Revised so as to incorporate the Latest War Data Concerning Gunshot Injuries of the Face and Jaws. Compiled by the Section of Surgery of the Head, Subsection of Plastic and Oral Surgery, Office of the Surgeon-General of the Army, Washington, D. C. Octavo of 733 pages, with 460 illustrations. Price, \$6. St. Louis: C. V. Mosby Company, 1917.

THE present revision of the work resulted from the apparent need for an authoritative treatise on the diseases and injuries of the mouth, face, and jaws that would embody the results of observation of great numbers of these injuries and the best methods of their treatment, as demonstrated by experience during the past three years of war. Owing to the necessity for haste in providing a suitable textbook on these subjects for use in training members of the Medical Reserve Corps, it was considered best to take the textbook that seemed to furnish the best foundation and revise those sections that were necessary in order to meet the requirements of the situation. Accordingly, this revision of Blair's book was made with the help and under the supervision of the Surgeon-General's Office.

The book is not completely revised—indeed, the author takes pains to indicate this clearly in his preface. What he does say is that the revision is mostly confined to the parts related to injury and sepsis and their treatment. He also says that the subject of peridental infections has been rewritten by Dr. Arthur D. Black;

that the chapter on local anesthesia has been revised by the original author, and that on general anesthesia by Dr. Ellis Fischel; and that because of insufficient time the other chapters not referred to in this preface were not revised.

Even before this revision this was an excellent work, and it has, of course, been made of still greater value through the incorporation of material bearing upon the treatment of conditions incident to war. As it now stands, it is undoubtedly one of the best and most practical treatises devoted to this special field of surgery.

THE MASTERY OF NERVOUSNESS, BASED UPON SELF-RE-EDUCATION. By ROBERT S. CARROLL, M.D., Medical Director, Highland Hospital, Asheville, N. C. Price, \$2.00 net. New York: The Macmillan Co., 1917.

THE chief fault of this book is the failure to evaluate the neurotic according to the modern viewpoint—the tendency to regard solely poor hygiene, economic struggles, and modern intensity in general, together with the growing prevalence of the use of stimulants and narcotics, as the bed from which neurotics spring. It is quite conceivable that a book of this kind, addressed to a lay audience, may do some good by inculcating right methods of living in some whose symptoms have their origin only in such causes, but it can hardly be regarded as a complete study of "nervousness."

DISEASES OF THE SKIN: THEIR PATHOLOGY AND TREATMENT. By MILTON B. HARTZELL, A.M., M.D., LL.D. 51 Colored Plates and 242 Cuts in the Text. Price, \$7.00. Philadelphia and London: J. B. Lippincott Company, 1917.

IN this work Professor Hartzell has given a most excellent presentation of what is known concerning diseases of the skin—that is, so far as their pathology and treatment are concerned. The facts set down are founded mainly upon the author's own experience as a worker and teacher of dermatology for more than twenty-five years. In addition, in order to render the book comprehensive, as a practical guide for the general practitioner, and as a useful work of reference for the student of medicine, the standard treatises of American and European authors have been liberally drawn upon, and especially is the author indebted to La Pratique Dermatologique and Ureck's Handbuch der Hautkrankheiten. Particular attention has been paid to the subjects of etiology and pathology, and all the remedies and methods of treatment of approved value have been included, and especially those which the author's own experience has led him to rely on. Emphasis is laid upon the influence that food and clothing exert in predisposing to and causing diseases of the skin. The work is profusely and well illustrated, many of the illustrations having been reproduced from Professor Hartzell's own collection of photographs. The work is particularly well adapted for reference by the general practitioner, as the various forms and diverse symptoms of skin diseases are described concisely and clearly. While no points of real importance are omitted, over elaboration is avoided. The book is good from all points of view.

PAIN AND PLEASURE. By HENRY THOMAS MOORE, Ph.D., Assistant Professor of Psychology, Dartmouth College. OUR SENSES SERIES—GEORGE VAN N. DEARBORN, Editor. New York: Moffat, Yard and Co., 1917.

THIS little book is one of a uniform set which has for its object the endeavor to make accessible to the lay public certain elementary psychological and physiological facts. The present volume is more successful than some others in the series which the reviewer has seen. Professor Moore has presented in a clear manner the fundamentals of his subject. He appears to have selected with great judgment his elementary facts and, where facts are disputed, he has touched on both sides of the question. As indicative of his breadth of outlook it may be mentioned that he even alludes to Freud, and not unfavorably. The book is one which the physician can recommend to the youth who is anxious to learn, or to the adult who, after an early life of ceaseless toil, wishes to understand something of the basic emotions which move the world.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting Held December 7, 1917.

Dr. JOHN DOUGLAS IN THE CHAIR.

To illustrate a New Method of Treating Greenstick Fracture of the Forearm.—Dr. WESLEY GROVE VINCENT presented this patient, a little boy seventeen months of age, who came to his clinic in the Post-Graduate Dispensary on February 2, 1917, with a history of having fallen and injured his left forearm three weeks previously. From the pronounced bowing it was evident even upon casual inspection that there was a greenstick fracture of both bones of the forearm. This diagnosis was corroborated by the x-ray plate. The callus was still soft enough so that the arm could be partly straightened, but there was a marked convexity of the posterior surface, which tended to become more pronounced as soon as the corrective force ceased. In view of Taylor's success with elastic traction in cases of Volkmann's contracture, the speaker decided to employ that principle in dealing with this case. A padded wooden splint reaching from the elbow to the palm was applied to the anterior surface of the forearm and held in position by adhesive plaster straps. A fairly thick gauze pad, about 1½ inches square and enclosing a bit of wooden splint, was placed over the prominent point on the back of the forearm, and a rubber band one-eighth of an inch wide was slipped over the hand and arm and held in position over the gauze pad by a strip of adhesive plaster. The rubber band was used under moderate tension and caused no interference with circulation below that point. A gauze bandage, snug but not compressive, was then applied from the palm to the elbow. A week later the bowing was found to have markedly decreased; but as the elastic band had been allowed to touch the skin at each border of the arm, the skin had been partially cut through at each of these situations. This mistake in technique was corrected in subsequent dressings in this and other cases by making the splint on the concave surface somewhat wider than the arm and passing a broad strip of adhesive plaster rather loosely around the arm over the splint and gauze pad which had been placed at the point of greatest convexity; the rubber band was then adjusted over this and held in position by short adhesive strips placed vertically both anteriorly and posteriorly. Since adopting this technic there had been no excoriation of the skin. Within three weeks all trace of bowing had permanently disappeared. The speaker had since used this device in other cases of greenstick fractures of one or both bones, always with the same happy result. He felt inclined to believe that if elastic traction was used in this way from the outset in greenstick fractures of the forearm it would rarely if ever be necessary to complete the fracture in order to insure a straight arm. The proper technique in the straightening process seemed to be absolutely painless.

Congenital Umbilical Fistula. — Dr. VINCENT also presented this patient. He stated that the patient, a girl 6 years of age, was admitted to the Babies' Ward of the New York Post-Graduate Hospital, on August 23, 1917. She gave a history of a persistent discharge from the navel since birth. A short time ago the fistulous tract became infected, and this resulted in an abscess which ruptured the morning of her admission to the hospital with the discharge of a small amount of seropurulent material. Examination revealed a small fistulous opening which admitted a probe to the extent of about three-quarters of an inch. The probe passed backward and downward. The tissues were infiltrated and sensitive to the touch over a small area to the right and below the umbilicus. As the discharge had been clear and watery or mucoid in character, never feculent or urinous, it seemed certain that its source was a Meckel's diverticulum or urachus, the canal of which had been obliterated at some point between the umbilicus and the intestine or bladder. After about two weeks spent in ineffectual efforts to overcome the infection, an incision was made a little to the right of the median line and the peritoneum was opened. The umbilical re-

gion was everted and an almond-shaped cyst about ¾ by 1½ inches in size was found beneath the umbilicus and running downward toward the bladder. There was no evidence that the cyst had ever been connected with the intestine and the diagnosis of urachal cyst seemed positively confirmed. The cyst wall was intimately adherent to the peritoneum, so the umbilicus, cyst, and palpable indurated tissues were excised *en bloc*. The abdominal wall was closed in layers and a rubber drain inserted. Convalescence was uneventful except for a rather protracted superficial suppuration. The pathologist reported an enteric cyst, stating that the lining membrane consisted of villi covered with columnar epithelium. Beneath the villi were the acini of glands closely resembling Brunner's. The picture was that of a diverticulum of the small intestine. The atypical structure of the coiled glands suggested a fetal endoderm.

Showing Result Five Years after Excision of the Shoulder for Tuberculosis.—Dr. VINCENT presented a third patient, a woman, who came under his care at the Post-Graduate Hospital five years ago, at the age of 28 years. Her family and previous history were not important. About a year and one-half before her admission to the hospital, while lifting something, she experienced pain in the right shoulder. This pain resolved itself into a subacute aching sensation about the tissues of the shoulder and articulation. During the six weeks previous to her admission the distress had increased and all movements of the joint were very painful. During the year and a half that she suffered from pain she had run the gamut of treatments for rheumatism. She had visited divers private physicians and dispensaries and various diagnoses had been made, rheumatism being the favorite and neuritis a bad second. She had finally been sent to the neurological department of the Post-Graduate Hospital, from which department she had been referred to the speaker. A diagnosis of tuberculous osteoarthritis was made, and this was confirmed by the x-ray plates. The speaker did a subperiosteal resection of the head and neck of the humerus by Ollier's method. As much as possible of the tuberculous synovial membrane was dissected and curetted out and the entire cavity flooded with 95 per cent carbolic acid. This was allowed to act for several minutes before being neutralized by 95 per cent alcohol. Two iodoform gauze drains were inserted and the shoulder immobilized for about ten days. The sinuses ultimately closed after being distended a number of times with 95 per cent carbolic acid, the excess of which was allowed to flow out and neutralized only at the skin surfaces with alcohol, by a gauze dressing soaked in 95 per cent alcohol. Though the woman was pregnant at the time, the operation caused no interference with the progress of the pregnancy. Long before she was discharged from the dispensary she did her own housework and recently had been working in a tobacco factory in addition. She had never had any reopening of the sinuses or further involvement. Dr. Vincent exhibited an x-ray plate showing the bony condition nearly two years after the operation. There were three points to which attention was directed in connection with this case: 1. This patient was long mistreated under the wrong diagnosis of rheumatism—an all too common error with both acute and chronic form of osteomyelitis. 2. Excellent x-ray plates failed to show the entire extent of the lesion. 3. By doing the resection of the tuberculous humeral head by the subperiosteal method, not only was the danger of severing the circumflex nerve minimized, but no vessels of importance were encountered and no muscles or tendons were cut across which must be united later through a contaminated tuberculous field.

Dr. FORBES R. MCCREERY described a case of umbilical fistula somewhat similar to the one reported by Dr. Vincent. He said this patient was a woman, 36 years of age, who had never had a discharge from the navel until at the time he saw her, in May, 1913. She gave a history of having had a great deal of abdominal pain for about six days, and on the morning that she came to consult him she had had a discharge from the umbilicus; there was some rigidity and tenderness and a polyp presented. He probed the canal of the fistula and found it about one and one-half inches in depth. About one-half a dram of pus escaped followed by about a dram of cheesy material like the contents of a wen.

He then curetted the epithelial layer of the canal in order to obliterate the cyst. He packed it first with one per cent. formalin; after two days he curetted it again and swabbed it out with 50 per cent. iodine, and two days later with Churchill's iodine. The wound was then closed up, the polyps having disappeared. He thought this was a cyst of the omphalo-mesenteric duct. If he had seen the patient before the discharge had begun, he would probably have advised operation but as it was he did not. He curetted carefully so as not to perforate the wall and only destroyed the epithelial lining. The probe had entered at an angle of about 45 degrees with the anterior abdominal wall, and the cyst obviously lay within the latter. He saw the patient in July, 1917, and there had been no recurrence.

Dr. DOUGLAS asked Dr. Vincent how he accounted for the discrepancy between the apparent condition at operation and the pathologist's report.

Dr. VINCENT, in reply to the question as to how he accounted for the pathological condition in the second case, said he had been completely nonplused when he received the pathologist's report, because the condition was distinctly below the umbilicus; there was no connection with the intestine and at the operating table it seemed clearly a case of urachal cyst. He was disposed to doubt the correctness of the report until he went to the pathologist and saw the sections of the specimen which showed definitely intestinal elements, including sections of Brunner's glands. The pathologist herself had been in doubt and had taken the specimen to Dr. Ewing, who said it was an enteric cyst. Dr. Ewing's theory was that some enteric cells had been pinched off early in the embryonal stage and that this cyst was the result. The patient had been treated for nearly six years and the condition never could have been cured except by excision.

Uretero-Vesical Anastomosis (Two Cases) with Moving-Picture Demonstration of Operation.—Dr. H. DAWSON FURNISS made this presentation. He stated that the first patient gave a history of having had a miscarriage in 1911, at which time she was curetted. About fourteen days later an abdominal operation became necessary, and then within seven months she had two other abdominal operations. Following this she had intense pain in the right side of the abdomen and back, which was more or less continuous. She finally came to the gynecological department of the Post-Graduate Hospital, where it was found that she had a slight obstruction to the passage of a ureteral catheter about an inch above the orifice of the ureter. A Pyelo-ureterograph showed a dilated ureter with obstruction at the lower end. A ureteral vesical anastomosis was performed such as was illustrated by the pictures. It was now 2½ years since the operation was performed and there was no diminution in the function of the kidney on the side of the anastomosis as was demonstrated by the indigo-carmin and phenolsulphonaphthalein tests. The patient has been relieved of her symptoms. The idea was prevalent that after a uretero-vesical anastomosis there was a diminution of kidney function on the side of the anastomosis due to contraction of the ureter. The second case was that of a girl who for two years had suffered from attacks of pain in the left lumbar region. The first attacks lasted five or six hours and occurred at intervals of about four months. The attacks then became more severe and the intervals shorter. Examination showed the left ureter edematous. The urine was negative for tuberculosis both by microscopical examination and animal inoculation. Colon bacilli were found. It was impossible to catheterize the left ureter at all. After the intravenous injection of indigo-carmin, none came through in 30 minutes on the left side, but in four minutes on the right side. A uretero-vesical anastomosis was done on March 25, and the indigo-carmin test six weeks later showed that the dye came through in six minutes, which was only a slightly less time than on the right side. This patient was up and about on the twelfth day and was absolutely free from trouble. Dr. Furniss said that in this operation he made no attempt to split the ureter and to suture the flattened ends to the bladder wall. This did not seem to be necessary as the tendency to obstruction was not at the end but where the ureter entered the bladder. It was not difficult to perform the anastomosis as the ureters were usually thickened and dilated where there

had been an obstruction. Dr. Furniss then gave a moving-picture demonstration of the operation.

Dr. DOUGLAS asked Dr. Furniss whether he bored two holes in the bladder in order to get the ureter and draw the end into the bladder.

Dr. FURNISS replied that he did puncture the bladder by lifting up a double fold and passing artery forceps through both folds from before backward. The ureter was then pulled through both folds and sutured to the posterior fold. By releasing the end of the ureter it dropped back into the bladder and the opening in the anterior wall was then closed. Dr. Furniss explained the technic of this procedure in detail and said it was much cleaner than going through the urethra and was less likely to be followed by infection. He drew the ureter into the bladder one-quarter or one-eighth of an inch and in the course of two or three months the projecting end of the ureter had disappeared. In attaching the ureter he just sewed the musculature of the bladder to the ureter. In dissecting the ureter one should not dissect it from its peritoneal attachments any further than was necessary and then the ureter should be inserted into the bladder up to its peritoneal attachment.

Dr. DOUGLAS asked how far above the bladder an anastomosis could be made.

Dr. FURNISS replied that if the stricture was more than two inches above the opening of the ureter into the bladder it was very difficult to make an anastomosis and if there was tension on the ureter the operation was likely to result in failure.

Carcinoma of the Sigmoid with Resection.—Dr. WALTER C. CRAMP presented this patient who was admitted to Bellevue Hospital on December 10, 1916, suffering from intestinal obstruction. Rectal and abdominal examination failed to reveal any cause for the obstruction. The woman was 56 years of age, and according to the history she gave had been suffering for six months with increasing constipation. There was a tumor about the size of an apple in the lower portion of the sigmoid. Because of fecal vomiting and the typical symptoms of intestinal obstruction, a colostomy was performed on December 27 and later the portion of the sigmoid that was involved was resected and the glands in the vicinity removed. In doing the resection a large rectal tube was passed upward through anus and sutured to the upper segment which was pulled down into the lower segment, thus invaginating the proximal into the distal portion of the sigmoid and these were sutured in place, using two layers of chromic gut and one of Pagenstetter suture. The tube came out on the seventh day with slight traction. There was an infection of the original abdominal wound and on February 9 this colostomy wound was closed. On March 16 the patient was discharged from the hospital. Her weight, which was 112 pounds at the time of the operation, had increased to 147 pounds. She had had no symptoms of obstruction since the operation and felt perfectly well. A careful abdominal and proctoscopic examination revealed no signs of recurrence. There was a slight ventral hernia subsequent to the resection operation. The pathologist reported that the tumor removed was an adenocarcinoma.

The Biological and Clinical Evidence of the Therapeutic Value of Radium and Roentgen Rays in Cancer.—Dr. ISAAC LEVIN presented the results of an experimental study on the influence of the x-rays on the development of the crown gall. The latter was an infectious disease of plants very analogous in many respects to human cancer which could be induced artificially by inoculating the plants with a pure culture of *Bacterium tumefaciens* described by E. F. Smith of Washington. The plants were x-rayed by modern methods using hard rays which did not injure the normal plants, as preliminary experiments had shown. While in the control plants the inoculation was invariably followed by the development of a large tumor, so-called "crown gall," the plants which were x-rayed subsequently to the inoculation either developed no growth at all or only a slight swelling at the place of inoculation. The experiments show that x-rays of correctly selected quality and quantity might arrest the growth of a malignant tumor without injuring the normal parts of the plant. Another interesting observation found in the course of these experiments was the fact that the microscopical

study of the minute nodules on the x-rayed plants showed the identical morphological picture that was obtained in a full-grown crown gall. These latter results were identical with the results of radium and x-ray treatment in a series of cases of carcinoma presented in detail by the writer in which a clinical arrest of the disease was accompanied by a complete absence of morphological changes. The result of this experimental and clinical study proved that the morphological appearance of radiated tumor tissue was not an absolute criterion of the therapeutic effect produced by the action of the rays on the tumor. The biological or clinical evidence of the arrest of growth or diminution of the size of the tumor was of undoubted value. The complete destruction of the tumor cells was the most perfect result and took place in the majority of cases even in large tumor masses. On the other hand negative morphological changes did not preclude the possibility that the tumor was influenced by the rays. Radiated and nonradiated carcinoma tissue might have the same microscopic appearance and still the former tissue was sterilized and might have lost, to a great extent, its power of proliferation and consequently its clinical malignancy. The practical conclusion to be derived from this investigation was the following: It was advisable to radiate malignant tumors not only after an operation but in a certain class of cases also before an operation so as to sterilize and inhibit the proliferation of the cancer cells which might be left behind or even transplanted elsewhere in the course of an operation. Such a procedure did not prolong appreciably the time preparatory to an operation and presented no danger to the patient. The fear expressed by some workers that the raying might occasionally irritate and increase the rate of growth of the tumor was unfounded. There was no biological evidence of such irritating action of the rays on any cell. The result was always an inhibition. Clinically, the author has seen in a series of cases of carcinoma of the rectum that the same sudden increase in the rate of growth of a malignant tumor might follow a radical operation. In either case the sudden increase of malignancy of the tumor was simply a coincidence and was not due to any method of treatment.

Dr. I. S. FEINBERG called attention to the fact that Dr. Levin had failed to mention what particular tube he used or what type of ray filter. He had been interested in this work for some years and a matter that had seemed of importance to him was the changes wrought in the blood elements, as for instance in the red blood cells, the white blood cells, the erythrocytes, etc. In one patient with a degenerating fibroid that showed evidence of malignancy, the red blood cells numbered 2,500,000 and the hemoglobin content was 30 per cent. From the blood picture it was thought the patient had a pernicious anemia. For six months she was treated weekly with radium using a soft tube and under this treatment the blood content increased to 5,000,000 red cells and 80 per cent. hemoglobin. There seemed during this time to be no marked change in the size of the fibroid but there was marked improvement in the circulation; edema of the legs and puffiness about the eyes disappeared under the treatment, and the patient made an uneventful recovery after operation and had remained perfectly well since, her weight increasing from 102 to 140 pounds. It would be interesting to hear Dr. Levin's experience in respect to the improvement in the blood elements.

Dr. WILLY MEYER said it would be untimely before an audience such as this to speak of the effect of the x-ray in cancer because they all now made it a rule after operation for carcinoma to have the x-ray or radium used and did not consider the surgical treatment complete without it. Such a presentation as they had listened to tonight showed the effect of the x-rays on cancer and all who had worked with radium had proved for themselves that these rays had a distinct influence upon growths. It stood to reason that if the microscopical work had left no trace of a growth they must believe that the microscopical elements were also destroyed. One point he especially wished to emphasize was that x-ray or radium treatment should not be given before operation and it should not be omitted after operation for a malignant growth. Dr. Meyer reiterated his belief that carcinoma was an infectious disease; it was originally a local disease and if it was recognized and re-

moved early before it reached the lymph glands it could be cured. If it passed the lymph glands and entered the blood then it caused a metastatic growth and could not be cured by surgery. In fact cancer acted very much like any other infection, and he felt sure that Irwin Smith was on the right track. Dr. Meyer related an instance of an infiltrated epithelioma of the cheek which was apparently cured by radium and said that when one saw one such a wonderful result he did not need more to convince him of the value of radium in the treatment of such epithelioma of the face.

Dr. BARNET JOSEPH said that perhaps as a worker with Dr. Levin he might add that they had found radiotherapy especially effective in three conditions which hitherto had been considered quite irremediable; in the treatment of these three conditions the rays had taken a place almost comparable to quinine in malaria or salvarsan in syphilis. The conditions he referred to were, first, lymphosarcoma; Dr. Howard Kelly had recently shown in this very room a number of cases of lymphosarcoma which demonstrated the marked value of radiotherapeutic treatment. It was certainly marvelous to see how lymphosarcoma melted away under radium. In one instance of lymphosarcoma of large size, Dr. Levin applied radium and at the end of ten hours the tumor had diminished one-third in size, and by the end of six months there was absolutely no sign of the disease present. This patient looked better and the hemoglobin had gone up from 60 to 90 per cent. A second condition in which radiotherapy was effective was in leucemia, especially splenic leucemia. He at present recalled one case in which the red blood count had come down remarkably and there was a corresponding increase in the white blood count. In another patient having leucemia and practically moribund, a marked improvement was observed within twenty-four hours after the x-ray treatment. This patient was now up and about though it was too soon to say whether the cure would be permanent. A third condition which was amenable to radiotherapy was epithelioma of the face. In this condition surgery was disfiguring and sometimes very disappointing. Under radium treatment these epitheliomata were seen to disappear so that scarcely a scar would remain. These three conditions might be classed as a group of diseases which radium alone would relieve.

Dr. ARTHUR F. HOLDING said that the essayist should be congratulated upon his presentation of the comparative biology of plant and animal cancer and upon his excellent illustrations. Dr. Joseph had just called attention to three diseases which were readily affected by radioactivity. A study of haematoxylin-eosin sections of the diseased tissues in each of these diseases shows a field blue with nuclei. The nuclei took the blue stain, and the fact that the slides were so blue meant that nuclei predominated over the cells in lymphosarcoma and in the enlarged glands of Hodgkin's disease and leucemia. This would likewise be found true in tuberculous glands and epitheliomas of the face when of the basal type. On the other hand, in cases of squamous epithelioma, one did not get as good results with the rays as in the above mentioned conditions; if one remembered that the nuclei in squamous cell epithelioma did not predominate, but that the cell substance predominated, it helped to explain why one got better results in conditions in which the nuclei predominated. Dr. Holding said they also had very amazing results from the application of the rays to ovarian and testicular tumor cells; we all know that these cells had very active nuclei. It would seem from these observations that in any tumor in which the nuclei predominated over the cell substance and which was related in nature to embryonal tissue, they could expect to get wonderful results with the rays. In short, they got the best results in tumors where the largest and most prominent nuclei were found; this would seem to classify cases in respect to their response to radioactivity according to their histo-pathology. It had been his experience that in employing this treatment at first one got very wonderful results and astonishing clinical cures and became very enthusiastic over the treatment; then, if he followed these cases he found that after six to eighteen months, one began to see recurrences and after five or six years' experience his enthusiasm almost reached the vanishing point. However, one did get good results in the classes

of tumors referred to, but in lymphosarcoma, Hodgkin's disease, leucemia, and embryonal carcinomas one did get recurrences and the patient died. While radium and x-rays produced results in these cases they were not permanent. The methods of administration of these agents would have to be greatly improved before they could be pronounced a cure.

Dr. JOHN DOUGLAS asked Dr. Levin in what proportion of the cases treated by radiotherapy he obtained favorable results. He said he did not want to be pessimistic, but his experience did not match with that reported by some of those who were using radiotherapy. He had seen wonderful results in lymphosarcoma, but the patients came back with recurrences and sooner or later died. One of the speakers had spoken of seeing Hodgkin's disease simply melt away under this treatment, but it came back again, and he had seen the same thing happen in leucemia. Dr. Meyer had spoken of the results that Dr. Pfahler had obtained in epithelioma of the lip; these are squamous epitheliomata and this was a condition in which the cells were said not to be easily affected by radiotherapy. Dr. Douglas called attention to those cases of pernicious anemia which go through a crisis and improve for a time without even radiotherapy. Dr. Joseph had spoken of cures in melanotic sarcoma. In this connection it might be recalled that Dr. Mathews had shown a case, before the New York Surgical Society last year, of melanotic sarcoma which was so far advanced apparently that it did not seem worth while to attempt to remove the whole growth, yet that man was still alive several years later. Scirrhus carcinoma of the breast had also been mentioned by Dr. Levin as a condition he had treated by radiotherapy, and although not cured was prevented from progressing. It was well known that this was a form of carcinoma of slow growth and might persist for years with very little change. Dr. Eisenbrey, formerly Surgical Pathologist of St. Luke's Hospital, had had the opportunity of examining a large number of cases of carcinoma of the cervix previously treated by radium in which a hysterectomy was done later, and he expressed the opinion that he was absolutely positive that the radium had caused irritation about the edges of the tumor, and stimulated its growth, and his conclusions were based on a study of many specimens removed at operation. Dr. Douglas said he would also like to ask Dr. Levin how he reconciled his theories with the results of Dr. Murphy's experiments. Dr. Murphy had last winter read a paper before the Academy in which he gave the results of the treatment of mouse tumors by the x-ray and radium. He removed the tumor, then treated it with the x-ray and replaced it in the body of the mouse. These tumors continued to grow. He then, in another series, removed the tumor, treated the mouse from which the tumor had been removed with the x-ray and replaced the tumor. These tumors in many instances failed to grow. He explained these phenomena by the theory that the x-ray caused a lymphocytosis which inhibited the growth of the tumor. He also stated that further radiation would lessen this inhibitory action.

Dr. LEVIN, in closing, said it would take too long to answer the question with reference to the kind of tubes and type of ray filters used, but he would be glad to explain the technique and to show the clinical results of this treatment to any one who would visit his laboratory. In reply to the question as to whether there was such a thing as a cancer cell, he said that the whole problem of cancer on which he had been working for 30 years was based upon the study of the difference between the normal somatic and the tumor cell. He agreed with Dr. Willy Meyer that clinically cancer might appear to be analogous to an infectious disease, but from the standpoint of a pathologist the two classes of diseases differed widely. Moreover were it proven that cancer was an infectious disease, the discovery would not necessarily have been an aid in the therapy of cancer. A specific remedy for tuberculosis was still not discovered though the etiological agent—the tubercle bacillus—was known for a long time. Dr. Meyer misunderstood the author's standpoint on preoperative radiation. It was not meant for cases clearly amenable to a radical operation, but for borderline cases. There were reported a great many cases of carcinoma of the uterus for instance which only became operable after a preliminary radiation. He has seen recently cases

of carcinoma of the rectum which were operated upon three and four times within a few weeks. In such cases a preliminary radiation would have certainly diminished the number of operations. In reply to the question of Dr. Douglas he stated that statistical studies which he reported recently showed that the treatment of inoperable cases was followed by 6.7 per cent. of cures in hospital cases and in about 11 per cent. in private cases, which compared favorably with surgery, which shows 12 per cent. of cures in all cases of cancer, many of which were more favorable than those submitted to radiation. Moreover, as stated by Dr. Joseph, a large lymphosarcoma which had broken through the capsule of the gland and grown into the surrounding tissue was dissolved by radium without leaving a vestige of the tumor, and at the same time the skin or the subjacent normal tissue over which the tube of radium was placed did not show the slightest abnormality. Such a result presented the most wonderful phenomena ever obtained in therapeutics and was a great deal more convincing to a student and investigator in biology of cancer than all the clinical statistics.

Stated Meeting, Held January 4, 1918.

DR. JOHN DOUGLAS IN THE CHAIR.

Election of Officers.—The officers of the Section elected to serve for 1918 are: *Chairman*, Dr. Seth M. Miliken; *Secretary*, Dr. Seward Erdman.

Double Transverse Incision.—Dr. ALLEN O. WHIPPLE presented two cases. CASE I.—This patient was a woman, 45 years of age, admitted to the Presbyterian Hospital on February 26. She gave a history of pain during the last two weeks, localized in the right upper quadrant, nausea, and vomiting. There was marked tenderness in the gallbladder region, increasing in severity. There was no jaundice, no hematemesis, and no urinary symptoms. Physical examination showed moderate rigidity and a mass was felt just below the costal margin. The temperature was 103° F.; white blood corpuscles 20,000, and polymorphonuclears 83 per cent. The patient was observed for two days, when her condition improved and it was considered that she had passed the acute stage of her attack and was suitable for a cholecystectomy. At the first operation a transverse incision was made. The gallbladder was found markedly inflamed, surrounded by omentum, and contained about 50 cm. of yellow pus. No stones were found. Because of the great vascularity of the adhesions about the cystic duct and absence of gallstones a cystostomy was done. The patient made a smooth recovery. Cultures of the pus showed the presence of the *B. coli*. Three months later the patient complained of pain in the right upper quadrant and soreness. Two weeks later she had three violent attacks of pain with increasing tenderness over the gallbladder, with a red softened area in the center of the scar. The pain was so severe that she asked that the gallbladder be removed. A second operation was performed on June 2, 1917, a transverse incision, including the scar, being made. A probe was introduced through a sinus opening which had developed and this passed to the gallbladder. The gallbladder was adherent to the anterior abdominal wall. It was markedly shrunken, thickened, and the cystic duct was occluded. It contained mucopurulent material and fifteen faceted calcium, cholesterol stones, averaging ½ cm. in diameter. No stones were felt in the common duct. The pancreas was soft. Cholecystectomy was done following the separate ligation of the cystic duct and vessels. A cigarette drain was placed to the bottom of Morrison's pouch. Cultures of the mucopurulent material showed the presence of the *B. coli*. Owing to a misunderstanding of orders the drain was removed on the second day. This was followed by a subhepatic abscess and a severe cellulitis of the abdominal wall. The subhepatic abscess was drained with a tube but the cellulitis of the abdominal wall was not controlled until Dakin's solution was used. Six weeks after the operation there were two small chronic stitch sinuses. There was no hernia. The patient's digestive disturbances and the pain and tenderness in the right upper quadrant had disappeared.

CASE II.—This patient, a man 33 years of age, was admitted to the Presbyterian Hospital on July 4, 1916. He gave a history of having had five attacks, at irregular intervals, of epigastric pain radiating to the right shoulder, vomiting, and tenderness in the right upper quadrant. The pain was at no time related to his meals. He had no hunger pain. Bismuth x-rays of the stomach were unsatisfactory. A diagnosis of cholecystitis and cholelithiasis was made. At operation a transverse incision was made. The gallbladder was found adherent to a mass below it and to the outer side of the duodenum, but it was not a primary lesion. No stones were found in the gallbladder. A retrocecal mass pointing up between the right margin of the duodenum and hepatic flexure of the colon was found. This proved to be an abscess. The wall of the duodenum posteriorly was so intimately adherent to the abscess wall that it was considered to be an abscess following a small perforation of a duodenal ulcer. As the patient was taking the anesthetic badly more than inversion of the ulcer and the institution of drainage was deemed unwise. The drain was passed into the abscess through a lateral stab wound. After inverting the ulcer with a Pagenstecher purse-string suture, the abdominal wall was sutured without drainage. Convalescence was unusually smooth. The patient was discharged three weeks after the operation. Two weeks later, while in the country, the patient had a similar attack which was diagnosed as appendicitis. At operation nothing but dense adhesions were found. The appendix was not located. During the following nine months the patient had recurring attacks of typical duodenal ulcer pain two or three hours after eating, which were relieved by small amounts of food. In April, 1917, he had an attack similar to the one he had on his first admission to the Presbyterian Hospital. Another operation was advised. A transverse incision was made below the first, through both recti muscles. An indurated mass was felt to the right of the duodenum. A posterior short-loop gastroenterostomy was done. Before closing the abdomen a fenestrated rubber tube was passed through a lateral stab wound into the abscess behind the colon and to the outer side of the duodenum. No perforation was found. The cultures were sterile. The post-operative course was smooth, the abdominal wound healing by primary union. The patient had experienced complete relief of his symptoms though he adhered to a careful diet, no fried, greasy or highly seasoned foods, no pastry, and no coffee or alcohol being allowed. The x-ray showed the stoma between the stomach and jejunum freely patent. There was no duodenal retention.

Dr. DOUGLAS said that Dr. Moschowitz had used the transverse incision, but he understood that after having had two or three cases go wrong he abandoned it.

Dr. WHIPPLE replied that Dr. Moschowitz was still using the transverse incision. In reference to the questions as to whether these transverse incisions separated and as to the danger of hemorrhage, he had operated through a transverse incision on some 62 cases and in no instance had there been a separation of the wound. He had had one hernia in the 63 cases. It had the advantage that it could be closed in a short time using the chain stitch. If the incision was made through the rectus and down through the deep epigastric these vessels were ligated and one did not have hemorrhage and the muscle sheaths did not retract. He used chromic gut mattress sutures in the muscle and plain gut for the superficial sutures. It was much easier to close such a transverse incision than a linear incision.

Pilonidal Cyst (Two Cases).—Dr. FRANK C. YEOMANS reported these cases. He stated that the first patient was a man, 37 years of age, seen on October 27, 1917. He gave a history of having noticed a swelling over the sacrum seven months before which was discharging pus. Physical examination showed two openings in the skin in the midline and two or three supplementary openings at the side. A probe could not be passed through from one to another of these openings, but fluid injected into one opening appeared through the others. An operation was performed on November 12, under local anesthesia (0.5 per cent. novocaine).

The main tract was opened and drained. It was found to contain a ball of hair about the size of a hazelnut. The entire area involved was excised elliptically, and the wound packed. Healing was complete in about five weeks. The second case was very similar to the first. This patient was an Italian, 26 years of age, who gave a history that for the past two years abscesses formed over the sacrum and broke. Several openings started as pimples. Abscesses had been twice opened by his private physician and four months ago he had been operated on under general anesthesia at a hospital and stayed five days. He had a recurrence and, on November 19, 1917, under local anesthesia, an excision was done and the wound packed as in the previous case. From the standpoint of diagnosis these cases were interesting, because they were not recognized as a rule and that was the reason they were not cured. One of these patients had three openings on each side, and looking at them casually one would have said that he had a fistula or that it might be an infected sebaceous cyst, a dermoid, or a tuberculous condition. It was quite generally agreed that these pilonidal cysts were due to developmental defects. The ectoderm did not approximate in the usual way. Dr. Markoe had published a paper in the *American Journal of Medical Sciences*, in 1902, in which he showed that about 30 per cent. of infants at birth had this defect. It had the appearance of a dimple and usually was superficial and tended to become obliterated as the child developed, but in some persons who had this defect and became fat the superficial tissues closed over the depression, enclosing hairs in the sac in which an abscess finally developed. The important point was to recognize the condition and then to dissect it out thoroughly and not to sew up the wound, but to pack it. If it was sewed up it would not heal but if it was packed it would be absolutely cured.

Epithelioma of Anus.—Dr. FRANK C. YEOMANS presented this case. He stated that the patient was a man, 71 years of age, who gave a history of having had erysipelas in a wound of the left arm incurred in the Civil War. He drank liquor until two and one-half years ago. There was no history of syphilis. When first seen, on August 5, 1916, he stated that sixteen months before he had had protruding piles due to constipation. Five months before the sphincter had been stretched under gas anesthesia. Two weeks later he was operated on for hemorrhoids under local anesthesia. The wound never healed and continued to bleed after this operation. He was told, however, that he did not have cancer. His weight had dropped from 197 to 145 pounds during the six months before the speaker saw him. Physical examination showed his general condition good; the chest and abdomen negative. Rectal examination showed the outlet of the rectum relaxed and excoriated. There was a trough in the posterior commissure. This bled on contact and was indurated for one and one-half inches, or the length of the anal canal. The induration extended one-half way around the canal on each side and into the post-anal tissue, where there was a mass about the size of a hickory-nut. The feel was that of cartilage. Biopsy showed that the growth was malignant. The right inguinal glands were discreetly enlarged. The patient said they always were so. He was operated upon on August 7, 1916. A typical perineal excision of the rectum, including the sphincters and adjacent tissue, was done and five inches of the bowel was removed. The levator muscles were sutured to the gut and the mucosa to the skin. A tube was placed in the rectum and another in the sacral cavity. There was very little bleeding and not a vessel was tied. At the end of the operation the patient left the table in good condition, with a pulse of 92 and needed no stimulation. He left the hospital eighteen days later. His weight has gone up, from 145 to 161½ pounds, during the seventeen months since the operation, has no pain and feels well and strong. There was primary union of the gut to the skin and not the amount of scar tissue that one usually got. He had control of the bowel by regulating his diet, and the only discharge was some mucus. His bowels moved three or four times a day. He wore a pad because of the discharge of mucus. Following the operation he had a sacral lymphangitis. The pathologist's report stated that the growth was a squa-

mousselled epithelioma of the anus, which was very malignant. The speaker had consulted with several colleagues as to whether the patient should be treated with the x-ray or radium, but it was thought best not to subject him to such treatment at the present time.

Dr. DOUGLAS stated that he had seen quite a number of cases of pilonidal cyst at St. Luke's Hospital, perhaps five or six cases a year. He thought they were all developmental in origin, due to the infolding of the ectoderm and epithelium, and not the result of an accumulation of fatty tissue and the closing over of a depression.

Dr. YEOMANS said he agreed with Dr. Douglas that pilonidal cysts were absolutely due to a developmental defect. As he had stated, about thirty per cent. of infants had this tendency, but it was outgrown in most persons. Occasionally in a stout person it was not outgrown, and because of the accumulation of fatty tissue about the depression, and possibly because of a lack of cleanliness in some cases, the depression became deeper and was enclosed and finally an infected cyst developed. In one of the cases presented there was a ball of hair the size of a hickory-nut enclosed in stratified epithelium. The point to be emphasized was that this condition was not usually recognized by the physician or the surgeon, but after he had seen two or three he would recognize them readily and would make a thorough excision, going right down to the periosteum. Before beginning the operation it was advisable to inject methylene blue to be sure that one had reached all the fistulae, or there would be a recurrence.

Sarcoma of Tonsil; Radical Operation.—Dr. GEORGE H. SEMKEN presented this patient, a man 49 years of age, a clothier by occupation, who came under observation on June 19, 1917. His family history and previous personal history were negative. He had not been subject to tonsillitis, and there was no definite etiological factor except possibly his free use of cigars for many years. During the preceding six months, he had some difficulty in swallowing and occasional pain in his throat; about one week previously, he had noticed that the right tonsil was considerably enlarged. There were no other symptoms. Examination showed a walnut-sized, smooth, rounded mass at the site of the right tonsil, which had drawn down the faucial arch on that side, and had pushed the uvula to the left of the median line. The mass was of firm consistency, pink in color, and covered with mucous membrane except in two small areas—one near the uvula, which was gray but unbroken, and one near the anterior faucial pillar, which was dull red and seemed to be an erosion as from a tongue depressor or other instrument. The mass was well defined, and showed no invasion of the surrounding tissues. The other tonsil was small and seemed normal. There were no palpable lymphatic glands in the neck. The operation was done on June 22, 1917, at the New York Skin and Cancer Hospital, under ether-colonic anesthesia. As a first step, the radical extirpation of the submental, submaxillary, digastric, and carotid lymphatic gland packets was done, and the neck wound closed with sutures, provision for drainage being made. The tonsil tumor was then removed through the mouth. Three silk traction sutures were placed—one above the anterior faucial arch on the right side, one at the lower end of the right anterior faucial pillar, and one at the base of the tongue. The mucosa was then incised wide of the tonsil rim, and the tonsil was removed with its capsule. A piece of the uvula was included also. The bleeding was checked with Kocher hemostats and the Blunk forceps; and the entire wound was then cauterized with the Percy cautery at a dull red heat. As a final step, the tonsil cavity was packed with iodoform gauze, which was held in place by sutures passed through the anterior and posterior wound margins, and tied over the gauze. The patient's recovery from the operation was uneventful. There was a sharp febrile reaction for a few days, but the temperature soon became normal and remained so. The neck wound healed per primam. The tonsil packing was removed after 24 hours, and the wound in the fauces gradually closed. As cicatrization advanced, the uvula was drawn toward the right side, so that at present, with the healing process complete, the uvula lay against the right side of the fauces. A point to be emphasized in the use of the cautery in the mouth and

pharynx was the necessity of preventing the entrance of smoke into the bronchi and lungs, with each inspiration. This was best accomplished by the use of a small motor blower, attached to a pharyngeal tube, which blew the smoke out of the mouth as soon as it was formed.

Cicatrix Deformity of the Hand; Flap Transplantation and Corrective Apparatus.—Dr. SEMKEN presented this patient also, a man now 25 years of age, who was presented at a meeting of this section on March 2, 1917. At the age of nine months, he sustained a severe burn of the palm of the right hand by falling into a small open fire. As a result of the loss of tissue, cicatrization, and a secondary contraction of the palmar fascia, a marked flexion and adduction deformity developed. In addition, the fifth finger had become fused with the palm. On October 20, 1916, the scar tissue and contracted palmar fascia were excised and replaced with a flap of skin and subcutaneous fat from the left axilla. It was impossible at that time to obtain full extension in the hand and fingers, because the tendons, blood vessels, and nerves were all too short to allow it. It seemed probable, however, that this correction could be accomplished later by mechanical means; and that plan was followed as soon as the hand and fingers had healed. Full extension was obtained within a short time by having the patient place his right hand upon a table, palm down, and press upon the dorsum of the hand to flatten it down. As soon as this stage was reached, the corrective apparatus was used to overcome the adduction in the fingers. The apparatus consisted of a fixed palmar aluminum plate, extending from the metacarpal heads to the upper forearm, and held in place by a laced leather cuff attached to its arm part. At the metacarpal end, a hand-plate provided with wide metal loops for the fingers was attached with a swivel pin, which allowed free motion of the plate from side to side. The extent of this motion was controlled by a bar held by a swivel pin under the distal ulnar end, and passing through a fenestra in a fixed curved bar attached at the radial side of the large arm plate. The movable bar was round and had a screw thread on its radial half. By means of a screw head on the movable bar, on the outer side of the fenestra, the finger plate could be drawn radially as far as the patient's tolerance allowed. Fixation of the metacarpal heads was accomplished with a padded dorsal bar, hinged on short uprights attached to the fixed plate. The patient wore this apparatus over night and whenever possible during the day, when he was not at work; and he has been able to bring his fingers into their normal axis again. Although the fingers showed no tendency to resume the old, faulty position, he still wore his apparatus occasionally as a precautionary measure. As a last step in the "reconstruction" of this hand, the Agnew operation was done on the webs of his fingers on November 13, 1917. The dorsal triangular flap, utilized in the Agnew operation, tended to break the U of scar tissue, between the fingers (along the margins of the flaps on the fingers), and thus to prevent subsequent contraction, shortening of the U, and webbed fingers.

Dr. EDWARD PETERSEN asked Dr. Semken whether he ligated the external carotid.

Dr. SEMKEN replied that he did not ligate the carotid artery in these cases. After ligation of the common carotid, collateral circulation was established within a few minutes through the circle of Willis (as was shown, he believed, by Dr. Llewellys Barker in cases of pulsating exophthalmos). After ligation of the external carotid, collateral circulation was not established so soon, but it did occur relatively rapidly. Instead of the destructive permanent ligature, the method of choice seemed to be the placing of a strong silk or linen thread about the artery, without tying it. The ends of the ligature were allowed to emerge from the wound, which could then be wholly closed by suture. If hemorrhage occurred during the tumor operation, traction could be made upon these long ends, to angulate and compress the artery. As soon as the bleeding vessel in the throat had been caught, the traction upon the carotid ligature could be released. At the end of the operation, the ligature could be readily removed by gentle traction upon one of the thread ends. In most of these cases, the tumor operation and that upon the glands of the neck were done in one stage; and it was a simple mat-

ter to place the ligature during the neck operation. Where these operations were done separately, in two stages, a small incision could be made for placing the ligature.

Dr. CHARLES H. FARR asked Dr. Semken how he made the clinical diagnosis of epithelioma in this case; it had been his experience that many of the cases that he supposed were epithelioma of the tonsil proved to be syphilitic or inflammatory conditions.

Dr. SEMKEN replied that the mass had the appearance of a new growth rather than that of syphilis or other inflammatory process. The surface was practically intact; the consistency was uniformly firm, and there was no hyperemia or infiltration in the surrounding tissues. The Wassermann examination was negative. However, he had not relied wholly upon his own judgment, but had the confirmatory opinion of other colleagues who had examined the patient. Dr. Semken said he was glad to have this opportunity to express his opinion in reference to biopsy. While biopsy was, undoubtedly, occasionally necessary, especially in the diagnosis of cancerous processes in luetic patients, it should not be forgotten that incision into a cancerous mass could greatly increase the malignancy of the growth, and favor metastasis. When biopsies were necessary, the patients should be made to understand that the operation must be done at once, if the report of malignancy was returned. When one had seen instances in which a small early cancer, after five or six biopsies, became converted into large, actively growing tumors, one could not help feeling strongly on this point. It was regrettable, therefore, that many boards of health had urged these biopsies, without emphasizing their danger.

The Use of Small Bone Transplants in Bridging a Bone Defect.—Dr. FREDERIC W. BANCROFT read this paper, which he illustrated with lantern slides. He stated that in certain types of fractures of one of the bones of the forearm where there was malunion with loss of substance it was difficult to properly brace the resulting defect. The bone was too small to maintain a transplant in position by a Lane plate or other device. In performing bone transplants in dogs, while pursuing the study of bone repair, he was struck with the universally good result obtained by transplanting small bone fragments, one to two mm. in size, to fill the defect in the shaft of the radius. The method employed in the animal experiment was as follows: With the animal under ether anesthesia, the radius was exposed for the distance of about 4 cm.; the surrounding structures were dissected free from the shaft, and a portion of the shaft about 3 cm. in length was removed. The periosteum was excised for a distance of one to two cm. from both cut ends of the radius. The excised piece was freed from its periosteum, split lengthwise, and all visible endosteum removed. It was then cut into small fragments, one to two millimeters in size, and these little fragments were inserted in the bone defect. The muscle, fascia, and skin were closed in layers, and a gauze dressing followed by a plaster of paris bandage applied. At regular intervals following the operation radiographs had been taken and the dogs sacrificed. The leg was then examined clinically and later decalcified sections were studied microscopically. In studying radiographically a series of animals at intervals after the operation it was seen that the transplants became gradually smaller, while about them a formation of new bone occurred. At a later stage the form and contour of the shaft was reestablished. Microscopical sections, taken at periods varying from seven days to one and one-half years after the operation, showed that there were two main factors involved in the repair of these bone defects, namely: (a) the bone fragments; (b) the organization of connective tissue about the fragments. Dr. Bancroft described in detail the microscopical changes that took place and showed that as they progressed the bone fragments were gradually absorbed and lost their identity in the mass of new bone forming from connective tissue. In a year the medullary canal had been established and one found tubular bone that was difficult to distinguish from the normal shaft. The Haversian canals had reformed in the direction of the long axis of the shaft. The bone was covered with a connective tissue layer resembling periosteum. Too much importance had been

placed by most authors upon the origin of the bone cell as the vital factor in bone repair. This had clouded our conception of the process. Bone was mesoblastic in origin, and in its repair it was found that calcium salts were deposited on the intracellular elements of connective tissue forming new bone. The connective tissue cell then, by a process of metaplasia, became a bone cell. Periosteum was a connective tissue, and hence was prone to form bone, but it was not the only connective tissue that had this function. If this theory were assumed it would explain the extra skeleton formation of bone as in arteries, myositis ossificans, ovaries, kidneys, etc. From the clinical point of view this procedure offered an adequate method of bridging a bone defect if there was another bone present to act as a splint, and if it was possible to hold the bones in adequate position by external support. It offered the advantage of not having to expose a very large area, and of not having to introduce a foreign body.

Dr. WHIPPLE referred to the studies of Dr. St. John of cross-sections of bone after the reduction of fractures and stated that both Dr. St. John's observations and his own studies along this line were the same, so far as the transition from one kind of tissue to another was concerned, as those Dr. Bancroft had described. The same principle that Dr. Bancroft had just shown, the transplantation of small bone fragments, had been shown by Dr. Hibbs to be applicable to Pott's disease. Dr. Hibbs had done quite a number of operations for Pott's disease, using the bone fragments, and stated that he obtained better results with this method than by his own method or that of Dr. Albee.

Dr. CHARLES E. FARR stated that he had been impressed by the fact that comminuted fractures united more rapidly than simple fractures, and this was probably explained by the fact that there were a number of fragments that stimulated bone growth in the comminuted fractures. In operation for non-union, in which bone transplants were used, it was probably not so much the large transplant that caused the union as because of the small fragments of bone or bone dust left in the operative field that stimulated bone regeneration. The same was probably true of the operations in which Lane plates, etc., were used. Mackewen, some years ago, reported a case in a child in which regeneration of a whole humerus resulted from the implantation of a number of tiny bone fragments.

Books Received.

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HYGIENE AND MANAGEMENT OF PREGNANCY. By MORRIS J. KROHN, M.D. 32 pages. Price, 35 cents. Published by the Author, Denver, Colo.

LA GANGRENE GAZEUSE. By ANDRÉ CHALIER and JOSEPH CHALIER. 386 pages. Illustrated. Price, 8 fr. 80. Published by Librairie Felix Alcan, Paris.

LES FRACTURES DE GUERRE DU MAXILLAIRE INFÉRIEUR. Par Le D. A. HERPIN. 153 pages. Illustrated. Price, 4 fr. 40. Published by Librairie Felix Alcan, Paris.

ANNUAL REPORT OF THE MASSACHUSETTS COMMISSION ON MENTAL DISEASES FOR THE YEAR ENDING NOVEMBER 30, 1916. 344 pages. Published by Wright & Potter Printing Co., State Printers, 32 Derne Street, Boston.

MANUAL OF SPLINTS AND APPLIANCES FOR THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY, 1917. 208 pages. Illustrated. Price, 75 cents. Published by Oxford University Press, New York.

REPORT OF THE PHILIPPINE HEALTH SERVICE for the fiscal year from January 1 to December 31, 1916. By J. D. LONG, M.D., Director of Health. 251 pages. Published by Bureau of Printing, Manila.

A PRACTICAL TEXT-BOOK OF INFECTION, IMMUNITY AND SPECIFIC THERAPY. By JOHN A. KOLMER, M.D., D.P.H., M.Sc. 978 pages. Illustrated. Price, cloth, \$7.00 net; half morocco, \$8.50. Published by W. B. Saunders Company, Philadelphia and London.

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THEORETICAL CONSIDERATIONS OF MENTAL DEFICIENCY.

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BECAUSE of the unusually large amount of clinical material which has come under the writer's observation in the past few years, he has had a rather exceptional opportunity for extensive study on the subject of this paper; and he hopes to be able to justify his desire to present to the medical profession a series of articles on mental deficiency.

In the last four years over ten thousand cases have been closely studied in the writer's clinic, "The Clearing House for Mental Defectives," at the New York Post-Graduate Medical School and Hospital. These cases coming from the various courts and other tribunals of the City of New York, as well as from many charitable institutions and other agencies, represent a group of individuals unable to adjust themselves properly to their environment, either because of a true amentia or as the result of some affective disturbance of their mentality.

These cases involve a sociological as well as a medical problem and it therefore seems wise to consider them from these two viewpoints.

The term "mental deficiency" has hitherto been rather indefinitely applied. By some authors it has been made to include both insanity and feeble-mindedness. By others, it has been used specifically to characterize feeble-mindedness alone. The writer, however, feels that a broader meaning than the latter ought to be attached to this term, that not only the aments be included in this group but also those individuals who are not able to adjust themselves to their environment, because of a mental instability or of some affective disturbance, conditions which cannot be classed as psychoses.

"Mental deficiency" has up to a recent period taken a more or less "back seat" in the forward march of medical and psychological research; it has been a stepchild to psychiatry, and its tutelage an apparently hopeless problem. However, during the last decade or two more interest has been shown in the medical as well as the sociological aspect of this problem.

Records show that in early ages different manifestations of insanity and epilepsy were described, the latter by Hippocrates, while Aretaios described different types of the former. It was not, however,

until much later that idiocy attracted any attention.

Avicenna (980-1037 A. D.) spoke of different types of feeble-mindedness. In the Middle Ages the belief that those showing symptoms of feeble-mindedness were possessed of the devil is strikingly shown by remarks of Luther made to the ruler of the principality of Anhalt to whom he recommended that a twelve-year-old feeble-minded child should be thrown into the water and prayer be delivered to God that He should take the devil from his child, as such children are (*massa carnis*) without soul.

Paracelsus (1493-1541 A. D.) devoted much time to cretins and it seems that from that time on this condition has been quite frequently described; in fact, the first institutions for the feeble-minded were built for the care of cretins in Chur, Gräbünden, and in Admont Steiermark.

A number of feeble-minded and epileptic persons were treated in the Bicêtre Hospital in Paris. In some of the other hospitals and cloisters small divisions were established for the feeble-minded.

In the eighteenth century idiocy was considered a form of insanity, no differentiation being made at that time between amentia and dementia.

In 1802 Joseph and Carl Wenzel (*über den Kretinismus, Studien in Salzburg, Wien*) described a number of characteristic symptoms of cretinism, but even here no sharp differentiation was made between dementia, which developed in the life of an adult person, and amentia, which was due to the lack of mental development.

About this time, 1801, the first step was made in the attempt to train the feeble-minded. This was done by a French physician named Etard who is said to have had some results in training the "wild man of Aveyron."

This method of training was further developed by his pupil, Seguin, whose work at the Bicêtre Hospital laid the foundation for the system of training the feeble-minded, which has been taken up by practically all private and state institutions established for the care of the feeble-minded of the present time.

In 1846 Seguin published a work entitled, "*Traitement moral, Hygiène et Education des Idiots et des autres Enfants Arriérés.*"

At about this time, and no doubt to a certain extent influenced by the teachings of Seguin, private individuals and States created schools and institutions for the care of the feeble-minded in which the principal method of treatment was the training of these individuals.

In recent years the idea of seeking the causes of mental deficiency seems to have been and is uppermost in the minds of a number of medical

investigators in different countries. Tredgold, recognizing the importance of this fact, classified the feeble-minded into two large groups, namely, feeble-mindedness caused by intrinsic factors and that caused by extrinsic factors.

Intrinsic factors, Tredgold says, are hereditary influences which modify germinal plasm before conception takes place, and the form of amentia it could produce may be termed primary.

Extrinsic factors are those conditions of the environment which affect the development of the brain (and body) during either antenatal or postnatal life and in this case the amentia may be termed secondary.

The following is Tredgold's classification:

A. Intrinsic—Hereditv.

1. Disease of nervous system.
2. Alcoholism.
3. Tuberculosis.
4. Syphilis.
5. Consanguinity.
6. Age of parents.

B. Extrinsic—Environment.

1. Before birth.
 - (a) Abnormal conditions of the mother during pregnancy; (1) Mental; (2) Physical.
 - (b) Injuries to the fetus.
2. During birth.
 - (a) Abnormalities of labor.
 - (b) Primogeniture.
 - (c) Premature birth.
3. After birth.
 - (a) Traumatic.
 - (b) Toxic.
 - (c) Epileptic and infantile convulsions.
 - (d) Malnutrition.

Weygandt speaks of the difficulty of the classification of the feeble-minded but attempts to bring out types of feeble-minded individuals under the following classifications:

Historical Groups:	Groups
Feeble-mindedness due to deficiency in training.....	1
Feeble-mindedness due to sensory deficiency.....	2
Endogenous Feeble-mindedness:	
Microcephalus, brain malformations.....	3
Feeble-mindedness due to inflammatory processes:	
Inflammation of the brain (encephalitis microcephalus, microgyrus, atrophic sclerosis and gliosis, porencephalus).....	4
Encephalitis.....	5
Hydrocephalus.....	6
Endogenous Groups:	
Amaurotic family idiocy and related groups.....	7
Tuberous hypertrophic sclerosis.....	8
Mongoloid degeneration.....	9
Infantilism:	
Dystrophic infantilism due to the milieu, malnutrition, intestinal disturbances, vitium cordis (pulmonary and mitral infantilism, alcohol and other poisons, infectious disease, lues, tuberculosis, malaria, pellagra).....	10
Glandular Infantilism: status Thymicolymphaticus and Idiotia thymica.....	11
Dysthyroidism: hyperthyroidism (Basedow), Myxedema and thyroprivia degeneration.....	12
Endemic cretinism, atromous amentia.....	13
Dysgenitalism.....	14
Dyspituitarism: Acromegaly with amentia, adiposogenitalis with idiocy; hypopituitary infantilism, dyspnealism.....	15
Dysadrenalism.....	16
Pluriadular infantilism.....	17
Syphilogenous idiocy, imbecility, debility; syphilogenous infantilism and infantile paralysis.....	18
Alcoholic developmental disturbances.....	19
Athetotic feeble-mindedness.....	20
Chorea, with a disturbance of mental development.....	21
Spasmodophilia and epilepsy with feeble-mindedness.....	22
Rachitis with feeble-mindedness.....	23
Chondrodystrophy with feeble-mindedness.....	24
Turmschadel with feeble-mindedness.....	25
Early types of Psychoses and Psychoneuroses:	
Dementia praecox with disturbance of mental development.....	26
Dementia infantilis (praecocissima).....	27
Manic-depressive insanity in childhood.....	28
Hystero-degenerative insanity in childhood.....	29
Neurasthenia in childhood.....	30

In England in 1904 the Royal Commission on the Care and Control of the Feeble-minded was appointed, consisting of the Earl of Radner, chairman, W. P. Byrne, Chadwick-Healey, C. E. H. Hobhouse, M.D., F. Needham, M.D., H. B. Donkin, M.D., C. Dunlap, M.D., H. D. Green, Rev. H. N. Burden, W. H. Dickinson, M.P., C. S. Loch, Mrs. Hum. Pinsent. The Royal Commission recommended the clinical classification of the mentally defective into four types:

1. A feeble-minded person is one who is capable of earning a living under favorable circumstances, but is incapable, from mental defect existing from birth or from an early age, (a) of competing on equal terms with his normal fellows; (b) or of managing himself or his affairs with ordinary prudence.

2. The imbecile is one who, by reason of mental defect existing from birth or from an early age, is incapable of earning his own living, but is capable of guarding himself against common physical dangers.

3. An idiot is one so deeply defective in mind from birth or from an early age that he is unable to guard himself against common physical dangers.

4. The moral imbecile is a person who by reason of an innate defect displays at an early age vicious or criminal propensities which are of an incorrigible or unusual nature, and are generally associated with some slight limitation of intellect.

La Page states (Feeble-mindedness in Children of School Age): "In all definitions of these conditions the lifelong and incurable character of the mental affliction should be emphasized, in order to distinguish it from (1) temporary mental affections, and (2) from backwardness or retarded mental development, which is due to adverse factors in infancy and childhood. Temporary insanity may be cured and a backward child may be brought up to the normal level by suitable treatment, but a mentally deficient child, though amenable to treatment and training to some extent, can never be rendered normal."

Further quotation from La Page from the report of the Royal Commission under Causation: "When dealing with the causation of mental defect the Commissioners found that twenty-five out of thirty-five witnesses attached supreme importance to the fact that, in a very large proportion of the cases of mental defect, there is a history of mental defect in the parents or near ancestors. The twenty-five witnesses who held this opinion had all had a very large experience and had devoted special attention to the subject. Sir Clifford Allbut said: 'I regard feeble-mindedness (if not accidental) as always hereditary, or, in other words, it is a ratio of variation. I have never met with a case of manufactured feeble-mindedness apart from some accident at birth or afterwards. . . . I attach great weight to inheritance. . . . Feeble-minded persons are prolific; the thing can only be bred out.'

"Dr. Ashby, Medical Officer to the Special Schools at Manchester, said: 'In at least 75 per cent. of the children with amentia that I have examined there was a strong probability that the amentia was hereditary and primary (i.e. spontaneous, not due to external influences).' He further says that he has observed no special tendency in the children of alcoholics or of women who suffer privation during pregnancy or in those children who live in unfavorable conditions subsequent to birth, to develop amentia. The term 'amentia' is here used to cover all grades of mental defect in early life.

"Sir E. Ray Lankester holds: 'That congenital feeble-mindedness is spontaneous originally and truly hereditary subsequently, and is not brought about by starvation and other such conditions; it is more probably due to easy conditions of life and the absence of the selection that obtains amongst more primitive men.'

"On the other hand, it is only fair to quote Dr. Mer-

cier's evidence, which was: 'That not only is the frequent transmission of feeble-mindedness by inheritance not proved, but, also, that the organic defect of brain which underlies feeble-mindedness may be often the result of external influences which during childhood affect the growth of the brain injuriously.'

"In conclusion, the Commissioners sum up:

"1. That both on the grounds of fact and of theory there is the highest degree of probability that 'feeble-mindedness' is usually spontaneous in origin—that is, not due to influence acting on the parent—and tends strongly to be inherited.

"2. That, especially in view of the evidence concerning fertility, the prevention of mentally defective persons from becoming parents would tend largely to diminish the number of such persons in the population.

"3. That the evidence for the conclusions strongly supports measures which, on other grounds are of pressing importance for placing mentally defective persons, men and women, who are living at large and uncontrolled, in institutions where they will be employed and detained; and in this and in other ways kept under effectual supervision so long as may be necessary."

As is true of all new problems, one hears statements made concerning feeble-mindedness that are neither conducive to a better understanding, nor have they any basis in fact. These statements are usually made by persons without adequate training, who are, nevertheless, considered as experts by the laity. For example, it has been asserted that feeble-mindedness is a reversion to the primitive type of man; that the feeble-minded are physically normal and so on. Such doctrine is incorrect; furthermore it does harm by confusing the subject and discouraging really serious and scientific investigation.

Mental deficiency is the result of a disturbance of the functional activity of the brain, due either to a gross anatomical lesion of the brain, or special sense organs, with connections; or, due to a serious disturbance of the metabolism of the brain cells. In amentia this condition develops before or shortly after birth. In affective disturbances with or without definite intellectual deficiency the metabolic disturbances may develop later, as in the adolescent period of the individual's life or even later.

For a working basis, I should like to suggest dividing mental deficiency into three groups:

1. In the first group I would place all cases in which the growth of the brain has been impaired, the physiological activity of cell production having been disturbed, resulting in abnormal cell division. This we may call the **Formative Type**.

2. The second group embraces the cases in which the brain cells are not lacking in number, but in these the proportion of the chemical activating substances, which are necessary in order that the cells react normally to stimulation, is disturbed. There may be an excessive amount or a deficiency of one or more hormones in the blood, or, on the other hand, there may be present in the blood a foreign toxin generally or selectively disturbing the metabolism of the brain cells. This group may be called the **Functional Type**.

3. The third, or **Traumatic Type**, includes those cases in which the mental deficiency is due to a definite physical injury of the brain. Up to the time of the trauma the brain may have been anatomically and physiologically unimpaired, but afterward, on account of inflammatory reactions, lacerations, hemorrhage, tumors, or other such conditions, destruction of brain tissue results.

Before considering the above types in detail, however, it seems advisable to outline briefly the theory upon which this classification is based.

Living cells present three distinct life processes: (a) nutritive activity, (b) formative activity, (c) functional activity.

The nutritive activity is that process whereby a cell is capable of taking into its body from the surrounding medium substances which it may store there as potential energy.

The formative activity is that process whereby a cell is capable of dividing and forming one or more daughter cells.

The functional activity is that process whereby a cell, responding to a stimulus from without, performs some act; the contraction of a muscle cell, secretion of a gland cell, reaction of a nerve cell, etc.

These three activities are intimately related to one another. Both the formative and functional processes when active draw upon the same store of energy, laid in by the nutritive process; hence, they are rival consumers and one becomes active at the expense of the other's activity.

The formative process is very active during the formative period of an individual's life, and as the different cells become more active functionally the formative process becomes less active and finally ceases or remains quiescent. Thus we see that highly specialized functional cells have lost the formative activity entirely; nerve cells, muscle cells, etc.

Only the low type cells, such as epithelial, endothelial, connective tissue, and other similar cells retain, to a greater degree, their formative process, and hence, in these cells, it may be more easily awakened to activity (tumor formation).

In order that these three processes may act in a normal way the medium which surrounds the cell and from which the nutritive activity draws its supply must be normal—contain all the chemical materials in proper solution and proper proportion. Should any of the chemical substances be missing or their normal proportions in the medium be disturbed, then any or all of the life processes may become disturbed. Instance the lack of thyroid substance or the excessive amount of this substance in the adult with a resulting disturbance of the functional activity of the body cells. Should there be present in the medium a foreign substance whose effect on the cells is toxic, then any one or all of the life processes may become disturbed, *e. g.* the action of strychnine, morphine, alcohol, and other toxic substances.

The living body is composed of many different groups of cells which have different physiological values. We have evidence enough at hand to know that the life processes in these different cell groups are selectively affected by different chemical substances normally found in the medium, namely, the hormones; so a disturbance in the chemical balance in the medium would selectively disturb certain groups of cells, as also would the presence of toxins selectively affect certain groups of cells.

If in the fetus or in the early growth period of an individual the chemical balance of the medium be disturbed, either due to increase or decrease of the normal amount of chemical substances (hor-

mones), or due to the presence of a foreign toxic substance, then the formative activity may be the one to suffer most, in consequence of which we shall have some organ or part of the body imperfectly developed according to the degree and selectivity of the disturbance.

Later in the life of an individual as the formative activity is subsiding and the functional activity is increasing, it will be the latter which will suffer as a result of a disturbance of the chemical balance of the medium.

In considering the life processes of the cells in the human organism it should be borne in mind that formative activity does not suddenly cease and functional activity suddenly begin, but that there is a gradual diminution of the one and an equally gradual onset of the other activity.

The effect of disturbed hormonal balance on nutritive activity cannot be so directly measured. It can find expression only indirectly through its two dependents, the formative and functional activities. During intrauterine life formative activity is in the ascendancy; it thereafter progressively declines while functional activity as steadily increases. It is not until some time after adolescence that formative activity becomes entirely quiescent in most organs of the body.

This point can be strikingly illustrated by two widely different clinical types, caused by the same hormonal disturbance, namely, cretinism and myxedema in the adult. The etiological factor in each is the same (deficiency of thyroid), yet the clinical manifestations are widely different and for the following reasons:

In the one (cretinism) the hormonal disturbance occurs at a period of development when both the formative and the functional activities are equally potent, and in a well-marked case of cretinism the distorted formative activity is manifested by well-marked organic lesions, such as deficiency in the number of brain and other cells of the body (manifested by dwarfing, imperfect osteogenesis, anatomical defects in the brain with resulting mental abnormality, etc.), and the disturbance of functional activity by varying degrees of mental torpor. In the other type (myxedema) the hormonal disturbance occurs at a later period in life, when formative activity is quiescent and the anatomical development of the brain is normally and fully completed, hence it is unaffected by thyroid insufficiency; therefore in this type it is the functional activity alone which is disturbed. In the one type (cretinism) if disturbance of formative activity has been prolonged for a sufficient length of time so as to inhibit the production of a sufficient number of brain cells for normal activity, no amount of thyroid therapy will suffice to restore the functional activity to normal, while in the other type (myxedema), in which no disturbance of the formative activity has occurred, complete restoration of functional activity rapidly follows the administration of thyroid extract.

In the beginning of a given hormonal disturbance the clinical manifestations may be those of a pure type (*i.e.* myxedema), but after a variable length of time other endocrine organs may become secondarily involved, so that the clinical type may be mixed.

Permit me at this point to bring home in a striking way to the reader the fact that if we hope to benefit or cure the cretin we must get that individual at the earliest possible moment before definite anatomical deficiencies have occurred, and supply that organism with the normal amount of thyroid substance through the whole period of formative activity, so that these anatomical defects cannot arise. If this can be done, we may hope to keep the functional activity in a normal state. The advice that thyroid substance should not be given over a long period of time in such a case is a mistake, because the normal body requires it, and if the gland cannot furnish the normal amount it must be given artificially.

There is a very close analogy between the disturbance of formative and functional activity produced by deficiency of thyroid hormones and similar disturbances produced by defects in the other endocrine organs of the body—the pituitary, adrenals, parathyroids, pineal gland, Leydig cells of the sex glands, etc.—and as in the case of thyroid insufficiency, these disturbances vary with the period of life at which the hormonal deficiency occurs.

While disturbances of the formative and functional activities are manifested by definite clinical phenomena, disturbances of nutritive activity, on the other hand, are quite impossible of demonstration as such, because they will manifest themselves either through a disturbance of the formative activity, or by a disturbance of the functional activity, depending upon which one of these two processes is active at the time; therefore, it seems advisable to ignore, for the present, the nutritive process in this classification.

A functionally active cell has what we might theoretically term a threshold of functional activity, namely, the point at which a given stimulus just begins to cause a functional reaction in the cell. Should the stimulus fall below this value, the cell would not respond. The reaction of the cell will increase with the increase of the strength of the stimulus above the threshold.

The threshold of functional activity is more or less constant in animals under normal conditions, but it may be raised or lowered by a change from the normal in the proportion of the chemical substances (a disturbance of the proportion of the hormones) in the medium in which the cell lives, or it may be raised or lowered by the introduction into the medium of some foreign toxin.

As an example of the first condition, hyperthyroidism would illustrate the lowering of the threshold of functional activity of many of the nerve cells as well as other body cells, causing a marked instability of the protoplasm of the cell body. Hypothyroidism, on the other hand, would serve to illustrate raising of the threshold of functional activity of the cells in the central nervous system as well as in other body cells, because of the resulting marked stability of the protoplasm, making it impossible for the afferent impulses to elicit response and be translated into functional activity.

As an illustration of the raising of the threshold of functional activity by toxins may be mentioned the effect of ether, which acts selectively upon certain centers of the nervous system, causing a state of unconsciousness, but not raising the threshold

of functional activity of certain lower centers in the central nervous system, circulatory and respiratory centers, etc., thereby allowing the patient to continue the function of these lower centers.

As an illustration of lowering the threshold of functional activity by toxins may be mentioned the effect of strychnine, which acts selectively upon certain groups of motor cells, producing marked instability of their protoplasm, resulting in abnormal excitation by afferent impulses.

The threshold of functional activity of those cells selectively affected by the above changes will either be raised or lowered, as the case may be. This selective action on the cells by hormones or foreign chemical substances is of the greatest importance, and the writer believes that by this only can we explain the great variety of clinical syndromes in the cases to be subsequently considered.

The cerebrospinal and sympathetic nervous systems are made up of a large number of complexly arranged neuron systems, which have been, step by step, evolved through a long period of phylogenetic development. Each system of neurones has a definite physiological value and must necessarily respond selectively to different chemical substances. If nature had not so arranged, such a complex organism as the human being could never have developed. Note the selective action of the product of the chromaffin system, interrenal system, thyroid, parathyroid, pituitary glands, etc., and the selective action of pilocarpine on the part of the sympathetic (sweat gland) and on part only of the autonomous nervous system (salivary glands).

Anesthesia would not be possible if it were not for the selective effect on the nervous system of ether, chloroform, etc. These substances temporarily raise the threshold of functional activity of the perceptive and apperceptive cells of the brain to such an extent that no impulses can reach them. They remain dormant, the person is unconscious, but the neurones controlling respiration, circulation, etc., are not so affected and hence life continues.

Thus we see that one of the fundamental principles in physiology is the selective affinity certain groups of cells have for certain chemical substances, and thus may affect the cells in such a way as to stimulate or inhibit one or all of the three life processes.

The functions of the higher nervous centers may, for all practical purposes, be divided into two groups, viz. (1) *intellectual* and (2) *affective*. The functions of these two departments of the mind are executed by a great number of systems of neurones in each department. It can therefore be inferred that intellectual activity and emotional activity are both exceedingly complex processes. From a close observation of cases, it appears that either the intellectual or the affective side may be disturbed independently of the other, and the disturbance may be expressed by over-activity or under-activity, or both the intellectual and the affective sides may be synchronously disturbed in the same individual. In other words, when the intellectual side is seriously affected so that its functions are not normally executed, we may have an intellectual deficiency without affective disturbance; while, on the other hand, an *affective* (psychopathic) disturbance may be

present without intellectual deficiency. Both these groups are, however, classified as mental deficiency.

The intellectual centers may be disturbed in three ways, viz., (1) The brain may not be normally developed and those neurones which are concerned with the intellectual processes may be deficient in number (formative disturbance). (2) The intellectual centers may be unable to functionate normally because some of the cells have been destroyed by trauma (traumatic type). (3) The neurones may be present in sufficient quantity and anatomically normally arranged and yet be incapable of functioning in a normal manner because the threshold of functional activity has been raised so high that the neurones cannot respond to stimulation (functional type, of which an example is myxedema).

The affective side of the mind may be disturbed in the same manner, viz., (1) Those centers which are concerned with the affective mentality may not be normally developed (formative disturbance). (2) Those neurones which functionate for the affective side of the mind may have been injured or destroyed (traumatic type). (3) The neurones may be functioning excessively or deficiently because of lowering or raising of the threshold of functional activity of the various neurone systems of this group (functional type).

Many individuals suffer with emotional instability (a disturbance of the affective side of the mind) because the threshold of functional activity of many of the neurones of this group has been lowered to such an extent that it is on the "hair-trigger." The emotional make-up of such individuals is temporarily (or permanently) in a state of chaos; under the influence of appropriate stimuli, which are insignificant to the normal person, they will cry out, fly into a fit of temper, commit unprovoked assault, and, although intellectually conscious of the folly of their acts, are totally unable to control these psychic discharges.

On the other hand, many persons are almost entirely devoid of emotion; they display no love, pity, grief, or joy. The thresholds of these specific neurone systems are so high in these individuals that they cannot be emotionally aroused—the whole mentality is occupied by the ego.

In this group of cases with affective disturbances are found most of the criminal types—individuals whose mental make-up is disturbed in one of its many aspects, *e.g.* the sex pervert, the kleptomaniac (in many instances), the person who, in an uncontrollable fit of temper, commits some act of violence toward another, and many other instances which limited space will not allow the writer to enumerate.

These two departments of the mind present no sharp line of demarcation. There may be an equal disturbance of the intellectual and affective departments, or the intellectual disturbance may be greater than that of the affective, or vice versa, while in still other cases one department may be normal and the other absolutely defective.

Our knowledge concerning stimulation and inhibition of the three life processes in the animal and vegetable kingdoms is still very limited. All efforts directed at the solution of the problem of mental deficiency must ultimately converge upon these questions:

What are the factors which stimulate the formative process to activity during a certain period of an individual's life (from the conception of the ovum to the period of maturity)?

What are the factors which may inhibit this process during the growth period (pathologically) and do inhibit this process after that period normally? Why does the physical growth of an individual cease, after maturity, in nearly every other department of his economy and yet persist with unremitting vigor throughout life in the hematogenous organs; what determines this selectivity?

What are the factors which keep the "threshold of functional activity" of a living cell at a constant norm so that this cell will respond normally to external stimulation? And, on the other hand, what are the factors which may raise or lower the threshold of functional activity of cells?

The present state of our knowledge is insufficient for a definite solution of these intricate problems. However, from careful observation of clinical types of mental deficiency, and by rational interpretation and deduction from a small but clearly defined group of scientific data concerning the endocrine organs we can make certain observations with some degree of assurance.

This paper is presented to the profession in an endeavor to establish certain fundamental principles and to outline in a general way a rational conception of mental deficiency as it appears to the writer. No attempt has been made to discuss any specific groups of cases, but the writer hopes to present, in the near future, a series of articles in which he will make an effort to classify properly individual types of mental deficiency.

40 EAST FORTY-FIRST STREET.

COTTON-PROCESS ETHER.*

By W. G. HUDSON, M.D.,

NEW YORK AND WILMINGTON, DEL.

MEDICAL DIRECTOR, E. I. DU PONT DE NEMOURS & CO.; CHAIRMAN, SUBCOMMITTEE INDUSTRIAL DISEASES AND POISONS OF THE ADVISORY BOARD, COUNCIL OF NATIONAL DEFENSE.

PERHAPS the proper place to present a paper of this kind would be before the Society of Anesthetists, but there are a number of reasons why I prefer to present it before you. In the first place, I am not an anesthetist in the specialist sense, but only in the sense that we are all anesthetists at times, when the occasion demands. In the second place, and what is of more importance, this whole matter is so revolutionary, and so at variance with our old ideas in connection with ether anesthesia, that it would be accepted by the professional anesthetists only after prolonged argument and demonstration; and if there is as much to it as I believe, you will readily appreciate the necessity of getting the new ether produced at once in quantity and into the hands of our own and our allies' military surgeons.

I will first lay the proposition before you just as it is, and then take up in detail its development, and finally give a demonstration.

Please remember that it is not my idea, but that of a highly esteemed Canadian colleague, Dr. James Cotton, who is one of the surgeons at McGill Uni-

versity, Montreal. He has spent about five years in the study of ether from both the chemical and physiological standpoints, and to put his startling discoveries into a few words, they are as follows: He found that perfectly pure ether, for the manufacture of which an entirely new process had to be devised, is not an anesthetic at all, but produces, upon inhalation, merely a transitory stimulation similar to that from alcohol. Commercial anesthesia ether is by no means pure, but contains two sets of impurities, one of which produces the anesthesia, which we have been attributing to the ether itself, and the other the undesirable after effects which have been so great a drawback to the administration of ether. He then proceeded to charge his chemically pure ether with only the desirable impurities, going beyond the proportions in which they exist in ordinary anesthesia ether. When this was done, not only were the undesirable after effects eliminated, but it was found possible to produce an entirely new type of anesthesia, in which the patient can be maintained in a condition in which all sensation is abolished, but in which he is perfectly conscious, can carry on a conversation intelligently, and can even walk about, although rather unsteadily. If the amount administered is reduced, sensation begins to return, while, if it is pushed, the condition passes over into the ordinary surgical anesthesia, with loss of consciousness but without any intervening stage of excitement.

These ideas, when I heard of them, seemed so revolutionary that I paid scant attention to them, and when notified that Dr. Cotton was to give a demonstration upon the subject in Montreal last spring I did not feel like taking the time necessary to attend, but detailed one of my assistants to attend his lecture and demonstration, make notes, and send me a report. The following is his report:

June 20, 1917.

DR. W. G. HUDSON, MEDICAL DIRECTOR, WILMINGTON, DELAWARE.

DEAR DOCTOR.—Following instructions, I went to Montreal and attended the lecture given by Dr. James Cotton at McGill University on Wednesday, June 13, and the demonstration which he gave at the Royal Victoria Hospital on Thursday, June 14, 1917, on "New Ether."

In 1912, when acting as anesthetist at the Toronto General Hospital, Dr. Cotton noticed that the ethers manufactured by various concerns acted in varying ways. The ethers varied in amounts necessary to produce the required anesthesia, and the nausea and ill effects following the administration also varied. Dr. Cotton began his work to determine why this was so and why ether produced anesthesia. After five years of chemical analysis and experimental work he came to the following conclusions:

Pure ethyl ether will not produce either anesthesia or analgesia; ether owes its anesthetic powers to the impurities which it contains. The impurities he divides into three classes, as follows:

1. Irritative impurities which are: Aldehydes, ketones, methyl ether, propyl ether, butyl ether, amyl ether. Aldehydes present in the proportion of one-tenth of 1 per cent. will cause irritation. The bad smells of ether are due to organic acids.

2. Anesthetic impurities which are: Carbon dioxide and ethylene.

3. Toxic impurities like CO and peroxides.

Pure ethyl ether with the addition of ethylene or carbon dioxide will give complete analgesia without the loss of consciousness or without any unpleasant after-effects. Dr. Cotton claims that the sickness following the administration is due to alcohols and carbon monoxide. There is a possibility of carbon monoxide being formed in the ether when the top of the can is soldered

*Paper read before the Medical Conference Board of the National Affiliated Safety Organizations, Feb. 23, 1918.

in place. Superheated ether causes profound sickness after its administration.

Endorsement by the Canadian Medical Society.—The following is a paper issued by the Canadian Medical Society and based on Dr. Cotton's lecture on "New Ether." The reading of the paper on anesthesia yesterday showed:

1. That ethyl ether (pure) on administration produces only circulatory stimulation and peripheral vasodilatation (sleep following only if there is sufficient brain anemia resulting); *no less of pain sense.*

2. In commercial ether there also occur alcohol, and dimethyl ether, methyl ethyl ether, methyl propyl ether, which act the same as ether.

3. Outside of the physiological properties connected with the substances mentioned in Groups 1 and 2, these groups act only as a solvent for ethylene.

4. *Ethylene is the gas present in commercial ether which is responsible for analgesia.* It causes peripheral vasomotor spasm and circulatory depression.

5. Carbon dioxide may be used in place of ethylene, but the action is not so powerful and sleep intervenes usually before complete analgesia is obtained.

DEMONSTRATION GIVEN AT ROYAL VICTORIA HOSPITAL ON FRIDAY, JUNE 14, AT 8.30 A.M.

1. Administration of pure ether and ethylene to a cat. The animal became fully anesthetized in about three minutes. It was suspended by one ear and by its tail and showed no evidence of pain or discomfort, but still was able to see and walk around.

2. Patient was a Chinaman suffering with a severe infection of the right arm. Pure ether and CO₂ under pressure were given. At this time Dr. Cotton remarked the commercial CO₂ could not be used, but must be especially prepared and absolutely pure. The patient was anesthetized in about three and one-half minutes, and Dr. Edward Archibald made five incisions extending from the shoulder nearly to the elbow. During this procedure the patient was wide awake and looking about the room, but suffered no pain. After the anesthetic was stopped about thirty seconds the patient complained of pain and was thoroughly awake while the dressing was being done. He showed no signs of nausea or ill feeling.

3. The same cat that was used in No. 1 was brought in and pure ether was given. After several minutes of administration the exciting stage came on and the cat acted as if drunk. Later it quieted down somewhat, the effect of the slightest irritation showing that this ether did not act as an analgesic. Upon release the animal was able to stagger away.

4. Compound comminuted fracture of right elbow. Patient was given pure ether plus ethylene to the extent of about 2 per cent by volume. Patient went under after about two minutes and Dr. C. B. Keenan went in at the elbow and removed several small splinters of bone. During the operation the patient was wide awake and spoke fluently when spoken to and said he felt no pain; almost immediately upon withdrawal of the ether he complained of pain, but no nausea.

None of the subjects demonstrated showed any nausea either before, during, or after the administration of the ether.

In demonstration (3) there was an excitement stage, but none in 1, 2, or 4.

Following the demonstration by Dr. Cotton I had a good opportunity to talk to many of the Canadian physicians. They were all very strongly impressed by the demonstration and expressed their belief that ether made up to Dr. Cotton's standards would revolutionize the whole field of anesthesia and be a wonderful step in advance. They were all unanimous in the belief that Dr. Cotton's ether was far superior to ordinary ether as used at the present time, and seemed very proud of the fact that a Canadian physician should be the one to make such a wonderful discovery.

G. H. GEHRMAN, M.D.,
Resident Physician, Parlin Plant.

Since Dr. Gehrman made his report Dr. Cotton has written the matter up in greater detail and published it in the *Journal of the Canadian Medical Association* for September, 1917, to which any who are further interested may refer.

It is hard for many of us to accept such radical ideas as these without further confirmation, and it is quite evident that confirmation would be still harder for the rank and file of the profession to obtain, for one must have a well-equipped laboratory and unusual chemical training to go into the chemistry of ether as Dr. Cotton has done. I happen, however, to be more fortunately situated in this respect than most of us, through my connection with the DuPont Company. As you doubtless know, enormous quantities of ether are manufactured nowadays for use as a solvent in making smokeless powder. Therefore, it was clearly possible, with the help of one of our ether chemists (Dr. Foote) to check up Dr. Cotton's ideas, and this has been done. I have here some of the ethylene-charged ether, which I will shortly proceed to demonstrate.* About 58 operations have been done under this peculiar type of anesthesia without loss of consciousness, which Dr. Cotton has described, but I desire to increase the number greatly before advocating the setting up of manufacturing equipment for making this ether on a large scale. All of that so far made has been turned out in laboratory apparatus by a skilled chemist, and of course the cost by this method is prohibitive and the output small. Enough can be produced, however, to supply all of you gentlemen with samples if you desire to try it, and will promise to let me have your reports promptly.

You can readily see what a tremendous application this kind of ether would have in warfare, a field entirely apart from the ordinary surgical anesthesia. Even minor painful procedures, like a painful change of dressings, where anesthesia would not ordinarily be thought of, would call for it, with an enormous saving of suffering. As to its applicability in the minor surgery of the industries to which so many of us give our time and attention, I do not have to say anything, as you will all see the point at once. Another field in which striking results have been obtained is in obstetrics, where the small quantity needed to cause analgesia seems to have no influence in retarding the labor or in producing any other undesirable effects. In fact, its numerous applications continue to expand as one gives thought to the matter.

The analgesic condition seems to be very similar to the "primary anesthesia" we can obtain with ordinary ether, but with the difference that while primary anesthesia is very brief Cotton's analgesia can be extended several hours if need be.

When the administration of the new ether is pushed to the condition of surgical anesthesia, it does not differ greatly from that of ordinary ether

*The demonstration consisted in Dr. Hudson's charging a bottle type inhaler, of the pattern recommended by Dr. Cotton, with the new ether, and inviting the members to try it upon themselves. Three of them did so, while observations were made upon them by the others present. No difficulty was experienced in obtaining the analgesia described, those taking it carrying on an intelligent conversation meanwhile. In making the tests for sensation a wound was inadvertently inflicted upon one member which it was thought best to treat with an antiseptic.

In closing, Dr. Hudson asked those present not to confuse the new ether with the anesthesia ether being made by the DuPont Company, the latter being merely an ordinary anesthesia ether made according to the specifications of the U. S. Pharmacopœia.

except in relative freedom from after effects. It has one disadvantage, in that recovery from it is unusually quick, so that in two cases where it was used in this way, and the administration discontinued at the usual time at the command of the surgeon, the patient promptly returned to full consciousness before he could be sewed up. Personally, I believe that ethylene is not the only anesthetic carried in anesthesia ether, and that a little more research will disclose some deeper acting narcotic, which, when also added, will give a perfect ether for surgical anesthesia. But it is surely working in the right direction to add these substances in definite amounts to a perfectly pure ether, rejecting the harmful ingredients, now that we know that ordinary anesthesia ether is merely an accidental carrier of other substances.

OBSERVATIONS ON PYELITIS.*

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FROM the standpoint of diagnosis we are not as well acquainted with pyelitis as is popularly supposed. In proof of this assertion I cite the following: of 20,770 autopsies collected by Kapsmann of Vienna, pyelitis occurred 750 times and was correctly diagnosed during life in less than one-third the cases. Of the 50 cases I studied from the records of the Lebanon Hospital, the correct diagnosis was made by the family or admitting physician in six instances only, a percentage of 12. Of course, this low proportion of correctly diagnosed cases in hospital practice is due to the fact that cases recognized by the family physician are usually treated at home, the hospital receiving only the puzzling cases. But it is well known that pyelitis is in the majority of instances not recognized by most men before the third or fourth visit.

Pyelitis is defined by Osler as an inflammation of the pelvis of the kidney and the conditions which result from it. Cabot and Crabtree believe that the convoluted tubules are always temporarily involved in pyelitis, and have substituted the term pyelonephritis for what is usually known as pyelitis.

It occurs in all ages. Our youngest patient was three months old, and the oldest 46 years. In the hospital it is met with almost as frequently in the adult as in the pediatric wards.

From a study of the literature it seems evident that pyelitis is in nearly all cases due to bacterial invasion and multiplication. The kidney can usually eliminate bacteria carried to it, and becomes infected only when its resistance is lowered by some general or local cause. In this series among the important etiological factors were calculi, previous kidney disease, operations on the kidney, tuberculosis of the kidney, pregnancy, the puerperium, and associated with acute disease. These conditions are, of course, predisposing factors, lessening kidney resistance in one way or another. It is interesting to note the important part that pressure on the ureter plays in the latter half of pregnancy. Cruveilhier, in reporting autopsies in pregnant women, states that he found the ureters distinctly

dilated above the point of pressure. It usually occurs on the right side, which, according to Vineberg, is due to the fact that the gravid uterus and fetus more frequently occupy the right oblique diameter of the pelvis.

In cystoscopic examinations in cases of pyelitis of pregnancy, Pilcher found several instances of marked distortion of the vesical portion of the ureter. He believes that in the latter half of pregnancy pressure is the most important predisposing factor, and early in pregnancy the disease is due to toxic influences and hematogenous infection.

Several observers emphasize the association of pyelitis with gastrointestinal disturbances, especially in children.

The urine was cultured in ten cases, with the following results: Colon group, five cases; colon and staphylococcus, one case; staphylococcus, one case; streptococcus, one case; culture sterile, two cases. The percentage of positive culture was eighty. Cultures are now routinely taken and will undoubtedly show causative organisms reported by other observers, as the *Bacillus proteus*, gonococcus, and tubercle bacillus. French authors have called attention to the fact that bacilluria is present early; in many cases preceding the appearance of pus.

The mode of infection is given as: (1) ascending, (2) lymphatic, (3) hematogenous, (4) intestinal. Cabot and Crabtree conclude from their studies that the infection is hematogenous. Smith traces the course of infection thus: from the intestinal tract, or other focus of infection, the organisms enter into the lymph or even directly into the blood; from the lymph they pass to the blood, whence they are brought to the kidney, pass through the glomeruli and tubules, and are excreted into the pelvis.

The prevalence of the disease in females, the frequency with which the colon bacillus is found in culture and the proximity of the female urethra to the anus are held by Quinby and others to be strong points in favor of the ascending theory of infection.

Symptoms.—The symptoms are both local and general. In the acute cases, the local symptoms are usually of comparatively short duration, while they are more pronounced and continuous in the subacute and chronic ones. The usual case begins suddenly, with pain in one or both lumbar regions, ordinarily, however, one lumbar region. In a considerable number of cases the initial pain is experienced and often continues in the iliac or hypochondriac regions. There are chill, fever, sweat, nausea, vomiting, headache, nervous symptoms, the latter especially common in children; in fact, one child was sent to the hospital as a case of meningitis. Urinary disturbances are very common; frequent, difficult, or painful micturition is complained of either singly or together. In a few instances the patients noted cloudy urine or blood therein. In the majority of cases many of the above-mentioned symptoms are present, but in a considerable number, especially so in children and parturient women, only one or two symptoms of the most general nature may be present. Therefore, a routine microscopic examination of the urine is of vast importance.

The onset may be sudden or gradual. In this series it was sudden in two-thirds of the cases.

Pain.—The character of the pain varied; it was

*Read before the Lebanon Hospital Alumni Society, Nov. 17, 1917.

most frequently described by the patients, and qualified by several adjectives, as knife-like, stabbing, lancinating, and shooting; next in frequency came cramp-like, and then dull aching, especially in subacute and chronic cases. It was usually intermittent and of short duration in the acute, and rather constant and of long duration in the subacute and chronic cases. In over one-half the cases the pain started in the lumbar region; in four instances in both lumbar regions, but in three of them it rapidly subsided on one side and continued only on the opposite side. In thirteen cases the pain commenced in the iliac fossa, in five in the hypochondriac region, and in two in the epigastrium. In only six cases was there no transmission. The usual route of transmission was from the back to the pubic region, and in many cases it continued down the thigh. Transmission was also present in the opposite direction, *i.e.* from the iliac or hypochondriac regions to the back. In one case of chronic pyelitis the patient stated that she felt worse when thirsty and was relieved by drinking.

Chills.—The majority of the patients had one or more chills. A few only had chilliness; a small minority had neither chill nor chilliness.

The fever was in most cases remittent, although a considerable number showed the intermittent type. In some cases it rose several times to high levels after three to four days of practically normal temperature. Temperatures of 104° and even 105° were not at all uncommon, especially in children, nor was the septic type rare.

Nausea and Vomiting.—The great majority of the patients vomited, and most of them repeatedly.

Urinary symptoms were entirely absent in eight cases, although a considerable number commenced with urinary symptoms.

Bowels.—Constipation was the rule, although a considerable number had normal movements and four patients had diarrhea.

Marked nervous symptoms were encountered in four patients, ranging from symptoms of meningeal irritation to severe prostration.

Physical Signs.—The local tenderness in the lumbar region elicited by the Murphy or fist percussion, was of great diagnostic significance, especially in the acute cases. In the subacute or chronic the response, although present, was not as marked as in the former group of cases. In a few patients the kidney was palpable. In those cases in which iliac or hypochondriac pain was present, although tenderness was elicited, yet there was marked laxity of the abdominal muscles. This proved to be a very important sign.

Laboratory Findings.—The urine was almost uniformly acid, and contained from a faint to a moderate trace of albumin. Microscopically, the findings varied from a few white blood cells to abundant pus, red blood cells, and epithelial cells. On a few occasions pus was not found until the second or the third examination. In several instances pus urines were followed by clear urine, in turn to be followed by very cloudy, pussy urine. The bacteriological findings are given above.

In the blood count only the white blood cells and differential counts were of diagnostic importance. The average count was 15,000 and polymorphonuclear cells 78 per cent. The highest count was

30,000 (pyelonephritis having developed) and the lowest 6,000. In 23 cases the count was below 13,000. The onset of complications caused the counts to rise.

Diagnosis.—In arriving at a diagnosis of pyelitis one must remember that he is dealing with a disease which, especially in children, is likely to manifest itself by very few and quite general symptoms. Urinary examination is imperative, and even in infants all efforts should be made to collect and examine the urine. In male children it can easily be obtained by strapping a test tube about the penis; in females, massage and pressure over the bladder may be used and the urine caught in a waiting receptacle. If necessary, catheterization under sterile precautions may be resorted to. Pyelitis is easy to recognize when the characteristic symptoms, as chill, fever, vomiting, pain in the back with radiation, and pyuria, are present. On physical examination, a positive Murphy percussion sign and a lax abdomen, even if tenderness is elicited in the iliac or hypochondriac regions, is of marked diagnostic significance. An absolute diagnosis can be made only by examination of the urine, obtained by catheterization of the ureter.

Differential Diagnosis.—In making a differential diagnosis it will be interesting to note the diagnoses made by the family and admitting physicians in this series:

Acute appendicitis.....	8 cases	Not stated.....	6 cases
Perforating appendicitis,		Renal calculus.....	3 "
1 case		Intestinal intoxication,	
Pleurisy.....	1 "	1 case	
Pyelitis.....	6 cases	Gastroenteritis.....	1 "
Gastritis.....	1 case	Intestinal obstruction..	2 cases
Cholecystitis.....	4 cases	Meningitis.....	1 case
Ruptured ectopic		Asthma.....	1 "
pregnancy.....	1 case	Salpingitis.....	4 cases
Vaginal abscess.....	1 "	Sepsis.....	1 case
Nephritis.....	1 "	Typhoid fever.....	2 cases
Hematuria.....	1 "	Threatened abortion..	1 case
Vomiting of preg-		Menopause.....	1 "
nancy.....	1 "		

Thus it will be seen that one of the most important conditions from which we have to differentiate acute pyelitis is acute appendicitis. Both diseases have an acute onset, but appendicitis is rarely ushered in by a chill, while this is very common in pyelitis. Chills do occur in appendicitis, but only after the disease has lasted some time, and usually is indicative of abscess formation or rupture. This was the teaching of the late John B. Murphy. The pain in appendicitis usually begins in the epigastrium or about the umbilicus and radiates to and in a short time terminates by, a constant non-radiating pain in, the right iliac fossa. In several hundred cases I have never seen radiation down the thigh, although Schmidt in his treatise on pain states that radiation down the thigh does occur, though rarely, in appendicular colic. Lumbar pain and radiation to the inguinal region may occasionally occur with a retrocecal appendix. In the vast majority of instances, after appendicular pain has become localized in the right iliac fossa, radiation ceases. Initial fever in pyelitis is usually higher than in appendicitis and often shows a septic tendency, whereas in appendicitis it is usually more stable, rising with the increasing area or extent of infection. Of course, it is too dangerous to delay operation in a case of appendicitis to watch the temperature curve. Urinary disturbances are very common in pyelitis and uncommon in appendicitis, unless periappendicitis or peritonitis

has involved the bladder, a condition usually occurring late in this disease. A positive Murphy sign in the lumbar region is strongly in favor of renal or perirenal involvement, except in a very small percentage of retrocecal appendices, which sometimes give a positive Murphy sign when inflamed. Another good point in favor of pyelitis is flaccidity of the abdomen in the presence of iliac tenderness. The blood count, especially the polymorphonuclear count, is in the uncomplicated cases of pyelitis somewhat lower than in appendicitis, the former rarely going above 80 per cent., while in the latter it is the usual occurrence. In children, the polymorphonuclear count is in both diseases lower than in adults. While the urine in appendicitis may contain some pus cells, it presents in the main a fever picture. Of course, everything in medicine is possible, and both diseases may coexist occasionally. Gammeltoft of Copenhagen, in speaking of the differential diagnosis between appendicitis and pyelitis of pregnancy, states that cystoscopy does no harm even near term. It has been done in this hospital for differential diagnosis in borderline cases, but as yet there has been no occasion for it in pregnant women. Should cystoscopy still leave the condition in doubt, were I the patient I would prefer laparotomy rather than run the risk of neglected appendicular disease, with its possible gangrene, rupture, and peritonitis. Several surgeons and internists whom I have consulted have agreed with me in this respect.

Pyelitis must also be differentiated from other abdominal conditions, such as cholelithiasis and cholecystitis, salpingitis, etc. It is quite frequently mistaken for pneumonia. To sum up, pyelitis can be differentiated from other diseases by careful questioning, thorough and detailed physical examination, bearing in mind the value of Murphy percussion, the level at which it is obtained (usually at a lower level in pyelitis than in cholecystitis), and flaccidity of the abdomen in the presence of tenderness. Careful examination of the urine is, of course, paramount.

Prognosis.—There were no deaths in this series. Lately there have appeared several papers showing that the prognosis is not always favorable. The danger is pyelonephritis and pyonephrosis. Termination of pregnancy is not frequently necessary. Cragin believes that if symptoms continue and the child be viable interruption is indicated. Reed thinks that premature labor occurs in 50 per cent. of the cases. Ross of Toronto advises interruption of pregnancy if the symptoms are marked.

Treatment.—All observers agree as to the advisability of flushing. Water a plenty is the keynote of most therapists. In the drug treatment of the disease urotropin has come into almost universal use. Its action has been shown to depend on the liberation of formaldehyde, which it does only in acid media. Smith states that the best agent for making and keeping the urine acid is one-half teaspoon of acid sodium phosphate three times a day. Burnam has shown, and Jenner and Smith have confirmed his work, that with 5 to 10 grain doses of urotropin only two out of ten patients showed free formaldehyde in the urine. With 20 to 30 grains of urotropin over 60 per cent. of the patients showed formaldehyde. Many observers caution as

to the kidney irritation likely to be set up by urotropin and stop its use on the first appearance of red blood cells. Abt states that the dose in infants under one year ought not to exceed one grain and should be given in plenty of water. In adults the rational therapy seems to be moderately large doses, careful watching of the urine, and stoppage of urotropin on the first appearance of red blood cells. The scientific method would, of course, be to give that dose which would cause formaldehyde to appear in the urine. Formaldehyde can be tested for in the urine by one of several methods.

Jordan found that oleum santali has a selective action on the staphylococcus and none on the colon bacillus.

The alkaline treatment is based on the fact that the urine in pyelitis is in most cases acid. The alkalization is usually accomplished by administration of potassium citrate. In children, Freeman believes that the urotropin treatment is superior to the alkaline.

Quinby advocates the study of the causative organisms, especially as to their acid and gas production. He advises growing them according to the method of Clark and Lubs, and find the acid or hydrogen ion concentration in the medium. From this can be determined whether the acid or alkaline treatment is in order.

Postural Treatment.—Pilcher has shown that position is of great aid in treatment. He catheterized a patient in the sitting and in the lying positions, and obtained 4 c.c. in one minute when the patient was sitting and only 2 c.c. in ten minutes when the patient was lying. Elevation of the head and trunk and lowering of the pelvis afford drainage. Gammeltoft advises placing a pregnant woman on the side opposite to her lesion in order to relieve pressure on the affected pelvis.

Vaccine Treatment.—Reports as to the efficacy of vaccines differ. Cabot and Crabtree found that patients suffering from hypertrophy of the prostate, when treated with vaccines, developed no postoperative pyelitis; the immunity, however, is of short duration, and for the vaccines to be effective it must be continued throughout the convalescent period.

Local Treatment.—Pilcher obtained some very good results in pregnant women by washing the pelvis of the kidney with saline and injecting 40 to 50 per cent. solution of argyrol. Some men are using $\frac{1}{2}$ to 1 per cent. of silver nitrate for ureteral injection. In cases of marked pelvic retention Pilcher left the catheter in place for a few hours in order to get drainage. He reports good results. Gammeltoft, however, warns against washing out the pelvis, claiming that it may spread infection, and cautions against leaving the catheter in place, as hemorrhage may result. In pelvic retention, he claims that filling of the bladder often excites reflex ureteral contractions and may frequently give relief. He uses vaccines to ward off recurrences. Pilcher treats his cases medically for at least ten days before resorting to local treatment.

Quinby calls attention to the fact that in some cases of chronic pyelitis in children, especially females, cystoscopy and local treatment may be instituted with benefit. Cystoscopy is possible in children, although it should not be tried until the patient has had a good course of medical treatment.

To conclude the remarks on treatment, it is proper to say that medical treatment suffices in the vast majority of acute cases and that local and vaccine treatment are coming into their own in the chronic cases.

BIBLIOGRAPHY.

- Freeman: *American Journal Diseases of Children*, August, 1913.
 Quinby: *J. A. M. A.*, Feb. 24, 1917.
 Pilcher: *Surgery, Gynecology and Obstetrics*, February, 1910.
 Vineberg: *American Journal of Obstetrics*, 1908.
 D. E. Buys: *Southern Medical Journal*, March, 1916.
 Bartlett: *New York Medical Journal*, Oct. 18, 1913.
 Cabot and Crabtree: *Journal A. M. A.*, February, 1917.
 Gammeltoft: *Ugeskrift for Laeger*, Copenhagen, January, 1917.
 Smith: *American Journal Diseases of Children*, March, 1913, and September, 1916.
 Holweg: *Münchener medizinische Wochenschrift*, July, 1913.

1613 WASHINGTON AVENUE.

NERVOUS DISEASES OF SENILITY.*

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THE diseases of the cerebrospinal axis and the peripheral nerves in the aged may be classified as primary, namely, when the parenchymatous tissues are primarily and directly affected; or, again, as secondary, when due to changes in the vascular and lymphatic systems supplying the nerve tissues. These phases, however, cannot always be sharply separated from one another when we view the pathology of the neuraxis of senility in its macroscopic and microscopic appearance.

In normal old age the nervous system has undergone and still undergoes a process of slow decay. The brain shrinks, the cortical grey matter becomes thinner, and the fissures shallower, and this shrinking is compensated for by an increase of ventricular and subarachnoid fluids. In the spinal cord and peripheral nerves many of the medullary sheaths disappear. If these primary neuron changes become exaggerated, the condition becomes pathological and gives rise to the degenerative affections of old age.

This accentuation may be general or local, resulting in definite symptom complexes. This is also true of pathological conditions resulting from vascular changes.

According to Rokitsansky and others it has been established that the cerebral arteries are the ninth in the scale of frequency to be attacked. Macroscopically viewed the vessels of the brain are tortuous and irregular, their walls thickened, and their lumen proportionately diminished. Through extensive lime deposits these vessels become hardened tubes. On the inner surface they can be found as round, opaque, or yellowish elastic nodules, preeminently at points of bifurcation of the larger vessels or just where smaller ones branch off.

The histological picture of this change is that of a proliferating process in the walls of the vessels alongside regressive or inflammatory changes. The

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intima is irregularly thickened and its wavy regularity becomes lost and in places broken. Its endothelial cells may become loosened and float about. The loose elastic fibers proliferate and organize into a secondary internal elastic layer of a meshwork of fine fibers. Very few nuclei are found in it and no real round cell infiltration. The elastica interna frequently tears and gives rise to aneurysmal formation, although tears were noted without aneurysms.

The muscularis of such vessels may be atrophied and contain only a few nuclei or again may be hypertrophied and be rich in nuclei. In this coat one may find a diffuse or nodular proliferation of elastic fibers or again a loss or atrophy of pre-existing elastic fibers.

In the adventitia we find a proliferation of nuclei, especially in its outer layer. This nuclear augmentation favors certain localities, such as the angles of junction and of bifurcation. The Virchow-Robin-intra-adventitial spaces are as a rule distended and contain cellular elements and pigment. The proliferation of elastic tissue is here also evident. This is the picture of arteriosclerosis.

The changes in the veins are those of a fatty degeneration and a granular metamorphosis of the middle and inner coats. At times the adventitia is also involved. In old apoplectic foci one notices circumscribed or diffuse dilatations in the intra-adventitial lymph spaces. Here the changes are not as constant as in the arteries.

The perivascular lymph spaces are affected only in apoplectic and encephalomalic foci, where they are frequently dilated over five times their original size.

Alongside these changes we observe progressive and regressive trophic disturbances with true inflammatory changes in the inner and middle coats, giving rise to what is termed atheroma of the blood vessels.

Through such changes the lumen of the vessels may become diminished or entirely occluded; especially is this true of the smaller vessels. In the larger vessels a thrombus may form and ultimately occlude the lumen. The brain capillaries are rarely affected.

The disturbance of the circulation through such a narrowed or occluded vessel causes a deficient nutrition of the contiguous brain substance leading to encephalomalacia, while hemorrhages result from damage in the brittle vessel wall. Aneurysms, on the other hand, give rise to intracranial pressure and consequent degeneration of tissues. They may also burst when subjected to abnormal pressure from within and cause hemorrhages.

Symptoms resulting from such vascular states have often been mistaken for neurasthenia, hysteria, chronic meningitis, and even brain tumor.

Among the general symptoms are general muscular weakness, impairment or loss of memory, change of disposition, and mental irritability or even instability.

Among the special symptoms some have noticed a peculiar hyperesthesia in old people, not confined to the skin alone, but also caused by movement of any part of the body. Vertigo is one of the most distressing symptoms of chronic endarteritis. Grasset has divided this vertigo into simple vertigo,

vertigo with epileptiform crises, and vertigo with slow pulse and syncopal epileptiform attacks. The vertigo usually manifests itself as a sudden attack of nausea and faintness, a feeling of giddiness. The patient sees objects rotating about him, or a sudden darkness befalls him and a feeling of impending death. These attacks recur at intervals of varying duration and with varying degrees of intensity. When particularly severe, the patient may even fall, but consciousness is rarely lost.

When we come to consider special syndromes resulting from secondary changes of the brain tissues in arteriosclerosis the old rule holds good, namely, that they are entirely dependent upon the site of the lesion and not its character. And the extent of the symptoms is in direct ratio to the extent of the site involved. Thus an involvement of the motor area of the brain will give rise to spastic hemiplegias or diplegia and motor aphasia. If the sensory speech areas are involved we shall get sensory aphasias, such as word deafness or blindness and astereognosis. If both motor and sensory areas are involved, we get apraxia.

This rule also holds good in spinal cord involvements. The so-called senile paraplegia is the result of secondary cord changes, giving the picture of a transverse myelitis with lateral tract degeneration. Here we have a spastic paralysis of both lower extremities with exaggerated reflexes, clonus, and the Babinski phenomenon, and bladder and rectal sphincter involvement leading to either retention or incontinence of urine or feces.

A hemorrhage into one part of the cord gives rise to Brown-Séquard's syndrome, namely, a spastic paralysis in the leg on the side of the lesion and a loss of pain and temperature sense in the other. It is not unusual to see a case of central cord softening with paralysis and loss of pain and temperature sense in both legs. In this connection we may remember that various forms of tremors, choreiform, athetoid, and intention tremors are at times an accompaniment of hemiplegias.

Since most investigators consider Parkinson's disease an expression of premature senility, when occurring in the middle aged, we may be pardoned for including this clinical entity among the senile affections. Even those authors who oppose this hypothesis admit that vascular changes of this affection are analogous with those of senility.

Its pathological picture may be divided into four groups:

1. An endo- and periarteritis (arteriosclerosis) with secondary or simultaneous chronic inflammatory changes of the adventitial connective tissue and the neuroglia. Both these processes, which take place in the entire nervous system, central and peripheral, assume the greatest proportions in the cord in different degrees of intensity in different cases. Secondary changes in the cells of the cortex and basal ganglia, such as swelling, atrophy, accumulation of pigment, and amyloid bodies in the cell protoplasm, thickening of the glial septa in the cord, and closure of its central canal, the swelling of some nerve fibers and again atrophy of others is rather the common picture.

2. A primary alteration of nerve cells, be it of those of the anterior horns and of Clarke's column in the cord, or of those of the motor cortex of the

brain, or again of the Purkinje cells in the cerebellum without any apparent changes in the vessels or the connective tissue and the neuroglia.

3. Negative findings in the neurones, but changes in the muscular apparatus, namely, atrophy and fatty degeneration of the muscle fibers and a proliferation of their interstitial tissue.

4. Totally negative findings.

In view of the pathological findings and perhaps in spite of the lack of some pathological changes we have a symptom complex—the set facies, rigidity of the entire musculature, the characteristic non-intention tremor, the pill rolling movement of the thumb and index fingers, the stooping, bent posture, and the vasomotor symptoms—that speaks for senility; and when the condition occurs early in life, especially as a result of trauma and in train of a hemiplegia, as I have seen it, I am inclined to regard it as one of premature senility.

Senile epilepsy and senile chorea are in reality expressions of focal symptoms of arteriosclerotic changes, those of either encephalomalacia or slight hemorrhages, distributed over a large area and irritating the motor cortical or subcortical areas. Here we have, besides these symptoms, also paralyses or slight pareses limited to corresponding areas. There are also some speech defects, if the lesion involves the right brain hemisphere in right-handed people.

Senile polyneuritis, first described by Oppenheim, involves usually the spinal nerves and rarely the cranial. There is no definite etiology of this affection, although some authors have claimed arteriosclerosis as the base. Some have observed miliary carcinomatosis of the peripheral nerves. The disease begins insidiously, and is not accompanied by the usual intensely painful manifestations, as in multiple neuritis of the young. There is an increasing weakness and numbness in the extremities, followed by a progressive paresis. In some cases atrophy is associated with it and also quantitative electrical changes are present. The reflexes are abolished. In spite of their age these patients recover completely from this affection, if they do not succumb to brain hemorrhage.

The vasomotor-trophic neuroses, acroparesthesias, Raynaud's disease, erythromelalgia, and scleroderma have sometimes been seen to begin in later life, but, as this is of rather rare occurrence, it is needless to discuss these affections here.

Hysteria has been noticed in old age. All authors, however, warn us that it is usually a reappearance of an old condition or rather a state of an initial senile psychoneurosis. And here permit me to say a few words about senile psychoses.

The influence of senility upon psychoses depends upon the retardation of the functioning power of the brain cortex, that results from a pathologically intensified senile involution. This senile involution involves, on the one hand, the nerve elements directly, and again the vessels (arteriosclerosis), which disturb the nutrition of the cortex and indirectly damage the cortical elements.

The patients become egocentrically inclined, their ability to feel for the misfortunes of others, or even to comprehend them, becomes gradually lost. Their entire interest in life concentrates upon their own bodily needs and their own happiness. Their

productivity in the association of ideas is gone and they are unable to judge from analogies of past and present experiences. Their retentive memory is constantly becoming impaired, as is also their memory for recent events. In individuals with a psychopathic constitution, or those who during life were exposed to many diseases and therefore lost their power of resistance, various psychoses will flare up. These senile psychoses will attain the forms of a dementia, an hallucinatory or incoherent paranoia, melancholia, or an anxiety psychosis. All forms are accompanied by attacks of vertigo. Sometimes there are also pareses and paraphasias present in addition to other phenomena. The defective intelligence is a marked feature of all of them.

A special form of senile psychosis described by Alzheimer and named by the Germans presbyphrenia is characterized by a more or less uniform clinical and pathological picture. The disease begins with a gradual loss of retentive memory, disorientation, restlessness, delusions, hallucinations, transitory periods of confusion, paraphasia, and a gradually progressing mental weakening culminating in complete dementia and associated with general weakness, spasticity in the legs, and at times sluggish pupils.

The macroscopical pathological picture is that of a regional cerebral atrophy and arteriosclerosis of the smaller vessels and a dissemination of miliary plaques of necrosed tissue. Microscopically there is evidence of acute and chronic changes in the ganglion cells of the brain cortex and basal ganglia with a neuronophagocytosis. An extensive cell vacuolization is seen on preparations stained by the Bielschowsky method. There is a great loss of cells noticeable in the motor cortex, and those remaining are smaller than usual; they are filled with pigment, and the nuclei are eccentrically situated. A marked vessel proliferation in the subcortical layers is met with and no perivascular infiltration. We find there also a cellular and fibrillary gliosis, consisting of a large number of small elements and stellate cells. The Purkinje cells of the cerebellum are degenerated.

From the above remarks we might conclude that few diseases of the nervous system are limited to old age, as such, and when we peruse the literature we find that, with few exceptions, old age neither precludes nor especially favors the occurrence of central nervous disorders.

1215 PARK AVENUE.

Ethylhydrocuprein and Opticus Atrophy.—It has been definitely decided that this drug, as exhibited to pneumonia patients in even moderate doses, can cause organic disease of the optic nerve with permanent damage to vision. These accidents may occur in the midst of transitory and functional disturbances. Pincusohn, who saw only severe functional disturbances, simply cautions to limit the dose, but Schreiber, who reports three cases of permanent impairment of vision following a period of total blindness (hemeralopia, marked concentric diminution in visual fields), counsels control of vision by the subjective appearances (cobweb spectra, etc.) or slight mydriasis. These, Schreiber says, are danger signals which must be heeded.—*Archives Médicales Belges.*

HISTORICAL AND BIBLICAL DATA OF CIRCUMCISION.

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ATTENDING PHYSICIAN TO THE JEWISH SEASIDE HOME.

IN Biblical Hebrew, the word circumcision means "the cutting away of the foreskin."

Biblical Data.—A religious rite performed on male children of Jews on the eighth day after birth; also on their slaves, whether born in the house or not. It was enjoined upon Abraham and his descendants as "a token of the covenant" concluded with him by God for all generations, the penalty of nonobservance being "karet" (excision from the people). Aliens had to undergo circumcision before they could be allowed to partake of the covenant feast of Passover, or marry into a Jewish family. It was a "reproach" for the Israelite to be uncircumcised. Hence the name "arelim" (uncircumcised) became an opprobrious term, denoting the Philistines and other non-Israelites. In the minds of the ancient Hebrews it was deeply rooted that circumcision was an indispensable act of national consecration and purification. Nevertheless there are several facts in the Bible which do not seem to be in full harmony with this view. According to Ex. iv. 24-26, the circumcision of the first born was omitted by Moses, and the Lord therefore sought to "kill him"; whereupon "Zipporah took a flint and cut off the foreskin of her son, and made it touch the feet of Moses," saying, "A bridegroom of blood art thou to me." Thus Moses was ransomed by the blood of his son's circumcision.

Strange as was this omission on the part of Moses, the omission of the rite on the part of the Israelites in the wilderness was no less singular. As recorded in Josh. v. 2-9, "all the people that came out" of Egypt were circumcised, but those "born in the wilderness" were not; and therefore Joshua, before the celebration of the Passover, had them circumcised with knives of flint, at Gilgal, which name is explained as "the rolling away" of "the reproach of Egypt."

Attention has also been called to the peculiar attitude of Deuteronomy and the Prophets toward circumcision. Deut. x. 16 says, "Circumcise the foreskin of your heart," thus giving the rite a spiritual meaning; circumcision as a physical act being enjoined nowhere in the whole book. Jer. ix. 25, 26, goes so far as to say that circumcised and uncircumcised will be punished alike by the Lord; for "all the nations are uncircumcised, and all the house of Israel are uncircumcised in the heart." Obviously the prophetic view differed from that of the people.

Historical View.—Circumcision was known to be not an exclusively Jewish rite. Ishmael was circumcised when thirteen years old, that is, at the age of puberty. The rite was, in fact, practised not only in ancient Arabia but also in Ethiopia, as well as by almost all the primitive tribes of Africa, and many of Australia.

The accumulation of evidence points to the fact that circumcision in its primitive forms was connected with marriage, whether performed with the view to the facilitation of cohabitation, as Ploss thinks, or as is far more in accordance with the

psychology of all primitive as well as of all ancient nations, to the consecration of the generative powers. At all events the age of puberty is most frequently selected for the rite; and, after weeks of purification accompanied by tests of courage, the boy is formally graduated into manhood, and bearing a new name, is ushered into the bridal chamber. For Egypt the practise is attested not alone by Herodotus, Philo, and Ambrosius, but also by the monuments and the very valuable Greek text, published and discussed by R. Reizenstein.

The rite of circumcision signified admission of the boy at the age of puberty into the rank of priesthood, as "web" (the Egyptian for pure or holy), the mother's presence being considered especially necessary. In Biblical literature the ordinance is incidental to the recognition of heirship, and to the assumption of a new name. The neglect of Moses to circumcise Gershon was in all probability associated in some way with his (Moses') marriage to a Midianite woman. Zipporah, however, ultimately displayed her allegiance to the God of the Jews by performing the sacrament herself. The fact that in Arabic "hatana" denoted both "to marry and to circumcise" shows an original connection between the rite and the nuptial ceremony.

The critical view of the Pentateuch sufficiently accounts for the non-circumcision of young Israelites prior to their entrance into Canaan by the following theory: The ancient Hebrews followed the more primitive custom of undergoing circumcision at the age of puberty, the circumcision of young warriors at that age signifying the consecration of their manhood to their task as men of the covenant battling against the uncircumcised inhabitants. After the settlement of the Israelites in Palestine the rite was transferred to the eighth day after birth. In fixing the time of the initiatory rite at an age when its severity would be least felt, the Mosaic law shows its superiority over the older custom.

During the Babylonian exile the Sabbath and circumcision became the characteristic symbols of Judaism. This seems to be the underlying idea of Isa. 4: "The eunuchs that keep my Sabbath" still "hold fast by my covenant," though not having the sign of the covenant upon their flesh. Contact with Grecian life, especially at the games of the arena, made this distinction obnoxious to the Hellenists, or anti-nationalists; and the consequence was their attempt to appear like the Greeks by epispasm (making themselves foreskins). All the more did the law-observing Jews defy the edict of Antiochus Epiphanes prohibiting circumcision; and the Jewish women show their loyalty to the law, even at the risk of their lives, by themselves circumcising their sons.

In order to prevent the obliteration of "the seal of the covenant" on the flesh, as circumcision was henceforth called, the Rabbis instituted the "peri'ah" (the laying bare of the glans), without which the circumcision was declared to be of no value. Thenceforward circumcision was the mark of Jewish loyalty. To be born circumcised was regarded as the privilege of the saints, from Adam, "who was made in the image of God." Great importance was laid on the shedding of a drop of blood as a sign of the covenant when a child or a proselyte born circumcised was to be initiated into Judaism.

Uncircumcision being a blemish, circumcision was to remove it, and to render Abraham and his descendants perfect. He who destroys the covenant sign of Abraham (by epispasm), has no portion in the world to come. According to some, it was Shem who circumcised Abraham and Ishmael on the day of Atonement; and the blood of the covenant then shed is ever before God on that day to serve as an atoning power. According to the same authorities, Pharaoh prevented the Hebrew slaves from performing the ceremony, but when the Passover time came and brought them deliverance, they underwent circumcision, and mingled the blood of the paschal lamb with that of the Abrahamic covenant, wherefore repeats the words: "In thy blood live."

According to Sifre, the tribe of Levi was the only one that kept the covenant. They had piled up the foreskins of the circumcision in the wilderness and covered them with earth. To this Balaam referred when he asked: "Who can count the dust of Jacob?" and for this reason it became customary to cover the foreskin with earth. Talismanic powers were ascribed to the sign of the covenant, as also to the phylacteries. Agreeing to the Rabbinical story, David, when he saw himself at the bath stripped of the phylacteries and other religious insignia, thanked God for the Abrahamic rite protecting him, and sang the twelfth psalm, which bears the superscription "'Al-ha Sheminit" (lit., "on the eighth"), explained as referring to the rite of circumcision. Circumcision causes an angel to save the Israelites from the pangs of Gehenna (hell), to which, according to Ezek. xxxii. 24, the uncircumcised are consigned.

"Circumcision is one of the commandments which, having been accepted with joy, are ever obeyed with joy, and, because the people gave their lives for them, are observed with steadfast loyalty." This refers to the martyrdom which the Jewish people underwent during the Hadrianic persecution, which was especially directed against circumcision. "We ought to abstain from marrying," said R. Ishmael b. Elisha, "since the Roman government forbids us to celebrate the festival of the birth of a son; but then the world would come to a standstill."

"Why did God not make man as He wanted him to be?" asked Tinnius Tyrannus Rufus, with biting sarcasm; and Akiba replied, "In order that man should perfect himself by the fulfilment of a divine command."

In Gen. R. xlv. the arguments for and against circumcision are put forth in the form of a dialogue between God and Abraham. Replying to the question why the command had not been given to Adam, if it was so dear to Him, God reminds Abraham that it should be sufficient for him that he and God are in the world, and that the maintenance of the world depends upon the acceptance of the commandment. But Abraham objects in that circumcision is an obstacle to the conversion of the Gentiles. This trouble also is overcome by the declaration of God's sufficiency to protect both Abraham and the world. In fact, circumcision had been deferred from the time of Abraham's conversion—in the forty-eighth year of his life—until his ninety-ninth year, for the express purpose of facilitating the making of proselytes. The problem of proselytism, indeed,

had stirred Judaism to its very depths, and had almost separated Hellenistic from Palestinian Judaism. The story related in Gen. R. xlv. is as follows: King Monobaz and Izates, sons of King Ptolemy, read the book of Genesis together. When they came to the passage xvii. 11 they wept; and each without the other's knowledge underwent circumcision. The next time they read the chapter together one said to the other: "Woe unto me, my brother." Then they disclosed what they had done. Their mother on hearing of the matter, told their father that they had needed circumcision as a precaution against phimosis, and he signified his approval. As a reward for their action they were saved by an angel from being killed in an ambush during a war in which they had become involved.

The rigorous view of the covenant is echoed in the ancient Law Books: "If thy sons accept My Godhead (by undergoing circumcision) I shall be their God and bring them into the land; but if they do not observe My covenant in regard either to circumcision or to the Sabbath, they shall not enter the land of promise."

With the advent of the Roman wars, the more rigorous views became more prevalent everywhere. Thus Favius Clemens, a nephew of the Emperors Titus and Domitian, when with his wife Domitilla he embraced the Jewish faith, underwent circumcision, for which he suffered the penalty of death. It was chiefly this stern feature of Jewish proselytism which provoked the hostile measures of the Emperor Hadrian. And furthermore, it was the discussion of this same question among the Jews, whether the seal of circumcision might not find its substitute in "the seal of baptism."

While in Biblical times the mother (perhaps generally) performed the operation, it was in later times performed by a surgeon, also called by the specific name "mohel." In the Codex Justinianus physicians were prohibited from performing the operation on Roman citizens who had become converts to Judaism. Unlike Christian baptism, circumcision, however important it may be, is not a sacrament which gives the Jew his religious character as a Jew. An uncircumcised Jew is a full Jew by birth. A non-Jewish physician may, according to R. Meir, in the absence of a Jewish expert, perform the ceremony, as may women, slaves, and children. Circumcision must, whenever possible, take place on the eighth day, even when this falls on the Sabbath. It is the duty of the father to have his child circumcised; and if he fails in this, a certain official of the city must see that the rite is performed.

As early as the geonic time the ceremony had been transferred from the house of the parents to the synagogue, where it took place after the service in the presence of the whole congregation. In order to give it the character of a festival certain prayers of a mournful nature were omitted, and occasionally appropriate hymns were recited instead. In the tenth century there appears, in addition to the mohel and the father of the child, the godfather (sandek), who holds the neophyte on his knees during the operation. As a rule, the wife of the godfather carries the child in and hands it to the mohel, while the congregation greets it with: "Blessed be that which cometh in the name of the

Lord." Beside the chair upon which the godfather is seated, another chair is placed, called "the chair of Elijah." Upon this the mohel places the child, reciting Gen. xlix. 18; Ps. cxix. 156, 162, 166; and the first half of Ps. lxxv. 5, the congregation responding with the latter half. He then takes the child from "Elijah's chair" and places it upon a cushion in the lap of the sandek, reciting the benediction: "Blessed art Thou O Lord our God, King of the Universe, who has sanctified us by Thy commandments and hast enjoined us to perform the commandment of circumcision." When the operation is finished, the father of the child recites the benediction.

The abolition of circumcision in the case of proselytes, on the ground of its being a measure of extreme cruelty when performed upon adults, was proposed by Isaac M. Wise at the Rabbinical conference in Philadelphia in 1869, and was finally agreed to by the Reform Rabbis of America at the New York Conference in 1892.

Circumcision in Other Races.—The rite of circumcision appears to be both the oldest and the most widely spread surgical operation known. According to Andree, it is still practised by more than two hundred million people, which is quite a conservative estimate, since the followers of Islam alone are reckoned at two hundred and fifty million. Though not a principle or religious duty, it is spread throughout the Mohammedan world; consequently, both the age at which the operation is performed and the mode of treatment vary among Turks, Persians, Algerians, and Arabs. Among the Arabs circumcision seems to be a test of endurance. Philostorgius found it practised as early as 342 B. C. A much earlier instance, however, among Egyptian mummies is that of Amen-en-heb (lived between 1614 and 1555 B. C.), which one investigator has found to be a true case of circumcision. The practice extends over part of the Balkans, Asia Minor, Persia, part of India, and the Malay Archipelago, besides practically the whole of North Africa. Nor can this be due to Mohammedan influence, as it occurs quite as frequently among the tribes of the east and west coasts of Africa, which had not been in contact with Islam.

Even the Christian Abyssinians, the Bogos, and the Copts, the first of whom probably learned it from Jews, still observe the rite. Indeed, so universal is the practice in Africa that it would be simpler to get a list of the tribes that do not circumcise than to enumerate all those that do. The possibility of an Egyptian origin for circumcision is, however, completely disproved by the extent of the practice in Australia. The Australian evidence is of particular interest, the operation being performed there with a stone knife, as is recorded of the Israelites. The practice is almost equally widespread among the Islanders of the Malay Archipelago.

For America the evidence is somewhat scanty and relates chiefly to the central part of the continent, though Petitot reports the practice among the Athapascans, and McKenzie among the Dog River Indians. An analogous practice is reported by Squier among the inhabitants of Nicaragua, who draw blood from the organ and sow corn dipped in it. In Mexico a similar practice was found by

Cortez, according to the report of Garcia de Palacio (1576), but the blood drawn was offered at the altar. It is also reported among the Aztecs, the Mayas of Yucatan, the Caribs of the Orinoco, and the Tacunas of the Amazon, the Automecos, the Salivas, and the Guemos.

The possibility of this wide distribution of the practice being due to a dispersion from a single center like Egypt or Southern Arabia is disproved by the great variety of methods by which the removal of the prepuce is effected. The subject cannot be adequately treated without a reference to the analogous operation of clitoridectomy performed on nubile girls, sometimes accompanied by the so-called "infibulation" of the adjacent parts. This occurs among the S. Arabs in Egypt, in Abyssinia, among the Galoas, the Susus, the Mandingos, the Masai, the Waknosi (all of whom circumcise their boys), as well as in Peru and the banks of the Ucayale river. The operation is in nearly every case performed simultaneously, on males and females, though they are kept separate during the periods of preparation and operation.

One sect of Jews, the Falashas, also circumcise both sexes; it is probable that this practice has been adopted from the surrounding Abyssinians.

The instrument with which the operation is performed is in almost every case an ordinary knife of iron or steel; but as stated above, the Australians use stone knives, as the Jews and Egyptians did formerly, and as the North American Indians and the Abyssinian Alnajas still do. A case in which a stone knife was used by Jews is mentioned as late as 1726. Mussel shells are used in Polynesia. The Marolongs of South Africa use a fire-stone (meteorite), but now circumcise with an assegai.

Much variety is found in the age at which the rite is performed among different tribes. The earliest occurs among the Jews, on the eighth day after birth, and among the southwestern Arabs, who perform the ceremony on the seventh, fourteenth, twenty-first, or twenty-eighth day. The Susus near Timbuctoo and the Guemos of South America are also said to perform the rite on the eighth day. In East Africa the Mazequas perform it between the first and second month. The Persian Mohammedans circumcise in the third or fourth year; the Christian Copts, between the sixth and eighth. The Fijians perform the operation in the seventh year, as do also the Samoans. But apart from these instances, all the tribes who perform this rite do so at the age of puberty, which is, of course, a very significant fact.

The act of circumcision is generally accompanied by some special ceremonial. In Samoa it takes place when the youth is named; but most often it forms a part of the general set of ceremonies initiating the young of both sexes into mature life. This is generally accompanied by trials of endurance for the lads or young men; and from a certain point of view, circumcision may be looked upon as one of these tests, as is definitely the case among the Jauf of South Arabia (Halevy). As instances may be mentioned the elaborate ceremonials of African and Australian savages; but there is nothing specifically religious in the initiation ceremonies, the elders of the tribe performing the operation and instructing the neophytes. Among the Falashas, three old women perform the rite,

possibly because it is practised upon girls as well as boys. Occasionally the operation is performed by the priest; and in the New Hebrides a distinctly mystic character is imparted to the ceremony, no woman being allowed to be present.

Similarly, Livingstone found it impossible to obtain access to the "boguera" of the Bechuanas. Among the Bourana the lads are kept apart in a special hut, and on the day of circumcision an ox is sacrificed, and all smear themselves with its blood. Among the Sulus the blood is received in a cup of ashes and buried, while with the Maralonges the removed foreskin is buried. The rite is mostly common to the whole population, but occasionally, as in Rock Island, it is performed on the rich only, while in Celebes it is only resorted to in the case of princes who have no children. In Mexico it seems to have been a prerogative of the upper classes. There are certain indications which seem to show that primitive peoples adopt or drop the practice without much ado, possibly because it is not regarded as definitely religious. The Zulus and the Gallas have discarded the custom since Europeans have become acquainted with them.

The exact object for which this widespread custom is practised has been long a subject of dispute. The theories mainly held point to three originating causes: tribal, sacrificial, and utilitarian. For the tribal view there is to be said that circumcision, like other mutilations of the body intended for tribal marks, takes place at the age of puberty, when, for example, the Hereros of Africa knock out the front teeth; but as the organ is almost invariably hidden, it is difficult to see how circumcision could be regarded as a tribal mark.

The sacrificial theory, which sees in circumcision an offering to the deity of fertility, has to draw for illustration from the practices of Yucatan and Nicaragua, where the custom itself is only in a stage of survival, if it exists at all. Others regard it as a substitute for human sacrifice, and place it on the same level as eunuchism. Hence Herbert Spencer suggests that it was a mark of subjection introduced by conquering warriors to supersede the punishment of death. The appeal made to Samson by his father, and that made to the Israelites and to Saul by David, give a certain amount of plausibility to this theory; but the fact that the practice is either common to all the tribe, or is reserved for the upper classes, as in Mexico, the Celebes, and Rock Island, tells strongly against this last form of sacrificial theory.

The suggestion of Sir Richard Burton that it was introduced to promote fertility seems to be contradicted by the practice and arguments of many tribes. The claims of cleanliness and health have been strongly urged, especially for hot countries, where phimosis is likely to be induced if the natural secretions of the parts are retained by the prepuce. Philo gives this as one of the motives for the Biblical injunction. But the practice is found among so many tribes who have not the most elementary notions of cleanliness, not to speak of hygiene, that this is not likely to be the prevailing motive for its adoption. The fact that circumcision is almost invariably found practised as a rite of initiation, and frequently on both sexes, gives the clue to its general adoption. According to the wise custom among savages of initiating their youth into all

the duties of mature life, the elders prepare the lads for their marital life at this time; and circumcision, often of both sexes, is resorted to as part of the preparation. The only ancient legend about Zipporah circumcising the son of Moses confirms the view to some extent; but the exceptionally early age at which Jews perform the rite takes it entirely out of the category of initiatory ceremonies among them, and proves it to be of a religious or symbolic nature, as indeed is expressly claimed for it.

Circumcision varies considerably as practised by the Jews and by the Mohammedans. Among the Jews it means not only the excision of the outer part of the prepuce, but also a slitting of its inner lining to facilitate the total uncovering of the glans. The Mohammedans pursue the simple method of cutting off the integumental portion of the foreskin, so that almost all of the inner layer remains, and the glans continues covered. The operation up to recent times was exclusively performed by laymen, to whom the act has been taught by others who, by experience, had acquired the necessary knowledge and skill. The tests of a good operator, or mohel, were that he should perform the work quickly, safely as to its immediate effect, and successfully as to the condition which the parts would permanently assume. As a rule the majority of these operators developed great dexterity, and the accidents were remarkably rare. In case the glans was not sufficiently exposed after the healing process was completed, much anxiety was occasioned, for in some exceptional instances a second operation was resorted to. The operation consists of three parts: "*milah*," "*per'iah*," and "*mezizah*."

Milah: The child having been placed on a pillow, resting upon the lap of the godfather, the mohel exposes the parts by removal of the garments, etc., and instructs the godfather how to hold the child's legs. The mohel then grasps the prepuce between the thumb and the index finger of the left hand, exerting sufficient traction to draw it from the glans, and places a shield in position just before the glans. He now takes the knife and with one sweep excises the foreskin. This completes the first act. The knife most commonly used is double edged, although one like those ordinarily used by surgeons is most often employed.

Per'iah: After the excision has been completed the mohel seizes the inner lining of the prepuce, which still covers the glans, with the thumb nail and index finger of each hand, and tears it so that he can roll it fully back over the glans and expose the latter completely. The mohel usually has his thumb nail suitably trimmed for the purpose. In exceptional cases the inner lining of the prepuce is more or less extensively adherent to the glans, which interferes somewhat with the ready removal; but persistent effort will overcome the difficulty.

Mezizah: By this is meant the sucking of the blood from the wound. The mohel takes some wine in his mouth and applies his lips to the part involved in the operation, and exerts suction, after which he expels the mixture of wine and blood into a receptacle provided for the purpose. This procedure is repeated several times, and completes the operation, except as to the control of the bleeding and the dressing of the wound. The remedies employed for the former purpose vary greatly among

different operators and in different countries. Astringent powders enter largely into these applications. In North Germany the following mixture is extensively used: dilute sulfuric acid, one part; honey, two parts; and vinegar, six parts. A favorite remedy with many operators is the tincture of the chloride of iron, which is a recognized efficient styptic.

These solutions are applied by means of small circular pieces of linen with openings in the center, into which the glans is placed, and the dressing is closely applied to the parts below. This is secured in its place by a few turns of a small bandage. A diaper is now applied and the operation is finished. The dressings are usually allowed to remain until the third day. The nurse in the meantime is instructed to apply olive oil, plain or carbolyzed. When the parts are then uncovered, the wound will in most cases have healed.

To guard against any mishap through suppuration or erysipelas, the genitals are washed with soap and water, and afterward with a solution of bichloride of mercury, 1 to 2,000. The mohel deals in a similar manner with his hands, and especially with his nails, using a nail brush; and all the instruments that are to be used are immersed in boiling water for five minutes. The dressings consist of plain or antiseptic gauze, or similar material. All the preparations relating to the dressings, the instruments, and the hands, should be made before the child is brought into the room in which the operation is to be performed, in order to avoid unnecessarily prolonging the anxiety of the mother. A basin with the bichloride of mercury solution is always at hand, so that the operator may dip his hands immediately before he begins his work.

Some operators dispense with the shield, but this is not recommended, for it will expose the child to the risk of having a piece of the glans cut off, and to dangerous bleeding in consequence. When the mohel uses his nails to tear the inner layer (*per'iah*) he should be careful to have them absolutely clean. Should they not have the requisite shape or firmness, or should he prefer avoiding any risk attaching to that method, two pairs of short forceps may with advantage be substituted, and are now often used. The tear should be made carefully, so that it will not deviate greatly from the median line, and should not be carried back too far; for at the margin of the corona it might give rise to unnecessary bleeding. When the inner lining is tough, or bound down by adhesions, a probe-pointed scissors may be used for the *per'iah*. Some Hebrew scholars recommend the use of the scissors in all cases, claiming that the wound made by them is more favorable and infection less liable. Against this, however, is the well-established principle in surgery that a lacerated wound is less apt to bleed than one made by a sharp instrument.

Considerable opposition has in late years been made against the *mezizah*, on the ground that it is entirely in conflict with the aseptic treatment of the wounds, which should be adhered to in all instances, but more especially in consequence of the case in Cracow, in which it became known that syphilis was communicated to a large number of Jewish children through an affected condition of the mohel's mouth.

The result has been that a number of mohels have discarded the sucking of the wound altogether. The majority of Jews, however, remain averse to such an innovation, the more so because it is condemned by the Orthodox rabbis. As a compromise, which has received the ecclesiastical authority, a method has been adopted which consists in the application of a glass cylinder that has a compressed mouthpiece, by means of which suction is accomplished. Before the cylinder is applied a small quantity of sterilized absorbent cotton is placed in the mouthpiece, which effectually protects both the child and the operator.

The mohel should remain with the child for at least an hour, to be perfectly satisfied that no hemorrhage follows, and to stop it when it occurs. If the bleeding does not proceed from an artery, the tincture of iron, with somewhat firmer pressure of the bandage, will usually prove satisfactory. Should the bleeding come in jets, an artery forceps must be applied, and a surgeon should be sent for, as a ligature may be needed.

There is one form of bleeding which has thus far not been mentioned and which needs consideration. It is well known that there are individuals who bleed very profusely and very persistently upon the slightest provocation. The old rabbis must have known of this condition, for they taught that, a mother losing two children from circumcision, those that might be born afterward should not be subjected to the operation. This dangerous condition we know now as hemophilia.

It happens not infrequently that the attending physician, on account of some unfavorable condition of the child, advises a postponement of the operation. The Jewish law sanctions such a proceeding until the child has fully recovered its health. The following reasons for postponing the operation are enumerated by some as follows: pronounced feebleness of the child, febrile conditions, obstinate diarrhea, refusing to take the breast, diseased conditions of the skin, general or local convulsions or jerkings, inflammation of the eyes or eyelids, fungus excrescences in the mouth, very frequent vomiting, and continued sleeplessness.

Circumcision among the Jews has been accepted and adhered to simply as a religious rite; of the advantages of circumcision nothing shall be mentioned by me, for we are all well aware of this phase of the question.

Among the Arabs.—It is difficult to determine whether Mohammed deemed circumcision to be a national custom of no religious importance and therefore did not mention it in the Koran, or whether he judged the prescription of a rite that had been performed by the Arabs from time immemorial to be superfluous. Being as it may, circumcision became in Islam a religious obligation to which everyone was required to submit.

The difference of opinion which prevails among historians and traditionalists as to the character of the rite before Mohammed prevails also as to the age at which circumcision had to be performed. According to Josephus, the Arabs circumcised after the age of thirteen, because Ishmael, the founder of their nation was circumcised at that age. The Mohammedan law recommends circumcision between the ages of seven and twelve years, but it is

lawful to circumcise a child seven days after its birth. The circumcision of females is also allowed and is commonly practised in Arabia. The operation on males is generally performed by a barber, in the following manner: the operator seizes with the forefinger and thumb of the left hand the summit of the prepuce, which he fastens with a string provided with a knot. This string is passed through a hole made in a disc of hardened leather. The operator then makes with a razor or scissors a circular section of the prepuce between the knot and the disc. The hemorrhage which follows is stopped by the application of burned rags and ashes. In India a bit of stick is used as a probe and carried round and round between the glans and prepuce, to ascertain the exact extent of the frenum, that no unnatural adhesions exist. No splitting is known to the Arabs, as attested by Simon ben Zemah Duran, who expresses himself as follows: "Mohammed sanctioned also circumcision that the Arabs performed since the time of Abraham, as is said in one of the ancient law books of the Jews: 'A circumcised Arab'; but he adopted it without *peri'ah*."

The ceremonies preceding circumcision give to this act the character of a religious initiation. After having performed the prescribed ablutions, the candidate makes his confession before the imam, and a new name is added to his former one. As among Jews, circumcision is followed among Mussulmans by feasting and rejoicing. The custom among Jews in Russia and Poland of inviting pious men to spend the night preceding circumcision in prayer and study in the house in which the ceremony is to take place, finds a striking parallel in that current among the Mussulmans of Egypt. Here priests are hired to recite prayers in the house of the candidate the night before the ceremony. That night is called "*lailah al-kabirah*" (the great night), in opposition to the preceding night, "*lailah al-saghirah*" (the small night), in which an entertainment is given to friends.

A few words relative to "Elijah's Chair," previously mentioned: At every circumcision Elijah, "the angel of the covenant," as he is called, is supposed to be seated at the right hand of the godfather, upon a chair richly carved and ornamented with embroideries. Even in the salutation to the child to be circumcised is read the invitation to Elijah.

When under the influence of Jezebel, circumcision in the northern kingdom was about to be abolished, Elijah is said to have retired to a cave. There he prayed to God and complained that Israel had forsaken the covenant of the Lord; whereupon God ordained that no circumcision should take place except in the presence of Elijah. Some consider this to be a commendation of Elijah for his zeal; others, again, take it to be a measure of protection for Israel, in that Elijah is in every instance to be satisfied that the covenant is not being broken. Accordingly the ceremony demands that a distinct seat upon the bench, or a separate chair, be reserved for Elijah. To this the circumciser refers in the prayer preceding the circumcision. When the chair of Elijah is made ready, the words "This is the chair of Elijah" must be said in a loud voice. Before the circumcision takes place, the child is placed on the chair. The chair is left in position

for three days, not, as said by some, to give Elijah, the wanderer, time for rest, but because the first three days after circumcision are a period of danger for the child.

Elijah being the guardian of the little ones, is represented as such in the amulet for the lying-in chamber, and, indeed, it is in this capacity that he is invited to the circumcision.

In Regensburg, R. Judah the Pious was once entrusted with the office of godfather. The child was brought in and greeted by all with the customary formula, but Judah remained silent. Being questioned, he said: "I do not see Elijah seated at my side." As he said this a venerable old man appeared at the window, and to him he referred the questioners. To them the old man declared that Elijah refused to come because the child would one day abandon the faith of his forefathers. The prophecy was fulfilled.

One authority's work deals with the objection that Elijah could not possibly be present at different circumcisions at the same time. As the sunlight and the Angel of Death are omnipresent, so can Elijah be.

521 PACIFIC AVENUE.

Medicolegal Notes.

Malpractice—Childbirth—Question for Jury.—In an action against a practising physician employed to attend a married woman in childbirth it was charged that the death of the new-born child was due to the negligent acts and omissions of the defendant. From a judgment for the defendant the plaintiffs, the mother and her husband, appealed. The evidence on their behalf tended to show that the wife, being about seven months advanced in pregnancy, was suffering pains and the defendant was summoned to attend her. He arrived about half an hour after the summons and found a nurse already in attendance. After making an examination of the patient, he stated that the water would break in half or three-quarters of an hour, and that a rubber sheet should be placed on the bed. The patient was made to lie down on the bed and was told to remain very still, and the nurse was instructed not to help her. After spending fifteen or twenty minutes with the patient, the defendant departed, saying he would return in half an hour. The defendant did not return until after the lapse of nearly an hour. The water broke within half an hour after his departure, and the baby was born about four or five minutes thereafter. At the time of birth the nurse was holding the patient's hands, but released them to pick up the child, which was apparently face downward upon the bed. The child was apparently normal and fully developed for its period of pregnancy, of about six pounds weight, and uttered a natural cry shortly after delivery, but soon began to choke and froth at the mouth, at the same time becoming black in the face. The child died in about five hours, during which period the nurse tried various methods of assuaging its sufferings. The defendant returned to the house about half an hour after the birth, noticed that the baby in the hands of the nurse was frothing at the mouth, told her to wipe the froth from its mouth quickly, stated that he thought the child would not live, and then passed to the mother's bedside. Whether the defendant took any measures for the child's relief after assuring himself of the satisfactory condition of the mother did not appear from the evidence. The nurse had the child in the room adjoining that occupied by the mother, and the latter testified that she did not know what was being done in the room. The nurse was not called as a witness, and the husband left the house for his work within ten minutes after the defendant's arrival. The only evidence as to death being due to strangulation was the testimony of the mother that "she supposed it sucked its lungs full of water," on which testimony her cross-

examination was as follows: "Q. Isn't it a fact that she [the nurse] had difficulty in trying to get the child to breathe? A. I suppose so. * * * She hit it on the back and tried to get it to breathe after it was born. Q. What was the matter with it when she tried to pat it on the back? A. I am almost sure it drew water on its lungs; when it cried it went to strangling. Q. Did it cry when she picked it up? A. No, sir; it was strangling just like any baby drawing water down its throat. Q. Did you actually see the child have its face in the water? A. No, I didn't actually see that; I suppose that is what—what would it strangle for if it wasn't?"

The evidence showed that there was no rubber sheeting to catch the water from the breaking sac; that the water was discharged upon the ordinary bedding of sheet, quilts and mattress. There was no proof of water thereon in sufficient quantity to be drawn into the lungs, other than arose from the inference to be drawn from its having been discharged thereon, which was met by an equally possible inference that it had soaked into the bedding. The showing of death as having resulted from drawing water into the lungs was held not to arise above the merest surmise. On the other hand, an expert who was introduced by the plaintiffs testified that the death of the child, according to the symptoms in evidence, might have been due to any one of the other means. It was held that there was not sufficient evidence to warrant the submission of the case to the jury.—*Henline v. Southward*, Washington Supreme Court, 199 Pac. 315.

Agreement Not to Practise in Locality.—The Kansas City Court of Appeals holds that a verbal contract whereby one physician sells his house and practice to another and agrees not to practise medicine in the future within a distance of ten miles is not invalid as not being supported by a sufficient consideration; refraining from further practice in the territory designated being one of the effective inducements to the purchase of the house. Where such a contract was carried out by making a conveyance of the house, the deed reciting nothing in relation to the agreement concerning the medical practice, in a suit for an injunction to restrain the seller from practising medicine in the designated territory, parol evidence of such verbal contract was held not inadmissible as varying a written contract, the written conveyance not purporting to contain all the terms of the parol agreement.—*Scott v. Asbury* (Mo.), 198 S. W. 1131.

Hypothetical Questions.—In an action for injuries received in an assault the attending physician was asked whether, if the plaintiff's ear was filled with dirt, gravel, and mud, that would not be the most probable way of having germs introduced. The physician answered the question entirely on his personal observation and not upon hypothesis. It was held that the answer was entitled to be considered by the jury for what it was worth and should not be stricken out on the theory that the question and answer were not hypothetical. A medical expert may testify that from his personal examination he knew a person was deaf. While it is the better practice to reduce a hypothetical question to writing, where the facts are confusing and complicated, the allowance of an oral hypothetical question, based on previous questions, amendments, objections and colloquy, which covered four pages of the record, cannot, it is held, be treated as reversible error. Where the court charged that before a hypothetical question and answer could be considered the jury must find that the condition as stated in the hypothetical question was proven by a preponderance of the evidence, the overruling of an objection that a hypothetical question did not set forth all the assumed facts relied upon, and that to supply the deficiency counsel assumed all facts stated in a previous hypothetical question, was not reversible error.—*Matthews v. Lamberton*, Michigan Supreme Court, 165 N. W. 748.

"Accident"—Loss of Sight.—The Kentucky Court of Appeals holds that loss of sight in an eye from embolus due to the insured's general condition, but possibly aggravated by his intentionally lifting goods, is not covered by a policy insuring against injuries sustained through accidental means, and resulting, exclusively of other causes, in disability.—*Salinger v. Casualty & Fidelity Co.* (Ky.), 198 S. W. 1163.

Military Medicine.

FRACTURES OF THE JAWS FROM PROJECTILES.

RIFLE and shrapnel bullets, causing lesions of the jaw bones, given their rounded and smooth surface, usually do not produce splintering or other severe disorders, but the same cannot be said of bursting shell, which, when the pieces are of any considerable size, may carry away an entire portion of the facial block. The projectile may hit the jaw either in a transverse direction by passing through one cheek to the other, and this is perhaps the most frequent occurrence of all, or it may strike over one of the nasal fossæ and, according to its momentum, remain embedded in the spine or make its exit on one side of the neck. Missiles have been known to pass through the cheek from in front backwards, fracture the upper jaw and the ascending ramus of the lower jaw, and then become arrested in the parotid space. They may likewise become simply lodged in the maxillary sinus, after having perforated the anterior wall of this cavity. No matter what may be the point of penetration of the projectile, the lesions encountered in the jaws are perforation or splintering or partial fractures with or without loss of osseous substance. Such fractures are *direct*, that is to say that they occur at the point hit by the missile.

The diagnosis can in most instances be made by the clinical signs presented. Radiography of the upper jaw, unless the case be one of fracture of the alveolar process, or intrabuccal radiography of the palatine vault, gives very indistinct results, and therefore is most unsatisfactory. The gravity of these fractures depends almost entirely upon the concomitant lesions, such as communication between the fracture focus and the surrounding cavities, the orbit, sinuses, and cranium. But what is most important and never to be lost sight of is that the missile may provoke and maintain a focus of suppuration. On the other hand, the projectile may involve certain regional vessels or nerves, or the parotid gland itself.

Secondary deformities should also be mentioned, due to a loss of bone substance or to cicatricial contraction of the cheek, but it is an easy matter to fill in the loss of substance by means of a prosthetic apparatus or bone graft. As to facial deformities, they are often amenable to plastic operations, the results of which are sometimes truly marvelous. The treatment of maxillary fractures is both surgical and prosthetic. Surgery assumes the responsibility of replacing the fractured fragments in proper position, because apparatuses of correction of the deformity act with intolerable slowness, and, it may be added, are uncertain in results. Prosthesis maintains the fragments in position, once reduction is accomplished.

Treatment of Syphilis from the Military Viewpoint.—Dujardin (*Archives Médicales Belges*, December, 1917) discusses the exclusively mercurial, exclusively arsenical, and mixed plans of treatment. The two first named have but few advocates and thus largely eliminate themselves. However, in the mixed treatment arsenic may

monopolize our resources for a considerable period, and this is true especially of military practice. The exigencies of the latter often appear to justify attempts to abort the disease in its earliest stages, but we must face the fact of arsenic toxicity; whence the concerted effort throughout the world to learn the maximum safe dose. It is agreed that 90 centigrams of neosalvarsan given intravenously is the largest safe single dose for a man (75 centigrams for a woman). This should not be given at the outset, but led up to gradually. The author would begin with a dose of 30 cgm. and add 15 to each successive dose until 90 is reached. All important is the spacing. It is claimed that under a neosalvarsan cure 45 cgm. is eliminated every 2 or 3 days. The spacing, however, must not be so wide that the drug has a chance to leave the body completely. The spirochete must be crowded—given no rest; hence the following scale is suggested: First day, 30 cgm.; third day, 45 cgm.; seventh day, 60 cgm.; twelfth day, 75 cgm.; eighteenth day, 90 cgm. Of such a cure it is expected that every contagious lesion will be removed so that the patient will not be dangerous to his entourage. The serious and fatal accidents of the neurorecidive type should not develop after a cure of this sort, but in a certain percentage of cases unpleasant symptoms may develop some months after completion of the cure. Should intravenous injections of mercury be superadded to these rapid salvarsan cures? No other form of exhibition would satisfy military needs. Some army surgeons use 15 mgm. of the cyanate between the salvarsan injections and for some time afterward, until 10 or 15 injections have been given. It seems prudent to others to hold back mercury until a later period.

The author has treated 731 syphilitics during the war. All important is the subject of the contagious recrudescence. Of 338 cases, mostly of contagious syphilis in garrison troops, controlled for over a year, but 6 showed this kind of relapse (2 per cent.). These subjects required an average of 20 consecutive days of hospital sojourn, all subsequent visits being ambulatory. This material was, of course, selective, for the troops were stationary. The exact medication does not appear in the author's summary. In a series of 180 syphilitics put in condition for a return to the front the author probably combined salvarsan and mercurial injections, but separate statistics are lacking.

In addition to these cases, numbering 518, the author treated other patients to make up the total of 731. The numerous accidents recorded by him are not grouped, and we only learn that one subject died as a result of treatment, while numerous accidents occurred either because of or in spite of the treatment. The author believes that a sterilizing treatment which does not sterilize is responsible for a series of accidents which would not have occurred from the natural evolution of the disease alone. Chief among these is the meningeal syndrome, with changes in the cerebrospinal fluid and occasional paralysis of the cranial nerves.

The Strain and Stress of War.—That the war in

Europe has been responsible for a large number of cases of functional nervous disease can scarcely be a matter for surprise to members of the medical profession. For some considerable time the tendency to neurotic manifestations has been on the increase among the male population of all highly civilized and industrial countries, and when an individual of this type has been subjected to the added stress and strain of modern warfare it is not surprising that sooner or later he should break down under the excessive pressure.

Col. Sir John Collie delivered in London some time ago an address on this subject (*Recalled to Life*). He pointed out that approximately there were 34,000 men in Great Britain who were drawing pensions because of their inability to serve on account of some functional nervous disease. Such men were by no means necessarily cowards, indeed many of the 34,000 had distinguished themselves by signal acts of bravery and when seemingly recovered many had expressed a wish to return to the front, were impelled thereto by a sense of duty. Of course they could not go because they were temperamentally and neurotically unfit for the work. The time for presenting these nervous breakdowns is, if possible, before the acceptance of the man in the army. There are a large number of men apparently physically fit who exhibit no symptoms which would justify the medical examiner in rejecting them, and who yet will "crack" under the nerve-racking and emotion-straining experience of war as it is waged today. It has been announced recently that the Medical Department of the U. S. Army has decided to extend its psychological examination to all enlisted men and to all newly appointed officers of the army. The extension of this form of examination is due to the success which has attended the experiment of psychological examination made at Camps Lee and Devens. The purposes of the tests as outlined by Major Robert M. Yerkes in charge of the section of psychology of the surgeon general's office, are as follows: (1) To aid in segregating and eliminating the mentally incompetent. (2) To classify men according to their mental capacity. (3) To assist in selecting competent men for responsible positions. This decision of the War Department is a step in the right direction, and may aid in solving the problem of the neurasthenic drafted man, although there is little or no relation between mental deficiency and neurasthenia. The existence of an obvious tendency to functional nervous disease should be easily detected by a careful examiner, but it is extremely difficult, in fact impossible in the majority of instances, to diagnose a simple predisposition to neurasthenia. Therefore a large number of cases of shock will continue to be returned from the front and the object must be to treat these as efficiently as possible.

Sir John Collie, in the lecture above mentioned, says that medical treatment is of no real value unless the medical men have confidence in themselves and can commandeer the confidence of the patient. Infinite patience, common sense at every turn, and real, but thoroughly disguised sympathy are essential in those who undertake the care of

such cases. Massage, electricity, persuasion, occupation, light, graduated work, fresh air, good wholesome food, and above all a healthy environment are essential adjuncts. The psychotherapeutic method of treatment has been found by experience to be wonderfully effective provided only that it is in the right hands. Nothing retards recovery so much as the flying visits of unthinking, but kindly intentioned philanthropic lady visitors. Persuasive conversation should be systematically arranged for, in which the patient and doctor can have quiet talks, so that the man is led by tact and guarded sympathy to lay bare, what is, as it were, at the back of his mind. Nothing in the nature of psychoanalysis, however, is recommended. Collie's experience is that it is better that all patients should be isolated during the early part of their treatment. The calm restfulness of solitude has a peculiar effect in allaying irritability, and strange as it may appear, prevents morbid introspection. Isolation is not solitary confinement, a nurse is in frequent attendance. The short initial stage of isolation enhances the value of the suggestion of rapid recovery practised by the physician and nurses. Electrical treatment for these cases is of value, but the stoutest advocates of this method will not deny that the effect is intimately associated with the mysteriousness of the electric current. There is one proviso to make with regard to all treatment and that is, unless the patient desires to get well no treatment can cure him.

Regulations for Next Army Draft.—Revised instructions have been sent from the Surgeon General's Office to the medical advisory boards throughout the country reclassifying the drafted men according to their physical condition. The new regulations provide that every man summoned before the board shall be placed in one of the following four classes: (A) Acceptable for general military service. (B) Acceptable for general military service, after being cured of remedial defect. (C) Acceptable for special or limited military service in a specified capacity or occupation. (D) Rejected and exempted from any military service.

The Provost Marshal General announces his intention to provide later for the further investigation and classification of the men acceptable for limited or special service. Many ailments and defects that gained exemption of drafted men in the past now will result only in their being listed in Group B. Such men if they choose will be given the privilege of securing the services of their family physician to remove their defect. If they do not avail themselves of this privilege within a specified time they will be called into military service and ordered to a cantonment base hospital, a reconstruction hospital, or a civil hospital.

Health of American Forces in British Waters.—A report from the base of the American Flotilla in British waters announces that there has been but one death from disease in nine months among the American forces in the destroyers and supply ships operating from this base. This excellent report is regarded as a splendid tribute to the flotilla's senior surgeon and his two assistants. During this period 62 operations under general anesthesia have been

performed, the majority of these being abdominal operations. In all of these operations there was not a single case of infection. During the same period there were 189 minor operations, performed under local anesthesia. The medical work consisted chiefly in the care and treatment of respiratory disease due to exposure to inclement weather.

Football Players Make Poor Soldiers.—A prominent Glasgow physician, who has had an experience at the front in France, makes the statement that professional football players are not wanted in the trenches because their endurance has been found to be less than one-third of that of the ordinary soldier taken from the desk, the farm, or the shop. This he attributes to the fact that they have been so long tuned to the highest pitch to take part in the game and to the fact that their nerves are so acute that they cannot stand gunfire as can the ordinary man.

For Recreation Resort in France.—A bill has recently been introduced into Congress providing for an appropriation of \$15,000,000 for a recreation center in southern France for American soldiers on leave from the trenches. The bill was introduced by Representative Miller, who has just returned from a visit to the western battle front.

The Control of Venereal Diseases.—The United States Public Health Service has issued a bulletin for the purpose of organizing a nation-wide campaign for the control of venereal diseases. The bulletin states that the control of venereal diseases in connection with the prosecution of the war constitutes one of the most important problems now confronting public-health authorities of the United States. The fact is emphasized that the prevention of venereal infection in the military population is largely dependent on the degree with which these infections are prevented in the civil community. This imposes upon the civil health authorities the duty of forcefully attacking the venereal problem upon the basis of the control of communicable diseases. The Public Health Service in cooperation with the Red Cross and the Medical Department of the Army is establishing venereal clinics in cities in immediate contiguity to the Army cantonments. There is even greater need, it is pointed out, for the beginning of an active antivenereal campaign in those cities which are outside of the military zones, but into which soldiers go in search of recreation. Most important of all is the education of the general public to the end that this disease group will be considered in the same light as other communicable infections. In connection with this announcement, a plan is outlined in accordance with which it is proposed to make this attack.

Camp Doniphan Hospital Inquiry, and Trial of Medical Officers.—The War Department authorizes the statement that following the complaints from the father of one of the recruits that the death of his son was due to neglect and to the deplorable condition of the camp hospital, the War Department has made an investigation of the hospital at Camp Doniphan. As a result of this investigation instructions have been issued by the War Department directing trial by general court-martial of the then commanding officer of the hospital and of the medical officer who examined the soldier in question and sent him to the hospital without

making known the fact he suspected cerebrospinal meningitis. The inquiry shows that, while the conditions were as alleged at the time the complaint was made against the hospital, they were due to the fact that the hospital was called upon to care for a much larger number of soldiers than it was prepared for, and that the conditions complained of no longer exist, and in all probability would never again occur at this hospital.

Deaths in the Service.—Dr. ALEXANDER COOK, first lieutenant, M.R.C., U.S.A., died at Philadelphia on February 21 at the age of 48 years. He was graduated from the Medico-Chirurgical College in the class of 1891. He served for many years as an assistant medical inspector of the Philadelphia Bureau of Health.

Sergt. CHARLES H. PECK, JR., of the Roosevelt Hospital Unit, a son of Dr. Charles Howard Peck, the head of the unit, died of pneumonia in France on Thursday of last week.

Employees of New York Interborough Rapid Transit Give Ambulance.—An ambulance has been purchased with a fund raised by voluntary contributions from the employees of the Interborough Rapid Transit and presented to the United States Government as a tribute to the several hundred Interborough employees serving in the army and navy.

Another Appeal for Red Cross Nurses.—The New York County Chapter of the American Red Cross appeals in the name of Surgeon General Gorgas for 5,000 more army nurses between now and June 1 next. These nurses are needed in the military hospitals both in this country and abroad. A new American Red Cross Hospital has been established at an English port for American soldiers and sailors. The Red Cross has also assumed the support of a hospital in Devon, as well as a hospital for officers at Lancaster Gate, London, which are to be made available in the case of emergency for the care of American troops. It is estimated that approximately 30,000 nurses will be needed in the army hospitals during the present year.

Death Toll of Medical Officers.—A cablegram from London reports that figures just compiled show that since the beginning of the war 505 medical officers serving as combatants have been killed or died of wounds up to the close of the year 1917.

Course in Occupation Therapy for Women.—In the school of Practical Arts of the Teachers' College, Columbia University, a course has been established designed to qualify women to give occupational instruction to crippled, disabled, and shell-shocked soldiers. The student, in order to obtain a diploma, must complete at least seven courses, including: the medical aspects of occupation therapy; the methods of teaching this treatment; observation and practice work with patients in institutions; the elements of psychology; art structure (design), and at least two craft courses. A three-fold equipment is said to be necessary for the teacher of occupation. First, she should understand sick people. In the second place, she must have the psychological background for teaching. Finally, she must be skilled in arts and crafts, the principles of design, and the use of color. The new therapy is to be explained by specialists in nervous and mental diseases.

MEDICAL RECORD.

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THE DANGERS OF OPERATION FOR VARICOCELE.

THERE are a great many things taken for granted by the medical profession which are found entirely unwarranted by a strict inquiry into facts, and one of these is the assumption that any intelligent general practitioner can do an operation for varicocele. In fact, who has not heard such a one say: "Well, I'm no surgeon, but at least I hope I can do a varicocele operation." But can he? Yes, the truth is he can, but unfortunately the poor patient often finds himself worse off than he was before. The matter was important enough in civil practice, but the organization of our vast national army has increased its importance a hundredfold. Formerly, a marked varicocele was accepted as an excuse for exemption. Now it is not. The man with a varicocele is taken into the army and required to do his duty as a soldier. If he claims he cannot on account of his varicocele he must have it operated on. Consequently, we are having, and will have, a great many more such operations this year and next than ever before.

Most practitioners on attempting this operation think only of two things: shall they do a high or low operation, the object in both cases being to excise the redundant vessels. The alternative operation, amputation of the scrotum, is hardly ever considered, because the excision operation seems so simple. But it is not as simple as it looks. In fact, there are ten dangers: (1) Superficial infection; (2) deep infection of scrotum; (3) atrophy of testicles; (4) loss of testicles; (5) edema, temporary or permanent; (6) hydrocele; (7) hematoma; (8) tenderness; (9) neuralgia; (10) a chafing or pricking of the scrotum (especially onerous if the patient be a cavalryman). Any one or several of these bad results may occur if the operator be the least careless about asepsis or the tying of blood-vessels or nerves. Besides the actual pain or discomfort following varicocele operation there is also the ever-present danger of becoming a victim of malingering. Neuralgia or neuritic pains may so often actually follow the operation that a soldier's claim that he actually has these symptoms cannot be easily disproved.

On the other hand, there is the alternative operation, amputation of the scrotum, with or without excision of the vessels. This obviates all the drawbacks except infection and possible loss of the testicle. It has many advantages, chief among them being that no nerves or blood-vessels are touched; a soldier, then, who complains of neuralgic pains following such an operation can definitely be branded a malingerer.

Not to enter here upon the technique of scrotum amputation, we will only call attention to a possible contretemps in the operation, namely, severe hemorrhage, difficult to check, and liable to be followed by a hematoma, a fertile field for infection. This is usually due to the fact that after cutting through the skin and subcutaneous tissues, vessels are cut carelessly, and immediately retract away from the field of operation, which they persistently flood with blood thereafter, and a large hematocele will almost surely form. A through-and-through suture of the scrotum before the operation will prevent this, but it leaves a rather awkward stump.

Small varicoceles can be satisfactorily treated without excising the vessels at all. In large ones, excision may be done, but the veins should not be tied, for this leaves an ugly stump. For the benefit of those who hesitate at cutting off part of the scrotum it may be said that it is practically impossible in such a case to remove too much of it. The only logical objection to the scrotum method is the possible return of the varicocele afterward through stretching of the scrotum, and the higher the amputation the less is the likelihood of this. Novocain is better than cocaine, as the edema and after-pains are less marked; occasionally a general anesthetic will be required.

The experience of the army has been that wherever a varicocele causes symptoms operation is indicated; the impression sometimes held that it disappears spontaneously at thirty or thirty-five is not warranted. It may decrease then, and again it may not. Certain it is that it often prevents a man from being a perfect soldier, especially a cavalryman; and the amputation of the scrotum offers the best chance of getting rid of it.

ACIDOSIS IN INFANCY.

AFTER much investigation, the condition known as acidosis, which occurs in diabetes, in connection with pregnancy, after surgical operations, and in infancy, and in which the mortality is so high, is still somewhat of a mystery; its etiology is but little understood and its treatment is unsatisfactory. All the acidoses are symptomatically acute intoxications of rather rapid course. Nearly all of them have such urinary findings as sugar, acetone, and diacetic acid. But although there is so much in common between them, actual similarity of cause has not been determined. In all but the acidosis of infancy the condition has long been recognized. Indeed, acidosis of infancy is of comparatively recent study. It seems that at the bot-

tom of the acidoses of infancy are dietetic errors or disturbances, together with a constitutional intolerance toward or inability to utilize certain food elements. In this respect the carbohydrates and fats are accorded first place. In many infants there is a manifest intolerance for these food elements. In the same individual, however, there may be a different degree of tolerance for more than one food element. At times carbohydrates may be tolerated only in the presence of a low fat percentage; or fats may be assimilated only when the carbohydrates are low. Proteins do not seem to affect the metabolism of either of these two. Yet the assimilation of the proteins may be much affected by the percentage of fats and carbohydrates present in the food. The end products of protein metabolism may then contribute largely to the development of the acidosis. In all probability it is the ingestion of an excess of one or more of these food elements, rather than the mere ingestion of them, that starts the cycle of intolerance. The food injury affects the intermediary metabolic processes in such a way as to diminish subsequent tolerance for the food causing the injury. In a manner it is a true anaphylaxis. This is undoubtedly the nature of the so-called milk-sickness of infants. The intolerance to the milk is rather an intolerance to one of the food elements than to the whole milk. It is significant that this intolerance does not obtain in the case of mother's milk, which again demonstrates the material difference between mother's and cow's milk.

An excess of fat in the infant's food necessitates the use of more of the alkalis of the body for saponification than the body can afford. Much of this oversaponification goes to make up the alkali-soap stools in the fat constipation of infants. If this process proceeds further there is not sufficient alkali left for the neutralization of the inorganic acid end-products of protein metabolism. The excess of acid thus left means, of course, acidosis. On the other hand, the ammonia coefficient of the urine is found increased in these cases because it seems that Nature substitutes this form of alkali for that used for the other purpose. The increase of the ammonia in the urine is a forerunner of acidosis and a cardinal sign of this form of metabolic disturbance. The conditions resulting in acidosis are further aggravated when one of the offending factors is sugar, in that there is an accompanying inability to utilize the whey salts. The intolerance toward carbohydrates, and the consequent inability to assimilate them or the extrinsic withdrawal of them, are the causes of acetonuria, just as in diabetes. The intolerance and withdrawal of the carbohydrates causing the acetonuria are associated with diets rich in carbohydrates and fats, although there is little doubt that the improper utilization of the proteins, whether dependent on excess of carbohydrates or not, shares the guilt. In infants the metabolic disturbances which cause the excretion of the acetone bodies may cause their excretion through the lungs instead of through the

urine, as in adults. This point must be borne in mind in diagnosis.

Usually not much warning is given of the onset of acidosis in infants. The onset is acute. There are diarrhea, vomiting, fever, glycosuria, leucocytosis, coma, and eventually collapse. There is no anemia, because the loss of fluids through the diarrhea leaves the blood somewhat concentrated. Acetone and diacetic acid are almost constantly found in the severer cases. In cyclic vomiting the symptoms and the urinary findings are almost identical, and it is very much of a question whether cyclic vomiting is not merely a transitory form of acidosis. Incidentally, the treatment of both is the same. In an infant with diarrhea and a high ammonia coefficient, even without sugar and acetone, acidosis may be suspected. With hyperpnea the diagnosis is almost certain. Laboratory findings include decrease of the carbon dioxide of the blood and alveolar air, and decreased carbon dioxide combining power of the blood plasma. Fortunately there is an increased tolerance for sodium bicarbonate. When once an acid condition sets in, hypoalkalinization seems to be aggravated by the smallest amount of fat, the intolerance toward this food element becoming greater and greater.

But in spite of the fact that acidosis seems to be of dietetic origin, not much that is hopeful can be said of the general effect of dietetic treatment. It is needless to say that if the basic dietetic error can be discovered correction is the logical course to follow. If the particular dietetic error can be recognized early before there is much intoxication, the withdrawal of the offending element may stave off more profound eventualities. Otherwise the treatment of acidosis settles down to alkalinization. Even if the acidosis is overcome by treatment, there usually ensues such a profound and intractable form of malnutrition as to destroy all that has been gained. In using the sodium bicarbonate to alkalinize, enough of it must be used to render the urine distinctly alkaline and to raise the carbon dioxide content of the blood and alveolar air to normal. Practically the alkalinization of the urine is coincident with the general alkalinization. Neither the administration of this drug by mouth nor the instillation per rectum is as efficacious as the intravenous route. Usually from 75 to 150 c.c. of a 5 per cent. solution is enough for the first dose. A second dose can be given in about eight hours. Even with heroic treatment the mortality of acidosis in infants is still over 85 per cent. Whatever hope there is of reducing this mortality lies in the early recognition of food intolerance and its correction.

NEURASTHENIA AND ITS TREATMENT.

In the *Practitioner* for January, 1918, is published a paper on the management of neurasthenia, psychasthenia, shell shock, and allied conditions, by Dr. Frederick C. Forster, in which the author points out that while neurasthenia may be of many differ-

ent types the sufferers nearly always have in common certain symptoms, the most prominent being depression, lassitude, often combined with a curious restlessness, insomnia, loss of power of concentration, failure of memory, abnormal sensations in different organs, tremblings, dragging pains, palpitation, loss of appetite, and loss of vitality. This is a true word picture of the symptoms of a neurasthenic, not that they are all combined in one sufferer, but they are the conspicuous symptoms that are apt to occur. Worrying over his complaints and imaginary complaints is a characteristic feature of the sufferer from neurasthenia. He attaches undue importance to all his disagreeable sensations, and is especially anxious with regard to the tachycardia, which is a frequent accompaniment of the condition, imagining it to be a sure indication of a serious heart lesion.

The cure of a neurasthenic involves infinite patience and tact on the part of the medical attendant. First of all, in treating a case it is incumbent on the medical man to make a correct diagnosis, and definite disease of any organ must be eliminated before it can be said to be a true neurasthenia. Assurance must be had that the condition is not owing to toxemia, influenzal or gastrointestinal, for the depression accompanying or following a toxemia of this description cannot be labeled or treated as a neurasthenia. Forster holds that the keynote of the management, a term he uses purposely in preference to treatment, is to induce "self-forgetfulness," to do away with the inertia, to improve the morale by encouraging a feeling of independence, and to adjust the patient's life so that petty troubles and annoyances take their subordinate position, whether this is achieved by some wholesome and pleasant occupation, by drugs, or by some of the many other methods which may be employed. The Weir-Mitchell rest case is recommended, and it is pointed out that, apart from the dieting, the chief essential is to procure sleep for the patient. As for drugs, chloralamide is to be preferred to either paraldehyde or the bromides, and for the general excitation monobromated camphor with conium is useful. It is not advisable, however, to prolong the Weir-Mitchell treatment after the acute stage has passed off.

It really is an interest in life that such people need. The author is not an advocate of drug treatment. Regarding change of air, scene, and climate, which really means change of environment, the suggestion is put forth that although it is not always possible to change the physical environment, yet much, very much, can be achieved by altering the mental or psychical environment, and the power of creating a special mental environment is helpful in turning what is repulsive into what attracts. In short, in neurasthenia it is the person, rather than the disease, that demands treatment. Finally, a return to work or occupation is likely to be of greater benefit by far than rest cures; that is to say, in a large proportion of cases.

SUBSTITUTE FOR ABSINTHE.

THE abolition of absinthe selling in France as a war measure has evidently led to the sale of imitations and substitutes. An article by Dage in *Le Caducée* for December 15 quotes from *Le Matin* to the effect that of 31 individuals prosecuted in the arrondissement of Bar-le-Duc for the sale of absinthe substitutes all received light fines with the added penalty of confiscation of the liqueurs. This brings up the subject of absinthe succedanea, which long ago claimed attention in Switzerland. As is well known the French law, which went into effect on March 16, 1915, was based on the Swiss law of 1910. Yet the Swiss courts once refused to convict venders of substitutes by reason of their plea that the latter were free from *thuyone*, the substance alleged to cause the ill effects of absinthe. It has since been decided that the thuyone theory is based on false premises, and the immunity of the substitutes on this ground no longer holds good. When the sale of absinthe was legal and falsification was practised, "similar" substances meant any substance, irrespective of name or analysis, which was sold with the implication that it fulfilled the rôle of absinthe. As a consequence much confusion was rife. Any substance which contained thuyone could be regarded as belonging to the absinthes. On the other hand, "oxygenated absinthe" was sold with the implication that it had been "dethuyonized." The "thuyone" legend was exploded once for all in 1912 when the Agricultural Department reported after an investigation that few of the plants employed in the manufacture of absinthe contained thuyone. As long as this heresy existed essences of anise, fennel, etc., could be freely sold because the obnoxious substance could not find its way into these simple products. As long ago as 1889 it was shown that the toxic substances which did or might enter into the composition of absinthe were of two types: a convulsive type was represented by absinthe proper, hyssop, fennel, etc.; while a stupefying type comprised anise, mint, coriander, angelica, organum, balm-mint, etc. Not one of these substances contains thuyone. The question "What is absinthe?" is doubtless as difficult to answer as the British query, "What is whiskey?"

HISTORY OF MEDICAL JOURNALISM IN CUBA.

IN 1840 there appeared in Cuba the pioneer medical publication, known as the *Repertorio Médico Habanero*, coincident with a movement for scholastic reform, which included secularization of the university and utilization of clinical material. During the period 1840-1863 half a score of other journalistic enterprises were begun, all of which were apparently shortlived. Three years after the foundation of the Academy of Medical, Physical, and Natural Sciences in 1861, the annals of this body began to appear and have been issued regularly so that at present they number 54 volumes. The *Crónica Médico-Quirúrgica*, which began in 1875, has continued to the present day and is the dean of Cuban medical journals. Its founder and editor was Dr. Santos Fernandez. For many years the *Cronica* and the *Anales* mentioned above were the only successful examples of medical journalism on the island, among many ventures; al-

though the *Archivos de la Policlínica*, which ran from 1892 to 1908, must be ranked as at least a partial success. The third permanent periodical, the *Revista de Medicina y Cirugía de la Habana* was begun in 1896. The fourth "live" journal founded in 1902, is the *Revista Médica Cubana*. A number of other current journals exist, most of which are of recent origin. *La Prensa Médica*, however, has published 18 volumes since 1910 and the *Archivos de Medicina Interna* is in its sixth year. Not a few "dead" journals went through numerous volumes and doubtless represent a material contribution to medical literature. One (*Archivos de la Policlínica*) has already received mention and there are numerous others, some of which deal with collateral subjects, as dentistry and anthropology.

ARCHAIC POSTAL LEGISLATION.

CONGRESS has turned back the hands of the clock to the year of Our Lord 1863, by reestablishing the "zone" system of postage for periodicals, which Lincoln abolished in that year. We reproduce on page 486 an article by the novelist, Rex Beach, distributed at the instance of the Publishers' Advisory Board, which describes very clearly the nature and probable consequence of this law. We urge our readers, and particularly those who live at a distance from New York, to write or telegraph to their Senators and Representatives in Congress, and express plainly their disapproval of the law, and their desire for its prompt repeal.

News of the Week.

New York Starts Campaign to Save Babies.—The conference board of the Council of Women's Organizations held a meeting on March 3, at which it was decided to begin active cooperation with the Federal plan for the reduction of infant mortality. The Council of Women's Organizations includes 350 women's clubs and associations throughout New York City and was organized for the purpose of placing the activities of these organizations on a war basis. One of the subjects discussed at the meeting was the prohibitive price of milk. No time is to be lost in preparing for summer by undertaking a city-wide propaganda to anticipate the trouble and high price it will bring. Definite plans will be announced at a meeting to be held later this month.

Physical Training in Schools.—Dr. Eugene Lyman Fisk has issued a protest against the various amendments pending in the Legislature which would weaken the present system of compulsory physical training in the rural schools of New York State. He cites authorities showing that the country children are as much in need of this training as those of the city and that the health of the country child is from 5 to 20 per cent. more defective than that of the city child. He quotes the results of the physical examination of drafted men to show that the whole health situation both in the city and the country is alarming and constitutes an unanswerable argument for the enforcement of every conceivable kind of health measure.

Smallpox in New York State.—According to a report just issued by the New York State Health Department there have been a number of out-

breaks of smallpox during the past year in various parts of the State and the disease has also been prevalent in other States as well. Early in November the disease made its appearance at Rome and from there it spread to Utica, where there were 47 cases within two months, and to Frankfort and Herkimer counties, there being 78 cases in Frankfort County. Altogether over 250 cases of smallpox have been reported to the Health Department within the past few months. A study of the history of these cases in reference to previous vaccination shows that of 348 cases reported in 1917 only two had been vaccinated within seven years and of 94 cases thus far reported in 1918 only two had been vaccinated within the seven-year period. The State Health Department points out that these figures speak for themselves regarding the value of the protection conferred by vaccination. In commenting on this report of the State Health Department, the Health Department of New York City calls attention to the fact that four of the six cases of smallpox that have been reported in New York City have occurred among negroes, and that the importance of vaccination against smallpox should be impressed upon this class of the population.

Sanitation in Extracantonment Zones.—In the February *Bulletin* of the State Department of Health, Frank Overton, sanitary supervisor of the State Department of Health, gives his experience with the problems of sanitation that arise in the vicinity of the large army and navy stations on Long Island. He points out that a great aid in enforcing sanitation was the threatened application by the army and naval authorities of the law giving them full power to exclude uniformed men from unsanitary places in prescribed zones around the camps. Conditions have been aggravated by the uncertainty of military plans and by the unscrupulousness of camp followers, who consider only opportunities for immediate gain. An armed sentinel in front of an establishment, it was found, furnished an object lesson that was heeded by the most grasping proprietor. One or two such demonstrations had more effect than a dozen civil lawsuits, with their delays and subsequent ill feeling. Immediate publicity given an unsanitary condition is based upon the same principle and has the same effect as placarding the house of a patient suffering from a communicable disease. There are good reasons why some method of publicity should be applied as a routine measure by all boards of health to every unsanitary place of importance. After the camps have been established on a settled basis the sanitary supervisor has brought to the attention of local boards of health the matter of sanitation of places used for the sale of foods and drinks. Simple regulations were adopted governing such essential matters as cleanliness, covering foods, washing dishes, garbage disposal, and the personal hygiene and health of employees. Health officers were instructed to inspect all places selling foods and drinks, and to issue certificates to those found to be sanitary. The military authorities announced publicly that they would accept the certificates of inspection and exclude their men from unsanitary places. This cooperation of the civil and military authorities has been effective in securing sanitation in practically every instance. This procedure the writer finds has benefited the civil population

quite as much as it has the soldiers. It is suggested that similar inspections and certificates would be found valuable in other extracantonment zones and that they might be made applicable in every health district, particularly at fairs, circuses, and other temporary places of assembly. One of the grave problems that has presented itself is the disposal of the numerous horses which die among the 10,000 animals at Camp Upton remount station. Although incineration is wasteful and expensive it seems to offer the only solution of the problem at present. The control of venereal diseases in the extracantonment zones of Long Island has been receiving the earnest attention of the health authorities. Open prostitution has been comparatively rare. The problem of controlling concealed sources of infection has been met by three measures: (1) reporting known sources of infection in the soldiers to the health authorities; (2) controlling carriers of infection when they are found; (3) preventive work by the Women's Committee to protect young girls promises to have a most beneficial and widespread result.

Anthrax Victim Cured.—A longshoresman who contracted anthrax while handling hides from Argentina was taken to Bellevue Hospital on February 14 and discharged cured on March 8. The cure was effected by the removal of the infected part on the man's neck and an injection of Eichhorn's serum.

Arrest for Smuggling Neosalvarsan.—A Dutch diplomat has been arrested and held in \$2,500 bail for having smuggled \$40,000 worth of neosalvarsan into this country. He claims that the drug was for the use of the Australian Red Cross. The duty on neosalvarsan is 25 per cent.

Dr. George A. Knowles has been appointed a trustee of the Pennsylvania State Hospital for the Insane at Norristown.

Dr. Wesley Grove Vincent of this city has been appointed provisional assistant visiting physician to the Harlem Hospital for 1918.

The American Posture League.—At the annual meeting of this association, which occurred March 9, closing with a dinner for the honorary boards at the Aldine Club, the following officers were elected: *President*, Miss Jessie H. Bancroft; *Vice-President*, Capt. Frederick R. Green; *Secretary*, Dr. Henry Ling Taylor; *Treasurer*, Dr. Percy W. Roberts. The reports for the year showed a great activity in relation to war conditions, and a large demand on the resources of the league, as a national health organization, indicating a quickened public conscience on the subject of health since the physical examination for the army disclosed such a low standard of health throughout the country. The technical committees of the league reported completed work for the year on factory and school seats, shoes, and other articles of clothing for men, women, and children, beside a large educational service.

Study of Childbearing Mortality.—At a meeting of the New York Obstetrical Society, on February 12, 1918, the following resolution was unanimously carried:

Whereas, The advisability of an intensive study of the mortality associated with childbearing would prove of undoubted advantage to the medical profession and the public; and

Whereas, Such a study, based on statistics derived

from hospitals of this borough, is about to be undertaken, with the assistance of the Public Health Committee of the New York Academy of Medicine, therefore, be it

Resolved, That the investigation of the mortality associated with childbearing, instituted by the Public Health Committee of the New York Academy of Medicine, as presented at the meeting of February 12, 1918, receive the hearty cooperation and indorsement of the New York Obstetrical Society.

Conference of Industrial Physicians and Surgeons.—The Department of Labor and Industry of Pennsylvania will hold its sixth conference of Industrial Physicians and Surgeons in the hall of the House of Representatives at Harrisburg on April 9, 1918. An invitation to attend and participate in this conference is extended to all medical men interested. At the morning session there will be brought up the subject of industrial health hazards arising out of the war emergency. The afternoon session will be devoted to the subject of workmen's compensation. The question of hernia in its relation to the compensation law and the possibility of amendments to the present Pennsylvania workmen's compensation law will be discussed. Copies of the program may be obtained on request from Dr. Francis D. Patterson, chief, Division of Industrial Hygiene and Engineering, Third and North Streets, Harrisburg, Pa.

Obituary Notes.—Dr. JOHN GEORGE BLAKE, a graduate of the Harvard Medical School in 1861, died at his home in Boston, on March 4, at the age of 81 years.

Dr. WILLIAM SCOTT KENDRICK of Atlanta, Ga., died at his home in that city, on February 22, aged 75 years. He was a graduate of the Atlanta Medical College in 1874, and for some years professor of physical diagnosis and clinical medicine in that institution. In 1915 he was made senior professor of medicine at Emory University. Dr. Kendrick was for many years the medical director of the Southern States Life Insurance Company.

Dr. JAMES H. WOOD, a graduate of Vanderbilt University, medical department, in 1882, died at his home in Attalla, Ala., on February 28, aged 61 years.

Dr. JOHN HENRY MULLEN, a graduate of the Harvard Medical School in 1900, died of heart disease at his home in Lynn, Mass., on February 21, aged 41 years.

Dr. BENJAMIN RALPH SWAN, a graduate of the College of Physicians and Surgeons, New York, in 1868, and for many years the medical referee of the Mutual Life Insurance Company of New York, died at his home in San Francisco, about February 20, at the age of 81 years.

Dr. ALFRED M. TOWNSEND, a graduate of the Ensworth Medical College, St. Joseph, Mo., in 1893, died following a long illness at his home in Quitman, Mo., on February 26. He was a former resident of St. Joseph, Mo.

Dr. JOHN M. BERRY, a graduate of the Washington University, medical department, St. Louis, Mo., in 1878, died at his home in Webster Grove, Mo., aged 63 years.

Dr. HORACE LADD died at Philadelphia on February 24 at the age of 92 years. He was graduated from Jefferson Medical College in the class of 1848.

Dr. ALPHEUS A. CORBIN of Pueblo, a graduate of the Bennett Medical College, Chicago, in 1872, died of pneumonia at his home in that city, at the age of 76 years.

Dr. FRANK MARSHALL READE, a graduate of the Medical College of Virginia in 1899, died at his home in Richmond, Va., on February 26, aged 55 years. He was for many years a member of the finance committee of the City Council of Richmond.

Dr. JESS C. ELDRIDGE, a Civil War veteran and for many years a practising physician of Chattanooga, Tenn., died at his home in that city, aged 73 years.

Dr. JOSEPH O. GREENLAW, formerly of Franklin, La., died of tuberculosis in Artesia, N. M., on February 27, aged 44 years.

DRUG ADDICTION.

RECOMMENDATIONS OF THE NEW YORK PSYCHIATRIC SOCIETY AND THE PUBLIC HEALTH COMMITTEE OF THE NEW YORK ACADEMY OF MEDICINE.

The fact that a new element is entering into the causation of drug addiction in recent years, and that it has been a matter of State investigation and much public agitation makes it very desirable that the medical profession take some definite position and action in the matter. The points under investigation and discussion are the causes and prevalence of drug addiction, the methods of treatment for relief and treatment for cure, and the methods of legislation for the dispensing and control of drugs. With regard to these points we have reached certain conclusions and made certain recommendations, as follows:

1. We recommend that the Federal Government take such measures as are feasible to abolish the manufacture of heroin altogether.

2. We recommend that the Federal Government be urged to adopt such legislative measures as will control and regulate the sale and distribution of opium and its derivatives and of cocaine, from the time of its manufacture to the time of its final distribution; also, that it take measures with regard to preventing the importation of these drugs except under proper conditions.

3. We recommend that the Federal Government do not, at present, extend its jurisdiction to the control of all habit forming drugs, but that the control of special drugs be taken up as occasion seems to demand.

Experience in New York City and the East shows that there is no great prevalence of drug habit aside from that of opium and its derivatives.

4. We recommend that a thorough study be made of the extent and causes of drug addiction; such studies, for example, as will give information as to the age, sex, occupation and environment, and the mental and physical condition of victims of the drug habit, and as to how their habit was formed.

With regard to the cause and frequency of the habit, we can make only provisional statements. So far as our knowledge goes, the drug habits formed as the result of long and painful sickness, as the result of painful surgical operations, and as the result of mental causes like sorrow, depression and apprehensive states, constitute at present as in the past, a negligible proportion of the total.

The habit has largely been formed in recent years by association and imitation by boys and young men and women who are often quite ignorant of the dangers of the habit. Examination of a long series of addicts at Bellevue Hospital shows that about four per cent. formed the habit through the advice and prescription of unscrupulous physicians who utilize what is known as the reduction treatment as a cover for their reprehensible practice.

So far as the number of addicts is concerned, we find some estimates by Martin T. Wilbert, U. S. Public Health Service Bulletin No. 321, to the effect that there are not over 175,000 addicts in the country. Estimates made by Dr. Kirby, based on available sources of information, show that there would be perhaps 7,000 to

8,000 in Greater New York. These estimates of Dr. Kirby's are based on the statistics of Bellevue, Metropolitan, and Kings County Hospitals, and on the reports from the hospitals of the Department of Correction.

There is an impression among some that the drug-addiction is *enormously prevalent* and is *rapidly growing* and becoming a serious menace to society. It is extremely important to find out the truth as to this. The Public Health Service states that about four million grains less of opium were imported into the United States in 1915 than in 1914, and about five million less than in 1913, but this may be due to the war.

5. We recommend that there be psychological and psychiatric tests made of a long and definite series of addicts.

No serious and comprehensive study of these problems has yet been made so far as we can find. Such information upon the subject of drug addiction can be gathered best through the agency of paid experts who will visit hospitals, courts, prisons, and reformatories, and who will interview such physicians and judges as are experienced in these matters.

6. We recognize that the Surgeon Generals of the Army and Navy have taken a special interest in the subject of drug addiction. We recommend that if it has not already been done, some special study be made of the condition of drug addiction in the Army and Navy and special care be taken to discover the existence of addiction in recruits. We understand that the Surgeon Generals of the Army and Navy are already making special provision for the care and treatment of drug addicts.

7. We recommend that an attempt be made to plan some means of education of young men and women as to the dangers of habit forming drugs. We advise against the use of "movies" or of any sensational methods.

9. We recommend that more attention and publicity be given to the facts which appear to have been established by long experience at Bellevue Hospital and elsewhere. The experience at Bellevue Hospital, after testing with many cures, shows that the drug can be withdrawn from the victim without any special cure being used and it seems to be established that withdrawal can almost always be done safely and surely under ordinary hospital conditions where there is competent nursing and control.

10. We recommend very strongly that treatment for drug addiction should be given only to patients in properly organized hospitals or under institutional conditions, for it is the experience and conviction of all that drug addiction can be relieved and cured best in this way.

11. We recommend that the State do not at present undertake the cure of drug addiction, because the treatment and the subsequent plan of co-operative contact required for success is long, expensive and difficult unless carried out in the local community itself, and the State is not now equipped to undertake such work.

We recommend that in preference to this, at the present time, the State do what it can to prevent the development of new cases and encourage provision for the relief of present sufferers.

12. We recommend, for the relief of present sufferers and perhaps at times for radical treatment, the use of psychopathic hospitals or pavilions and that special provisions be furnished in general hospitals throughout the State to care, under proper control, for those who ask for a withdrawal treatment. This, we think, is what is due the patient who by law is deprived of the drug.

13. Finally, pending action by the Federal Government for the better control of habit forming drugs, we recommend that the State of New York pass some law which will control the matter of drug addiction and the use of drugs by physicians in a better, more efficient and more practical way than does the present law. We leave the definite solution of this as a separate problem in technical legislation.

The plan now under consideration is to simplify the present law and make it mainly supplementary to the existing Federal law, and to issue licenses to those physicians who treat drug addicts.

New York, Feb. 25, 1918.

Correspondence.

THE PROBLEM OF MENTAL DISORDERS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The article of Dr. Walter B. James in the *MEDICAL RECORD* of March 2 merits the earnest attention of the medical profession, inasmuch as, differing from most members of committees, he has made personal investigation of the subject and he writes from the standpoint of the clinician. He presents an optimistic attitude, rarely if ever displayed by the specialists in psychiatry. The latter have, as he well says, surrounded their own special field with such obscurity as to discourage the family doctor.

While I believe that the neurologist is more frequently in clinical contact with mental diseases and is therefore more competent than the general practitioner for their management, I do regard psychiatry as a specialty distinct from neurology, just as, for example, gynecology is distinct from general surgery. The gynecologist usually has been an intern or clinical assistant in institutions devoted to this specialty and is therefore more competent in their management than is the general surgeon. The family physician certainly acts upon this idea in consultations. Within my own acquaintance there are few neurologists who have served as clinical assistants in institutions for mental diseases, and yet many family physicians entrust the care of these cases to our friends the neurologists, regardless of previous clinical experience in this special department. Personally I have not adopted this course.

I agree with Dr. James that "there are many points of resemblance between problems presented by insanity and tuberculosis" and that in the latter disease the former may also be inhibited by methods of prevention. I would add, however, that just as in tuberculosis the treatment of the earlier stages has been of enormous value in preventing the development and by arresting the diseases in its diffusion among the people, so do I believe that similar results may be attained in insanity. And right here is a point which, from the clinical standpoint, I would emphasize. Quite contrary to my observation in tuberculosis, the application of water in the treatment of the insane has been advocated by nearly every author on the subject, and there is no modern institution which regards itself as up-to-date without a hydrotherapeutic plant, and yet it is unfortunately rarely applied in the precise and methodical manner which is in vogue in medicinal dietetic, or other treatment, from which alone favorable results may be expected. That the latter is not the case has so frequently come under my observation that, loath as I am to take this critical attitude, it is my duty to do so.

There are very few institutions in this country in which a physician or nurse trained in the technique of hydrotherapy under competent tutelage is active. A few examples might suffice:

In one State hospital, admitting nearly two thousand cases yearly, a hydrotherapeutic plant was instituted about twelve years ago which I found two years ago to be little used because the temperature and pressure were unreliable. This was due

to the fact that the advice of the manufacturer of the apparatus to connect the latter with a separate supply of water from the main, as is my rule, was not regarded as necessary by the engineer of the institution. Thus hundreds of patients have failed to receive the benefit of this treatment which the State had provided. If a physician or attendant trained in hydrotherapy had been in charge he would have discovered this defect. Despite the fact that I suggested a simple mode of remedying this defect it has not yet, as far as I know, been accomplished.

In another institution, which is regarded as the most modern and scientific in this country, the director of the hydrotherapeutic plant asked me where he could procure an apparatus in which patients could obtain a nebulous spray, in lieu of the continuous (hammock) bath, believing that the former would be more effective than the latter. It did not seem to occur to this presumably expert hydrotherapeutist that the nebulizing of water would cool it by evaporation and thus the favorable effect of continuous warm moisture would be precluded.

In a recently constructed building for three hundred patients connected with a State institution housing several thousand insane, the hydrotherapeutic installment involves, among other defects, the passing of the nude patient, emerging from the hot-cabinet, across the end of a long, wide hall, before entering the douche room. Funds to remedy this and other defects which would neutralize the good effect of the treatment had been refused by the State Commission.

Other flagrant evidence of the unfamiliarity of some of our most eminent psychiatrists with the technique and physiological action of water in the management of the insane is omitted here, although it is even more convincing than those above cited, because public policy demands its suppression. Anyone legitimately interested in this matter may by personal interview obtain all the data at my disposal, which go to show that the optimism of Dr. James would be greatly justified if psychiatric institutions would use water in the treatment of the early stages of insanity, as it is used in some public institutions for the treatment of pulmonary tuberculosis. (See Reports of Hospitals of Department of Charities, New York City, for April, 1917.)

SIMON BARUCH, M.D.

51 WEST 70TH STREET.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE SUPPLY OF MEDICAL OFFICERS TO THE BRITISH FORCES—THE MEDICAL SERVICE OF THE AIR-BOARD—THE MILK SUPPLY FOR CHILDREN AND MOTHERS.

LONDON, Feb. 23, 1918.

THE British Army has been supplied for practical purposes throughout the war with medical men of every pattern and standard, and almost of every age, by the voluntary efforts of the medical profession, acting through the Central Medical War Committee. The establishment of the Royal Army Medical Corps was quite a small one, graded to match a quite small standing army, and almost at the outset of the war, when the size of the struggle could be

faintly foreshadowed, it was clear that one of the great difficulties to be faced was the supply of medical men for an army that was to be multiplied at least by ten. Some said with horror that at least 5,000 civilian doctors would be required with the army; some, in calmer mood, because they saw more clearly, put the lowest figure of the requisition at 8,000; and, in the event, with wonderful equanimity, the civilian doctors agreed that every one of them who could be spared must accept a commission. This number already bulks nearly double of any estimate. To decide who could be spared, the Central Medical War Committee came into being, and was recognized by the Government as a statutory body to which medical men might repair for exemption from military service, when age and fitness made them liable to the military demands of increasingly severe conscription. To their committee the War Office also decided to look for their supply of military medical officers. For over two years now the Central Medical War Committee, with the organization of the British Medical Association at their disposal, have discharged their double and difficult duties, and they have not received from the public the general recognition of their services which has been well merited. For the work has been invidious, delicate, and arduous. The medical registers of England, Wales, and Scotland (where an affiliated Scottish bureau has discharged similar functions) have been classified, the man-power of the medical profession in each center of population has been tabulated, and the medical men of military age, who have been called up for service, have been sifted with a double eye to the needs of the War Office and the needs of the civilian population. In this way, and with the greatest difficulty sometimes, the military *cadre* has been kept complete, and the ordinary preventive and therapeutic services of the country have been preserved from complete dislocation even when depleted to an unthinkable extent. But lately the demands upon the committee for the delivery of military officers to the War Office, on the one hand, and for the retention of practitioners in their civilian occupations, on the other, have become very acute, and at the close of February the committee was compelled to send a formal request to the Government, urging that the duties of medical officers serving with the forces should undergo revision, in order to obviate further calls upon the civilian medical practitioners. The request is a perfectly reasonable one. The committee have reduced the number of civilian medical practitioners almost to the danger point, and have the right of good work done in asking that before being called upon to pursue their policy further they should be assured that an economical use is being made by the army of the vast number of military medical officers already passed forward for commissions. The war has been in progress three years and a half, and in many directions and spheres its conduct has taken on a routine shape which allows of fairly accurate forecasting. The War Office is asked, though not in so many words, to ascertain whether too many medical men are not being employed in certain positions under the existing scheme, and, this being ascertained to be the case, whether future needs cannot be met by a more economical use of the officers already in their serv-

ice. And this is a most reasonable representation on the part of the Central Medical War Committee, which has done splendid work.

A powerful plea has been published for the immediate constitution of a special medical service for the recruiting and treatment of flying men. It is obvious that the flying man should be the fittest of the fit, and that he must be kept so. The ordinary scrutiny given by a medical board to a candidate for a commission, however careful, would often not be sufficient in the circumstances. The special examinations that should be conducted call for the intervention on many occasions of medical knowledge of high and particular quality, and would be expected only from members of a selected service. Similarly, the care of flying men when in discharge of their dangerous duties is a matter requiring not only general medical knowledge of a thorough sort, but real familiarity with the outlying paths of, for example, ophthalmology, otology, and psychology. It is easy to see that a service of this high scientific standard is so desirable that it ought certainly to be established if we consider what would be expected from it. It would be asked from its work among the flying men to deduce the rules for its own guidance in recruiting those men. Accidents occur sporadically, but assuredly have often a common cause; accidents, therefore, should be grouped in classes and the utmost acumen brought to bear upon the problems of their common factors. Armed in this way the medical boards could look for defaults in physique and temperament which at present pass unnoticed, and the candidates, while not being rejected could be given training on the ground and at the aerodrome before being admitted to more perilous work. The number of accidents would go down, not only because of the intelligent sifting, but because the increased safety, becoming known to the young recruits, would protect them from psychological strain. Much of this was implied, and some was said, in the House of Commons last week by Sir Watson Cheyne, late president of the Royal College of Surgeons of England, and now a surgeon general in the Navy and member of Parliament for the University of Edinburgh, when he stated that a scheme for the air medical service had been passed for adoption; but his words were far from constituting unreserved praise for the scheme, and it is an open secret that in several official places the medical claims for a specially constituted service were considered unjustifiable. No medical man can doubt in such a controversy on which side the right lies, and it is to be hoped that the scheme will be found sufficiently elastic to allow of expansion in the direction necessary for the greater safety of the most gallant wing of every army competing in the world war.

The question of milk for nursing mothers and children is necessarily occupying the attention of medical practitioners all over the country, but their immediate anxiety here this week has been met by a wise regulation. All nursing and expectant mothers are now entitled to the amount of milk certified for by medical men. Every child under 18 months of age is entitled by the same administrative order to 1½ pints of milk daily, and between 18 months and 5 years to one pint daily. At various centers established for child welfare priority

certificates for the milk will be granted, as well as by medical officers of health for the districts. The price will be made to fit the means of the applicants, the local rates and the Government sharing the cost of any deficiency.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

February 28, 1918.

1. Back Troubles, a Review of the Present Situation from a Series of Hospital Cases; and a Discussion of Musculo-Ligamentous Causes. Herman W. Marshall.
2. Lithiasis with Bilateral Renal Involvement. W. F. Braasch.
3. Fracture of the Neck of the Femur; Report of Three Cases. Charles E. Ayers.

2. **Lithiasis with Bilateral Renal Involvement.**—W. F. Braasch bases this article upon a study of 62 cases of bilateral nephrolithiasis occurring at the Mayo Clinic from January 1, 1910, to October 1, 1917. In the same period there were 504 cases of unilateral nephrolithiasis—a percentage of 12.3 of bilateral trouble. Bilateral as well as unilateral lithiasis occurred twice as often in the male as in the other sex. Pain in bilateral nephrolithiasis was unilateral in 64 per cent. and absent in 8 per cent. of the cases. Bilateral stones were found most frequently in the pelves and calices. Combined renal functional tests were of practical value only when normal or extremely low. To ascertain the comparative degree of function in the two kidneys, the functional test was of value only when it was zero or a trace, normal or excessive. The functional test, x-ray examination and cystoscopic inspection may be insufficient in determining the degree of healthy renal tissue remaining, and exploration only can determine this. Indications for operation: (a) The kidney with acute complications should be operated on first; (b) without acute complications the kidney with the better function should be operated on first; (c) occasionally simultaneous bilateral operation is advisable. Patients may be inoperable because of renal insufficiency, secondary infection, kidney destruction, or constitutional complications. Patients with large bilateral stones causing no symptoms or complications are better off without operation. The operative mortality in this series was zero; the total number of deaths after operation 10; these patients died less than a year following operation. The operative mortality with calcareous pyonephrosis is much greater than with other forms of bilateral lithiasis. The recurrences in cases of bilateral nephrolithiasis was 20 per cent.; in unilateral lithiasis, as previously reported, it was 10 per cent. When there is stone in one kidney the most common forms of disease in the opposite kidney are: Pyelonephritis, pyonephrosis, and hydronephrosis. With unilateral lithiasis the opposite kidney may be so badly diseased that a preliminary operation may be advisable on that kidney. Stone secondary to pyelonephritis, when removed, prevents further renal destruction but is not of curative value. When the nephritic element predominates, removal of the stone is not of much therapeutic value. A single kidney has a great degree of tolerance for repeated operation for stone. In a single kidney the phenolsulphonephthalein output usually remains high in spite of the presence of an uncomplicated stone which is probably due to compensatory hypertrophy. Fused or horseshoe kidneys permit of repeated operation for lithiasis which may, if necessary, include heminephrectomy.

New York Medical Journal.

March 2, 1918.

1. Tooth Infection. Oliver T. Osborne.
2. Hyperthyroidism and Mental Disorders. W. K. Walker.
3. The Daughters of the Moabites and Our Soldiers. William Lee Howard.
4. The Surgical Aspects of Gastric Hemorrhage. George Woolsey.
5. On the Nature of the Transference in Psychoanalysis. Adolph Stern.
6. Subdural Spinal Abscess. Harry Lowenburg.
7. Facial Paralysis Following Infection of the External Auditory Canal. A. Noah Schiller.

4. The Surgical Aspects of Gastric Hemorrhage.—

George Woolsey points out that the cause of gastric hemorrhage may be in the stomach or outside. Hemorrhage from gastric ulcer is not so frequent as is often supposed, and hemorrhage, *per se*, is of little value in the diagnosis of ulcer. The correct diagnosis of the cause of the hemorrhage is made in less than half the cases. The cases of gastric hemorrhage curable by surgical operation are those due to chronic ulcer and carcinoma and to diseased conditions of the appendix, gall-bladder, and spleen. Operation should not be performed during profuse hemorrhage. Such cases should be treated medically and operated on when the patient has sufficiently recovered, if chronic ulcer is suspected. Care should be taken in cases of repeated hemorrhage to operate before the patient becomes profoundly anemic. Transfusion may save life, or may simply check the hemorrhage and make the patient an operable risk. Gastroenterostomy is the simplest and safest operation, but alone or even with pyloric exclusion is not an absolutely certain cure. Under favorable conditions excision or resection should be done, but care should be taken not to attempt too much. If there is no ulcer the appendix, gall-bladder, and spleen should be explored, and removed if pathological.

Journal of the American Medical Association.

March 2, 1918.

1. Urinary Antisepsis: A Study of the Antiseptic Properties and the Renal Excretion of Compounds Related to Phenolsulphonephthalein: Preliminary Report. Edwin G. Davis.
2. Medical Jurisprudence: The General Rules of Law Governing the Liability of Physicians and Surgeons for Malpractice. Lawrence A. Steinhardt.
3. Trichinosis: A Report of Three Cases Simulating Meningitis, with the Findings of Trichina Larvæ in Spinal Fluid. Jacob Mayer.
4. The Dreyer Method of Agglutination, as Used at the Army Medical School. Eric A. Fennel.
5. The Urinary Tract in Pulmonary Tuberculosis: A Report of the Study of Six Hundred Cases. S. William Schapiro, Joseph Wittenberg, and Sidney L. Spiegelberg.
6. A Method of Draining the Bodies of the Vertebrae: Preliminary Report. Leo Mayer.
7. Profound Toxemia After Administration of Neodiarsenol (a Brand of Neo-Arsphenamin). J. W. Miller.
8. Duodenal Fistulas. Dudley W. Palmer.
9. Detection of Pretended Loss of Hearing with Special Reference to Unilateral Deafness. R. R. Brownfield.
10. The Dust Hazard in Certain Industries. T. Grier Miller and Henry Field Smyth.
11. An Unusually Large Vesical Calculus. H. M. McCandless and Nathaniel Bercovitz.

3. **Trichinosis: A Report of Three Cases Simulating Meningitis, with the Findings of Trichina Larvæ in Spinal Fluid.**—Jacob Mayer gives the histories of three cases of trichinosis, in two of which definite clinical symptoms of meningitis were produced by trichinæ in the spinal fluid. In addition to the trichinæ the spinal fluid showed an increase in lymphocytes, from 240 to 40 per cubic millimeter, reduced the Haines solution, and gave a positive Ross-Jones test. Meyer calls attention to the necessity of differentiating early cases of trichinosis with meningeal irritation from cases of poliomyelitis. The diagnosis of trichinosis may be established by the occurrences of edema, the presence of an eosinophilia in the blood picture, and the isolation of the trichinæ from the spinal fluid or muscle. Urticaria developed in one case, the differential count being 12 per cent. when the urticaria first appeared and 10 per cent. twenty-four hours later.

10. **The Dust Hazard in Certain Industries.**—T. Grier Miller and Henry Field Smyth point out that although dust as a health hazard in industry has attracted considerable attention, few exact studies of its nature and quantitative features have been published. It is necessary that definite knowledge be gained as to how dust affects health and the manner in which the resultant pathologic conditions are brought about, and it is of prime importance to appreciate certain things about dust itself. A study of dust samples taken directly from the air, at the respiration level, of sixty-five departments of twenty-two plants, representing five industries dealing with inorganic and four with organic materials, has led to the following conclusions: (1) For a complete understanding of the problem of dust in industry, there must be considered not only its weight, but also the number of the particles, their

nature, whether organic or inorganic, and their percentage distribution according to size. (2) The order of the industries studied in regard to dustiness, as determined by weight, was (a) Portland cement, (b) plush, carpet and blanket, (c) flint grinding, (d) steel grinding, (e) asbestos, (f) felt hat, (g) pottery, (h) cigar, and (i) silk. (3) The order as determined by the count of particles was the same except that (a) the asbestos, (b) the plush, carpet and blanket, and (c) the felt hat industries were given lower positions. This was largely due to the presence of fibers in these dusts, which it was impossible to include in our counts. (4) The so-called organic dusts were invariably composed of both organic and inorganic materials, and the latter ingredient may account for the harmful influences which have been attributed to certain of these dusts. (5) The organic dusts averaged less than the inorganic dusts, both in weight and in count of particles. (6) The percentage distribution of the different sized particles was curiously similar in all the samples, and it may be assumed that approximately half of all dust particles that are countable by the method here employed are about 1 micron in greatest diameter, the others ranging up to about 40 microns. (7) Dust removal at the point of production not only greatly decreases air dustiness, but particularly removes the smaller particles. (8) The substitution of wet processes for dry ones effectively lessens air dustiness. (9) Air dustiness varies inversely with relative atmospheric humidity, as does also the percentage of the larger dust particles. The dust samples were collected by means of the Palmer apparatus, and the determinations made by the methods of Palmer, Coleman, and Ward, as modified by Smyth.

The Lancet.

February 9, 1918.

1. Further Observations on Acidemia in Gas Gangrene and on the Conditions Which Favor the Growth of Its Infective Agent in the Blood Fluids. Almroth E. Wright and Alexander Fleming.
2. Hunterian Lecture on the Introduction of the Modern Practice of Bone-Grafting. Delivered before the Royal College of Surgeons of England on January 21, 1918. Arthur Keith.
3. Painful Neuritis Resulting from Wounds of War: Treatment by Intertruncular Alcoholisation of the Nerves. J. A. Sicard.
4. Some Remarks on Intussusception. Hector W. G. MacKenzie and W. H. Battle.
5. The Vibrating Sensation in the Differential Diagnosis of Affections of the Spinal Cord and Peripheral Nerves. R. T. Williamson.
6. A Method of Estimating the Vibratory Sensation, with Some Notes on Its Application in Diseases of the Peripheral and Central Nervous System. J. L. M. Symms.

1. Further Observations on Acidemia in Gas Gangrene, and on the Conditions Which Favor the Growth of Its Infective Agent in the Blood Fluids.—Almroth E. Wright and Alexander Fleming show by means of experiment that the growth of gas gangrene microbes is favored by the reduction of the alkalinity of the blood and they suggest that wherever, as in the dead body and the muscles, we come upon conditions which specially favor the growth of these microbes, there acidosis is likely to be the operative factor. They further demonstrate that the gangrene bacilli, by elaborating acid, can make for themselves favorable conditions at the site of infection and in the blood generally. Wright and Fleming have been able to prove experimentally that the gas gangrene bacilli of subordinate rank—i.e. *Vibrion septique*, *Bacillus adematians*, *Bacillus fallax*, and *Bacillus acrofatidus* of Weinberg, all of which are occasionally found in gas gangrene—behave in the same way as the *Bacillus* of Welch in that they grow with difficulty in normal serum but grow more and more freely as the alkalinity is blunted off. With the possible exception of *Bacillus fallax* they one and all when they grow freely make the serum acid. The post mortem appearances of Welch's bacillus—gas septicemia and “foaming liver”—were also produced by these microbes, although possibly in a less conspicuous form. Acid intoxication was produced in a rabbit inoculated with a culture of *Vibrion septique*. They found little to support the theory that the percentage of sugar is responsible for the predisposition of wounded muscle to gas gangrene infection, and were

able to show by experiment that the addition of glucose to serum did not exert any constant or marked favoring influence upon the growth of the *Bacillus* of Welch. Wright and Fleming point out that in a consideration of the symptomatology of acidosis, all known forms of the condition must be taken into account. The constitutional symptoms are hyperpnea and the possibility of sudden death. The treatment recommended is as follows: intravenous injections of alkali, followed in cases where there is danger of a relapse, by lactate of soda, administered by mouth in doses of 8 g. four-hourly until the urine becomes alkaline. The probability of an associated streptococcal infection, however, must not be forgotten. Nitrous oxide with oxygen is the best anesthetic; warmed ether is to be preferred to chloroform. It is of fundamental importance that all corrupted lymph be removed from infected or “acidosed” tissue in the after treatment of wounds, and that this lymph be replaced by lymph normal in alkalinity, in sugar content, and in antitryptic power, and to this end resort must be had to a local lymphagogue.

British Medical Journal.

February 2, 1918.

1. The Etiology of Diabetes Mellitus and the Diet and Conditions of Life During the War. R. T. Williamson.
2. The Effect of Intermittent Stretching on Muscles and Nerves After Nerve Severance. J. N. Langley.
3. Note Upon a Helpful Diagnostic Sign in Ruptured Digestive Ulcers. R. J. Willan.
4. Primary and Secondary Impetigo in Soldiers. Henry MacCormac.
5. War Surgery of the Chest. A. L. Lockwood and J. A. Nixon.
6. A Preliminary Note on the Treatment of Infected Hæmothorax. J. F. Dobson.
7. Gunshop Injuries of the Elbow-Joint: Treatment by Early Excision. W. Moir Shepherd.
8. Two Cases of Abscess of Testis Due to *Bacillus Coli*. W. Gifford Nash.
9. Referred Symptoms in Commencing Inguinal Hernia. W. B. Cosens.
10. A Case of Porencephaly. H. E. Bond.

3. Note upon a Helpful Diagnostic Sign in Ruptured Digestive Ulcers.—R. J. Willan draws attention to the presence of a transverse ring of constriction across the abdomen at the level of the lower margins of the ribs and extending into the flanks on either side as a helpful diagnostic sign in cases of perforated digestive ulcer. The constriction does not disappear with general anesthesia, but does disappear when that condition has advanced to the stage of general abdominal distension. There is no marked hyperesthesia and the patient is quite unconscious of any feeling of tightness at the site of the constriction. The appearance is as if the abdomen were constricted above the level of the umbilicus and below the transpyloric plane by an invisible rope, which represents the level of the lowermost limits of the costal arch and may be termed the “infracostal” line. The muscles involved are the two recti abdominis in front, with the external obliques, the internal obliques, and the transversales laterally. The constriction does not apply to the whole of the ilio-costal space, but only to its upper part. Willan points out that it is reasonable to assume that the powerful stimulating impulses of origin, the results of the perforation, are conveyed by the sympathetic fibers to the celiac plexus and from these to the spinal cord, when the whole nervous system is probably involved.

British Medical Journal.

February 9, 1918.

1. Possible Pitfalls in Life Insurance Examination and Remarks on Malingering. F. Parkes Weber.
 2. Two Years' Experience of Septic Wounds in a V. A. D. Hospital. Alexander Blair.
 3. The Technique of the Carrel-Dakin Treatment. G. E. McCartney and F. H. H. Mewburn.
 4. The Treatment of Wounds by Flavine. E. M. Pilcher and A. J. Hull.
 5. Wound Flora in Relation to Secondary Suture. A. R. Munroe, A. G. Fleming, and R. M. Janes.
 6. The Value of a Mixture of Cyllin, Iodoform, and Olive Oil in Intrathoracic Sepsis. W. Gordon and M. E. Gates.
 7. Mutton Bird Oil. J. S. Purdy.
 8. Pericardial Knock. W. P. Henley Munden.
 9. A Series of Cases of Typhus Fever. Joseph Stark.
 10. Penetrating Gunshop Wounds in Civilian Practice. A. R. Walters.
7. Mutton Bird Oil.—J. S. Purdy points out that the

oil extracted from the Sooty Petrel is not only an excellent substitute for cod-liver oil, but, in the opinion of some, more effective in the treatment of bronchitic conditions and phthisis. This bird is known in New Zealand and Australia as the mutton bird. It spends nine months of the year in the Antarctic, and is constituted to stand extreme degrees of cold. On the same day every year the birds arrive in enormous numbers at their breeding places on Stewart Island, to the south of New Zealand, and on the islands in Bass Straits. They depart in flocks at the end of their period of migration. The female bird lays only one egg, which is hatched by the parents sitting in turn. The young birds are fed by the parents with marine life collected from far at sea. When about six weeks old the young, which are found in burrows similar to rabbit holes, are taken by the residents and half castes who visit these islands for the mutton bird season. The young bird is lined with fat, which is expressed as oil. The birds are then gutted, salted, and smoked, and used to be sold in Tasmania and New Zealand at a retail cost of one and a half to two pence (three to four cents) each, and in Sydney at six pence each. Recently a certain number have been tinned for export. Some have reached the western front, and have been much appreciated as an article of diet. The supply of oil from this source is considerable, and would be a valuable addition to medicinal oils. A special report on the mutton bird industry was prepared for the Tasmanian Government and arrangements have since been made for the sufficient protection of the birds to prevent any serious diminution in their numbers.

Berliner klinische Wochenschrift.

December 17, 1917.

The Diagnosis of Primary Nasal Diphtheria and Cutaneous Diphtheria in Children and Infants.—L. Landé has met with 92 instances of primary localization in the nasal mucosa out of a total of 222 cases of diphtheria. Thirty-one of the children were less than one year old; from 4 to 13 years of age this form was not uncommon. In the infant more than 75 per cent. of cases of diphtheria develop primarily in the nose and remain isolated to the mucosa. The diagnosis should be based not only by the presence of the K. L. but by the special type of nasal discharge present, as well as the presence of fibrinous false membranes discovered by anterior rhinoscopy. The evolution of the process is usually mild, and an injection of serum will clean up the mucosa in from four to eight days. Cutaneous diphtheria is less well known, but Landé has, nevertheless met with 44 cases out of a total of 200 diphtheritic children, and in 32 cases it was even the only manifestation of the disease. It is far from infrequent and is dangerous from the viewpoint of contagion, because it may not give rise to any suspicious symptom, without fever or change in health. Clinically it appears as superficial, pseudo-membranous cutaneous erosions, and it may assume the form of ecthyma or a non-suppurating panaris, or even that of vericella or pemphigus. The prognosis of primary cutaneous diphtheria is good when the lesions are localized. Serum has a more rapid action even than in nasal diphtheria.

Malformation of the Cribriform Lamina of the Ethmoid Bone as a Cause of Purulent Meningitis.—C. Froboese recalls Hausemann's opinion, which admits that from the effect of shell explosions and the super-pressure resulting the cribriform lamina of the ethmoid may be driven in and secondary ascending infection of the meninges result. The variations in the thickness of the bone unquestionably give rise to a more or less great predisposition to this accident. The writer met with a case in which a malformation (perforation) of the cribriform lamina, with hernia of the dura, gave rise to a mistaken diagnosis of a polypus and led to an operative interference for the supposed polypus. A fatal purulent meningitis followed as a result of the mistaken diagnosis.

Münchener medizinische Wochenschrift.

December 18, 1917.

The Question of Prostheses Functionating at the Will

of the Patient.—A. Bethe studies the various methods of construction of artificial hands. Hands having a complicated mechanism are not suited for work requiring much force (laborers, farmers, etc.). In the finer trades the hand should adapt itself to individual needs. At present it may be admitted that Sauerbruch's kinetic procedure is far superior to the older principles of Ballij or Carnes. Modern construction of artificial limbs admits the necessity of a stop-cog for fixing the hand position for holding, no matter upon what principle the apparatus is based. It has been upheld by some that by this system the sensation of strength is done away with, since the muscle which starts the movement does not act in maintaining it. The advantage of this mechanism resides in a great economy of effort when carrying heavy objects, etc. Bethe admits the utility of perception of the developed effort, just as a man with an amputation stump locates the nervous irritation in the amputated limb, the wearer of an artificial limb finally locates the sensations in the false member. Even the sensation of force, resistance and of contact are in reality perceived in the stump to which the prosthesis is attached. It is to meet this end that Bethe has constructed an artificial hand on which the stop-cog, useful for heavy work, can be instantly removed, thus permitting the utilization of the hand for more delicate work.

The Abortive Treatment of Acute Articular Rheumatism.—A. Edelmänn adds to an intensive salicylic treatment the exhibition of sterile milk subcutaneously, thus realizing hyperemia of and exudation over the involved structures, and at the same time a concentration of the salicylate in the circulation. The rheumatismal process is thus controlled in a few days and the endo and pericardiac complications are prevented. Of seventy cases treated, the writer did not meet with a single case of pericarditis, and in only two patients did a cardiac lesion arise. This treatment is successful where the salicylate treatment alone appeared to be ineffective. A declared endocarditis is not a contra-indication for this treatment; on the contrary, it is favorably influenced by intramuscular injections of 10 c.c. of sterile milk.

Deutsche medizinische Wochenschrift.

December 20, 1917.

Grashey's Radioscopic Operative Technique.—Drüner points out the services derived from Grashey's apparatus for the removal of foreign bodies (Grashey, Beitr. Z. klin. Chirurgie Bd. 70, Heft 1). This apparatus consists in a cryptoscope, through which the operator observes with one eye and can follow the steps of the operation on the screen, while with the other eye he can observe the entire field of operation by using daylight. By means of this method Martin has been able to remove 176 foreign bodies out of a total of 178 cases, a percentage which cannot be attained by any other method for locating foreign bodies.

The Treatment of and Vaccination Against Typhus Fever by Means of the Proteus X 19 Vaccine.—R. Hilgermann and W. Arnoldi admit that this bacillus enters to a certain extent in the etiology of typhus fever. Even by admitting only a semi-specific rôle, there is reason to look for a certain useful effect from vaccination with the Proteus X 19. The writers have observed that intravenous vaccination with this organism in the first place produces a reaction of an anaphylactic type, and then a drop in the temperature which indicates recovery. The writers, however, did not have a sufficient amount of the vaccine to enable them to make categorical statements as to results.

The Epidemiology of the Shiga-Kruse Type of Dysentery.—Von Friedreich has observed a clinically mild epidemic of this affection, in as much as 100 per cent. of the patients recovered. Regardless of this fact, the stools contained hypertoxic bacilli, and the reaction of agglutination was marked in most cases. The writer insists upon this discord being the clinical manifestations and the bacteriology of the epidemic, and rather tends to attribute it to the fact that the men were at the time living in very good hygienic conditions and had not been weakened by service at the front.

Book Reviews.

A TREATISE ON REGIONAL SURGERY BY VARIOUS AUTHORS. Edited by JOHN FAIRBAIRN BINNIE, A.M., C. M., F.A.C.S., Kansas City, Missouri. In three volumes. Vol. II. Octavo of 656 pages, with 213 illustrations. Price \$7.00. Philadelphia: P. Blakiston's Son and Co., 1917.

THIS volume impresses us as being distinctly better than the first. In our review of the first volume we said that each chapter was written by a surgeon particularly qualified in that field, and while that was quite true, there was a big difference between the best and the poorest chapters in the book. We suggested that some would have been better for a little friendly editing on the part of Binnie; but some reviewers, we find, were much more emphatic in their criticisms along this line. The second volume, however, seems much more evenly balanced and practically all the articles are at least good, while many are excellent. The list of contributors contains the names of some of the best-known surgeons of Great Britain and America; and it is safe to say that even the most critically inclined reviewer will be unable to point out more than one really weaker chapter in this volume.

British authors who have contributed to this volume include Rutherford Morison, who writes on the stomach and small intestine; F. T. Paul, who covers intestinal obstruction; E. Hurry Fenwick, with a section on the bladder; Alexis Thomson and William Thornburn, who cover the affections of the spinal column, and diseases of the spinal cord, respectively. American authors include Binnie, Ochsner, W. J. Mayo, C. A. Powers, E. S. Judd, L. L. McArthur, Coffey, Haggard, Lower, Gibson, and E. O. Smith.

Morison's article on the stomach and small intestines is excellent, but too little emphasis has been given to the value of the x-ray in the diagnosis of certain conditions, gastric, and duodenal ulcer, particularly. Binnie's description of sliding hernia could be made much more lucid, and this should be done with the first revision of this volume; for the operator who is confronted by a hernia of this type and does not thoroughly understand its mechanism and the technique of its reduction is apt to either cut into the lumen of the bowel or so injure its blood supply, while thinking he is separating adhesions, that gangrene may result. Ochsner's section on appendicitis gives a very complete exposition of the subject. For example, under the heading "Differential Diagnosis," thirty conditions, which may be confused with appendicitis, are considered. His ideas regarding the conditions under which an acute appendicitis should be operated upon are, however, somewhat at variance with those of most equally expert surgeons; though many will agree to his conclusions when operation must be done by a relatively inexperienced operator. The sections by Mayo, Paul, and Judd satisfactorily conclude the portion devoted to the gastrointestinal tract. Of the sections in the remainder of the book, those of Coffey (on the pancreas), Lower (on the kidney and ureter), Fenwick (on the bladder), and Gibson (on the prostate) are of particular excellence. Most of the remaining sections are also worthy of special mention, but lack of space forbids.

The illustrations in this volume are almost uniformly good, while the colored plate showing the anatomy of the pancreas is particularly effective. There are numerous typographical errors, and various evidences of not too careful proofreading; but the meaning of the text is clear in all but a very few instances. If the standard established by this second volume is maintained in the third the complete set will be of unusual value.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles, etc. Edited by H. R. M. LANDIS, No. 3, Volume IV. Twenty-seventh Series. 1917. Price, \$2.00. Philadelphia and London: J. B. Lippincott Company.

THE clinics in this volume are perhaps not up to the usual standard of interest. Nearly all are devoted to surgical topics, and orthopedics and bone surgery predominate. Of the original articles that by Meroz

of Geneva, on primary tumors of the heart, is a good monograph. Beverley Tucker's paper on brain tumors is valuable as a pathological study, but of fifteen cases related all ended fatally but two. W. A. Steel appears to have cured five cases of pyemia and three of septicemia by the transfusion of immunized blood. The type of disease treated usually ends in death, although limited to chronic blood states.

The very large number of prominent clinicians now engaged in military work must greatly reduce the number of available papers of non-military character. If we bear this in mind we may say that the reputation of the clinics is being fully upheld.

MALINGERING, or the Simulation of Disease. By A. BASSETT JONES, M.B. (Lond.). Late Temp. Hon. Lieut. R.A.M.C., Welsh Hospital, Netley; Late Senior Surgeon, Cardiganshire General Hospital; Deputy Coroner, North Cardiganshire; Medical Referee to Various Insurance Companies; Formerly Medical Referee under Workman's Compensation Act, and Surgeon to Various Friendly Societies; Fellow of the Royal Society of Medicine; Fellow of the West London Medico-Chirurgical and the Royal Meteorological Societies; Co-Author of "Fibrositis"; and LLEWELLYN J. LLEWELLYN, M.B. (Lond.), Senior Physician, Royal Mineral Water Hospital, Bath (Attached to Second Southern General Hospital); Physician, Officers' Convalescent Home, Bath; Formerly Medical Officer of Durham County Asylum; Fellow of the Royal Society of Medicine; Author of "Arthritis Deformans," Co-Author of "Fibrositis"; Contributor to Latham and English's "System of Treatment," also to "Oxford Encyclopedia of Treatment," etc. With a Chapter on Malingering in Relation to the Eye, by G. W. BEAUMONT, Acting Ophthalmic Surgeon to the Bath War Hospital; Author of "Injuries of the Eyes of the Employed," "Problems in Prognosis," etc. Price, \$7.00 net. Philadelphia: P. Blakiston's Son and Co., 1917.

THE present war has brought to the front a subject which is greatly neglected in peace times. To be sure, prison physicians, psychiatrists, and insurance examiners are all more or less familiar with malingerers, but now that the world has been combed for soldiers, and these exposed to terrific strain, we find wholesale malingering. Artificially induced abscesses, sugar added to the urine, soap-chewing convulsive efforts, these are commonplaces in the big armies, and have been described in many papers. Jones and Llewellyn, however, have undertaken a monograph on the subject and produced an admirable work. After an exhaustive study of the subject as a whole, with its psychology and medicolegal aspects, the authors go into great detail in describing malingering in its relation to various systems of the body; this part of the book is systematic and thorough, no vague generalizations are indulged in, but the writers are specific and practical. In short, they exemplify their own doctrine, that a diagnosis of malingering must not be founded on incomplete examination, imperfect observation, or hasty inference. This work might well be added to any practitioner's library; to the military surgeon it is invaluable.

THE PRACTICAL MEDICINE SERIES. VOL. VIII. PHARMACOLOGY AND THERAPEUTICS. Edited by BERNARD FANTUS, M.S., M.D. Associate Professor of Medicine, Subdepartment of Therapeutics, Rush Medical College, Chicago. PREVENTIVE MEDICINE. Edited by WM. A. EVANS, M.S., M.D., LL.D., Ph.D. Professor of Preventive Medicine, Northwestern University Medical School. Series 1917. Price, \$1.50. Chicago: The Year Book Publishers.

WHETHER or not advances in the domains of pharmacology, therapeutics, and preventive medicine are more readily apprehended and appreciated than those in the other provinces of medical science, the fact remains that this volume is a better annual than the average. It may be purchased separately and should prove an excellent investment for the practitioner in whatever field of activity. It needs only the turning of a few leaves here and there to show that the compilers are not only well qualified for this kind of work, but evidently work from a sense of duty and pleasure combined.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting Held February 7, 1918.

FIRST VICE-PRESIDENT, DR. GEORGE D. STEWART, IN THE CHAIR.

THE program of the evening was furnished from the Camp Upton Base Hospital, Major J. Whitham, commanding.

Classification and Results of Treatment of Pneumonia at Camp Upton.—DR. RUSSELL L. CECIL spoke briefly on this subject. He stated that on Feb. 3, 1918, the 100th case of pneumonia was admitted to the Base Hospital of the camp. The health conditions at Camp Upton had been unusually good. It was not until the arrival of the colored troops from the South that there had been an increase in the morbidity rate of the camp. The incidence of pneumonia by months was October, one case; November, 4; December, 47, and January, 46 cases. The maximum number of troops in the camp was 35,000; the number of colored troops 3,500, or 10 per cent. of the whole number, yet 50 per cent. of the pneumonia cases occurred among this 10 per cent. This was explained by the fact that the colored troops came from a warmer climate and by the fact that measles had been epidemic among them. A number of the cases of pneumonia were secondary to measles. Of the 100 cases of pneumonia, 75 were primary and 25 secondary. Of the secondary cases, 19 followed measles, four mumps, and one each, German measles and scarlet fever. The case following scarlet fever and five of those following measles were streptococcus pneumonias. Dr. Cecil then presented a table showing the classification of the pneumonia cases according to the causative agent, comparing the Rockefeller series of cases with the Camp Upton series. This chart showed that the pneumococcus was the cause of pneumonia in 94.59 per cent. of the Rockefeller cases and in 67.79 of the Camp Upton cases; the streptococcus was the causative agent in 3.1 per cent. of the cases of the Rockefeller group and in 24.7 per cent. of the Camp Upton series; the influenza bacillus was the causative agent in 1.2 per cent. of the Rockefeller cases and in 2.2 of the Camp Upton cases; the Friedlander bacillus caused 0.6 of the Rockefeller series, while there were no cases in the Camp Upton series due to this organism. The *Staphylococcus aureus* likewise caused 0.6 of the Rockefeller group and none at Camp Upton; the *Micrococcus catarrhalis* was not found as the causative agent in any of the Rockefeller group, while it caused 5.4 per cent. of the Camp Upton cases. The pneumococcus group were classified according to the type of pneumococcus into groups I, II, III and IV. The incidence of these four types in the Rockefeller group and in that at Camp Upton was as follows: Type I organisms were found in 33.9 per cent. of the Rockefeller cases and in 27.9 of the Camp Upton cases; Type II was found in 31.9 per cent. of the Rockefeller cases and in 12.79 of the Camp Upton cases; Type III was found in 12.9 per cent. of the Rockefeller cases and 9.5 per cent. of the Camp Upton cases; Type IV was found in 24.9 per cent. of the Rockefeller cases and in 50.8 per cent. of the Camp Upton cases. The methods used in classifying the groups were the mouse inoculation method and the more recent glucose blood broth method of Avery, the mouse inoculation being used in 71 instances, the blood broth in 6 and both methods in 13 cases.

The average duration with each type was as follows: Type I, 7 days; Type II, 6½ days; Type III, 6 days; Type IV, 6½ days. There were a larger number of cases due to Type IV pneumococcus than in civil life, and the cases of this type were a little more severe than in civil life. There was an unusually large number of cases due to the streptococcus, the average duration of these cases being 5½ days. Of the 23 streptococcus cases, 24 per cent. were hemolytic and 76 per cent. non-hemolytic. Only 26 per cent. of the streptococcus cases occurred among the secondary pneumonia cases. Twenty per cent. of these were of the bronchopneumonia type and 80 per cent. were of the lobar. The mortality rate for the different types were as follows: Type I, 5.8 per cent.; Type II, 0.0; Type III, 16.6 per cent.; Type IV,

18.7 per cent.; streptococcus cases, 30.4 per cent. The *Micrococcus catarrhalis* cases were not of a severe type. In the treatment of these cases two types of serum were used. The Government supplied a Type I serum and a polyvalent serum (Mulford). The speaker said they had tried out one or the other serum in nearly all the pneumococcus pneumonias. The maximum number of serum injections given was six and the average number 2.2. The serum was employed in 77 per cent. of all cases. Of the Type I cases, 100 per cent. received the serum and of the Type II cases 85 per cent. received the serum; of the Type III cases 100 per cent., and of the Type IV cases 68.7 per cent. were thus treated. The patients were all given one-half a c.c. of normal horse serum several hours before the administration of the antipneumococcus serum in order to protect them against anaphylaxis. In many of the streptococcus cases as well as in the different types of pneumonia cases the administration of the serum was followed by a marked drop in the temperature, which appeared to be a sort of foreign protein reaction. As was shown in other groups of cases studied elsewhere the serum was most effective in pneumonias due to the Type I pneumococcus. In speaking of the complications met with in this series of cases, the speaker stated that the most frequent complication was empyema, 12.9 per cent. of the pneumococcus cases and 24.9 per cent. of the streptococcus cases having this complication. There were several cases of pneumococcus septicemia. There were a few relapses. Serum sickness occurred in about 25 per cent. of the cases, probably in more, but it was not noticed. It came on with varying intensity in different cases, showing itself by a rise in temperature, urticaria, pain in the joints, and a general feeling of discomfort, lasting a day or two. In addition to the cases of serum sickness there were two cases of acute anaphylaxis. The first of these occurred in a lobar pneumonia due to Type III pneumococcus. The patient showed no reaction to the preliminary dose of horse serum, but five minutes after receiving the intravenous injection of serum, he developed an intense dyspnea, became pulseless, and his sphinters relaxed. This lasted about twenty minutes, when he revived and went on to recovery. The second case of acute anaphylaxis showed no reaction to the one-half c.c. of horse serum, but after receiving about 50 c.c. of antipneumococcus serum he became cyanotic, respiration stopped, and he died. This was explained by the fact that he had received 100 c.c. of antipneumococcus serum intravenously two weeks before (without reaction) and had become so hypersensitive that the second preliminary dose of horse serum did not protect him. There should not have been such a long interval between the doses of serum. There was a mortality of 15 out of the 100 cases of pneumonia, which was an exceptionally good showing. The mortality among the white troops was 14 per cent., among the colored 16 per cent., and it occurred mostly among the empyema cases. After analyzing the fatal cases more in detail, Captain Cecil stated that the lessons to be derived from their study of pneumonia cases at Camp Upton were: (1) All pneumonia cases should be typed; it was a great advantage to know with what organism one was dealing. (2) Serum should be given to all Type I cases, for there was convincing evidence that the serum was of value in these cases, as shown by the drop in temperature and a subsidence of symptoms. (3) The serum should be given early in the disease. (4) In the streptococcus cases one should be on the lookout for empyema and as soon as pus was detected free drainage should be established.

Measles from the Standpoint of Military Medicine.—DR. F. J. HACKETT, in charge of the contagious wards, presented this subject. He stated that measles had been defined as an acute disease of the upper air-passages and skin. It should be classified as an acute disease of the upper respiratory passages. It was a disease of close association, more common in the winter months, the period of poorer ventilation, the time of year when there were larger gatherings in overheated and poorly aired meeting places. It was endemic in cities and infrequent in rural or sparsely settled communities. Since an army barracks provided nearly all the above conditions measles was a large problem in National Army cantonments. The conditions that appeared to play the most important rôles in its spread

and control were (1) character of the camp strength, whether urban or rural; (2) early recognition with prompt and efficient methods of sanitation—of inspection, quarantine and isolation, and finally hospital treatment. The examination of the weekly reports from the Surgeon General's office on "Disease Conditions Among Troops in the United States," especially in respect to the new admissions of measles in the various camps throughout the country, revealed corroborative facts. In the northern camps measles was not reported, except in sporadic instances until after the onset of cold weather in November. Again, in the cantonments in the vicinity of the larger cities or more densely populated sections of the country, the new measles admissions, from week to week, were few, while in the camps whose location would presume a large population of former residents of rural communities, the new measles admissions were high, in some camps being above 500 for the seven days. That measles appeared to be a distinctly urban disease was well shown by the experience in a neighboring camp, where previous to the arrival of a large number of troops from country districts, the new measles admissions were low; following the arrival of evidently non-immune troops, the measles admission rate shot up week by week. At Camp Upton the experience was very similar. During the fall and early winter there had been few measles admissions, while since Jan. 1, 1918, the white measles cases had amounted to approximately 25 per cent. of the total admissions, and it was found that with one possible exception, all of these men were born or raised in rural communities, and had acquired city residence at a comparatively recent period. Dr. Hackett emphasized the importance of the early recognition of measles cases and of keeping a close watch on troops sent from measles infected camps. Such troops should be inspected daily. Koplik spots were always looked for but were not seen, and did not seem to be an important symptom in the diagnosis of measles in the adults. As a further precaution, trains arriving at Camp Upton with colored troops from measles infected camps were inspected before the troops were allowed to detrain. Barracks were aired for at least two hours every morning and afternoon; beds and bedding were ordered exposed to air and sun for the same time and together with the clothing of the men were disinfected by being exposed to formaldehyde vapor for thirty-six hours and then again thoroughly aired. The common towel and drinking cup were prohibited; mess kits and all eating utensils were thoroughly boiled after each meal and personal cleanliness was urged on the men. The Y. M. C. A. hut was ordered closed, the Post Exchange was allowed to serve but two men at the same time, and the regimental infirmaries were kept free from visitors. At the Base Hospital, cases developing in the wards were sent to the Isolation Section and the ward quarantined for two weeks. The Registrar was immediately notified. He in turn notified the Division Sanitary Inspector who quarantined the organization to which the patient belonged, and from which he was admitted. Suspects were handled in an observation ward. In a white man a previous history of measles relieved the man from quarantine; in the case of colored soldiers the statement of previous measles was not considered of value. Among the colored admissions there was a previous history of the disease in 60 per cent. of the cases. It had been observed that measles cases returning to duty after two weeks in the hospital were easy victims of pneumonia; for this reason the Surgeon General's office, by a circular dated Dec. 10, ordered measles held on sick report two weeks longer than the usual quarantine period. Their measles cases were all treated in well heated and well ventilated hospital wards. Medical officers, nurses, and attendants took care of the cases with all antiseptic precautions. Approximately 750 cubic feet of air space was allowed to each patient. Later orders designed to diminish the incidence of post-measles pneumonia provided that wires should be arranged across measles wards and sheets hung over these so as to form a screen between each two patients. Medical officers, nurses, and male attendants wore caps, gowns, and masks. Floors of wards were gone over daily with a cloth wet with disinfectant. Under such conditions 60 cases of measles were admitted to the Isolation Wards between Sept. 1, 1917,

and Feb. 1, 1918. Medical treatment was purely symptomatic and a close watch was kept out for pulmonary complications. Of the 60 admissions, pneumonia, probably bronchopneumonia, but massive and simulating the lobar type, was met with in 17 cases, or 35 per cent. When pneumonia developed the patient was immediately removed to the measles-pneumonia ward where slightly more air space was allowed. This ward was now also sheeted and screened. The Type I organism was found in 11.7 per cent. of the cases; Type II was not found in any case; Type III was found in 5.8 per cent. and Type IV in 35 per cent. In 17.6 per cent. of the cases *Streptococcus viridans* was found, and the *Micrococcus catarrhalis* in the same percentage of cases. After discussing the complications in the pneumonia cases, Dr. Hackett stated that there was but one death among the pneumonia cases following measles. In closing he urged the importance of looking for and preparing for outbreaks of measles in all army cantonments whose population would be made up of residents of rural communities. Measles and post-measles pneumonia would receive the proper consideration only when isolation wards were built and ready for occupancy at the time of the arrival of the first troops.

Hyperthyroidism in the Recruit.—Dr. HARLOW BROOKS, Chief of the Medical Service, presented this contribution, in which he stated that in civil life he had considered hyperthyroidism almost exclusively a disease of women, and particularly of unstable women in their youth. One of the great surprises to which he had been treated since in active service had been the large number of cases of this type that had come under his observation as a member of the Cardiovascular Board of the 77th Division and in the medical wards of the Base Hospital. The British had described precisely the same condition under the heading "The Effort Syndrome" or as "D.A.H.," meaning "Disordered Action of the Heart." This group of circulatory phenomena formed an important and inseparable part of the still more uncertain condition known as "shell-shock," and it occurred to many people who had never heard the sound of the shell, but more particularly among those who most earnestly desired never to do so. Dr. Brooks stated that he did not wish anyone to conclude that he considered that he had made a discovery in regarding the symptoms in this group of cases as due to hyperthyroidism, for he believed it was the prevailing opinion among clinicians in active service. The most striking feature of these cases in nearly every instance was tachycardia, varying in degree. It was present alike in those recruits presenting themselves for initial examination and in those cases that reported later and after a considerable mead of drill and army routine might have served further to upset the mental, emotional, and circulatory equilibrium of these patients. The tachycardia was rarely accompanied by arrhythmia, even in cases of very marked degree, and polygraphic studies, except in instances accompanied by other vascular conditions showed, aside from rapidity, few other signs of abnormal action except that there were in the same cases under varying conditions usually great variations in the rate of systole. Closely associated with tachycardia was an objective and subjective throbbing of the superficial veins, notably of the carotids, of the brachials, and even of the femorals, while that of the aorta in moderately thin persons was quite evident. Naturally in polygrams this throbbing of the vessels was very striking, and they had found this graphic method often the most secure way of differentiating this condition from the throbbing vessels of an aortic incompetence. Under excitement instead of an increase in the systolic stroke there was a fall in the stroking power and this was more evident in the medium sized vessels, as the smaller ones seemed to contract while the larger vessels expanded in their arc of pulsation. Naturally with these symptoms and signs there was a wide area of apical pulsation so violent at times that an actual sucking sensation was produced on the palpitating palm at the diastole. The heart signs, because of their rapidity, were usually very difficult to analyze, but in a good many cases there was a soft systolic murmur at the apex, transmitted at times with decreasing intensity toward the axilla. With these striking signs of circulatory derangement there were many symptoms appar-

ently secondary to the tachycardia. The capillary return was always delayed. Patients complained bitterly of an oppressive bursting pain in the region of the heart, and one was often able to demonstrate areas of hyperesthesia. The pain sometimes reflected to the left or right arm or shoulder. Other symptoms were rapid succeeding flushing and paling, fainting and dizziness. The blood pressure was very low except in hypersensitive cases, and there was a notably low pulse pressure in most instances. Adrenalin caused an increase in the symptoms as had been noted by the British observers; in the writer's experience there was also apparently a hypersensitivity to thyroid, though he had not pursued this investigation far because of its evident danger. The nitrites markedly increased the symptoms and there was a general hypersensitivity to the vasomotor dilators. The symptom of tachycardia was not controlled by digitalis. The sedatives, notably the bromides, at times had marked relief. Next to the tachycardia the manifestations which seemed most striking were the numerous evidences of emotional instability, which was an invariable accompaniment of the disease. This was shown in emotional temperamental outbreaks, sometimes in epileptoid attacks, in bursts of passion, in tears, profanity, or perhaps in convulsive muscular spasms. There was an intense feeling of fear, apprehension, and terror, quite often beyond the control of the patient. Outbursts of emotion were likely to be followed by states of great exhaustion and prostration, in which the patient might appear to be *in extremis*. The neurovascular instability was further shown by the tache cérébrale, by dermatographia, by urticarial rashes, and by the almost constant symptoms of tremor. The types of nationalities chiefly affected by this syndrome were a very certain index of the strong emotional element in the disease. The Hebrews led with over 50 per cent. of the numbers which had come under the writer's observation, the Italians next, then the Irish, and least of all the Negroes, among whom, in about 5,000 recruits, he had seen but a single case, and that questionable. Breathlessness almost to dyspnea was manifest at times, but without signs of cyanosis or asphyxia. The temperature variations were small. The deep reflexes were excited, especially in the knee jerks. Most of the patients were above the average in mental acuity and the condition was lamentably frequent among promising material for non-commissioned officers. In about two-thirds of these cases one saw a very definite thyroid hypertrophy or at least a prominence of the thyroid. In some instances this amounted to an actual goiter; this was nearly always evident in cases that gave a history of some time standing. A very interesting factor notable in most of these cases and of very direct bearing on the question of the rôle which hyperthyroidism played in this condition was the very certain part that heredity played in this syndrome. A very considerable number of the cases gave a history of ancestral goiter, particularly on the maternal side. There was also in most instances a familial history of nervous instability, of hysteria, insanity, perversions, or of genius. Exophthalmos was present also in the long standing instances of this condition though few cases showed in any typical degree either von Graefe's or Stellwag's signs. Thus it might be seen that these cases presented, though in perhaps mild degree in some instances, all the cardinal signs and symptoms of true Basedow's disease. These patients endured the acute infections or slight surgical incidents very badly. Tobacco also produced in them much more serious symptoms than in the average. They had also noted what had also struck the British observers, namely, a distaste for alcohol. Rest was the one factor which relieved these patients and mental and emotional rest was second in importance. This in either instance might be accentuated by the use of bromides or the more powerful sedatives. In explaining the reason so many of these cases occurred among young men of draft age the speaker said that the rôle which emotional shock, fright or mental traumatism played in the activation of Graves' disease was too well established to admit of question. The emotional excitement experienced by the young recruit incident to his separation from home and friends and the worry over what must take place subjected the nervous system to an ordeal that imposed a great demand on the endocrines of the recruit. Added to these, the overeating, drinking, and sexual excesses in which

the young recruit indulged just before his departure also called for a superlative activity on the part of the thyroid. His early days in the cantonment served to accentuate these conditions. He was forced into a new and strange life with new and strange acquaintances, all also in a state of physical and mental unrest. Thus far the question had been as to whether or not these subjects had the making of soldiers in them. Many of the cases recovered under the really healthful and normal routine of the military camp. If in these persons a careful training was imposed, not too severe, until the recruit was prepared for heavy work, if the worry and strain were sufficiently relieved by reaction, games, and camp shows, these men, oftentimes of the finest spiritual and patriotic fiber, were certain to make good soldiers, but if they were unhappy, or overly heavy or premature physical work was imposed, the recruit might break either nervously or cardiac incompetence might ultimately develop. This he had seen in ambitious young men of the higher and more spiritual type, who had striven to excel in their work and studies and rapid advancement had found them unprepared for the responsibilities and worries.

Autoinoculation in Syphilis.—Dr. JOSEPH KLAUDER, of Philadelphia, in charge of the syphilis wards, read this paper, in which he reviewed the evidence that went to show that individuals infected with syphilis were susceptible to a second inoculation or superinfection with syphilis, not only during the period lapsing between the infection with syphilis and the appearance of the chancre, but also at periods shortly subsequent to the appearance of the primary sore. In the writer's analysis of 200 cases of chancre 24 per cent. were multiple; in some of these cases, according to the patient, the second lesion appeared subsequent to the first. McDonough gave 33 per cent. as representing the number of chancres which in his experience were multiple. Noble reported cases in the various stages of primary syphilis successfully superinfected with secretions containing the treponemata from the patient's primary lesion on a small area of scarification on the same individual. In from three to eight days following the inoculation he obtained positive results in some of which lesions the treponemata were demonstrated. The sterile water controls were negative. After the disease was well established as a systemic infection, that was in the active secondary period, many investigators had reported unsuccessful attempts to superinfect individuals. Ehrmann, however, had succeeded in superinfecting syphilitics in the secondary period, in one instance as late as six months after the appearance of the general eruption, the positive results appearing in five to ten days after the inoculation, and did not appear to be influenced by treatment administered before their appearance. According to the superinfecting experiments of Finger and Landsteiner, if general infection was not yet complete a typical chancre could be produced, but from the time that constitutional symptoms appeared it became progressively more difficult to succeed. During the secondary period the result has some resemblance to the secondary papule, while in the tertiary stage ulcerated or nodular syphilides, resembling tertiary were produced. To produce any effect at all in these later stages, large amounts of virus must be introduced. These investigators further found that superinfection was possible under certain circumstances in all stages of the disease. Superinfecting experiments on syphilitic individuals were harmless and might be performed with impunity, and if successful in no way influenced the subsequent course of the disease. The writer stated that in a subsequent paper he would report the results of his superinfecting experiments on syphilitic individuals in various stages of the disease. In these experiments the treponemata from the individual's open lesion and from other sources were used. A study of the histological changes produced by such inoculations, and of results of agglutination of the same individual's serum with the treponemata used to superinfect was made. The writer reviewed the superinfection experiments of Neisser in monkeys, and the experimental work of Zinsser, Hopkins, and McBurney on animals from which they concluded that the resistance which developed during the disease was an expression of a localized tissue reaction as a result of an active invasion with the virus rather than as the result of an appreciable formation of circu-

lating antibodies analogous to those observed in bacterial diseases. Dr. Klauder reported a number of cases that were probably instances of superinfection with syphilis, and concluded that the subject of superinfection should be considered in the diagnosis of a genital lesion containing the treponemata when appearing in an individual giving a history of having had the disease. If in such lesions the treponemata were found in profusion and the Wassermann reaction was at first negative, later becoming positive, it was evidence of the lesion being a primary sore, a reinfection; whereas, if the treponemata were present in scanty numbers and the Wassermann was positive at the time of its appearance it was evidence of a possible superinfection. Genital lesions which he had observed and regarded as superinfections were papular ulcerative and ulcerating in type, with slight induration; they were clinically not chancre. It was probable that many so-called second attacks of syphilis, or reinfection, were cases of superinfection. There was nevertheless evidence that many so-called second attacks of syphilis might at times occur. By a second attack should be meant the occurrence, twice in a patient's life, of a primary sore followed by secondary symptoms, and if this definition were accepted the phenomenon would be rather rare. In the differential diagnosis of a genital lesion of the nature herein considered, besides reinfection and superinfection, the following possibilities should be considered; ulcerative processes over foci of syphilitic lymphangitis on the penis might in rare cases simulate a recrudescence of the primary sore; a mucous patch or an abrasion; in these, however, the treponemata were present in large numbers; a localization of treponemata at the point of lessened resistance as the result of trauma. Trauma in a syphilitic subject was often the determining point for the development of gumma.

Dr. SIMON BARUCH said he thought he might throw some light on Dr. Brooks' paper by mentioning the fact that in his experience at the Vanderbilt Clinic, the Riverside Hospital, and other institutions in the city, he had seen this same type of cases with enlarged thyroid and the same type of nervous instability, and had observed that the mental condition was responsible for intensifying the symptoms. Such individuals might be going along fairly well when suddenly they would be subjected to some great nervous or emotional strain and immediately this would bring out the more active symptoms of thyroid disease.

Dr. WILLIAM P. NORTHRUP spoke of the unusual opportunity that a camp hospital offered for the study of large numbers of cases under complete control, together with the possibility of making post-mortem observations. He said he had been particularly interested in Dr. Hackett's paper on "Measles" as he had been trying for twenty-eight or thirty years to keep it out of hospital wards and had found it a difficult thing to do. He asked whether they had tried the open air treatment of measles. It was a well known fact that measles usually occurred where there were large groups of children in one building and where frequently new groups were brought in. When an epidemic once started in a large institution it seemed that nothing would stop it until it had run its course. Dr. Freeman, in order to see whether he could keep these children with measles from having pneumonia, empyema, middle ear infections, and also to keep them from spreading the infection, had tried keeping them in the open air. He found that the results were much better with the children treated in the open air than with those treated indoors. When a case of measles occurred among the Indians it was customary to place the patient in a tightly closed tent and to keep a pot of water boiling with a brick in it. The result of this treatment was that nearly every case of measles died. Dr. Northrup said that he quite approved of Dr. Hackett's definition of measles as a disease of the upper respiratory passages, since such a definition centered attention on the symptoms of the upper respiratory tract which were manifest before the rash appeared. It would be interesting to know with the large opportunity at hand whether they had made any comparison as to the results of treating measles in the open air and in a warm room.

Dr. WILLIAM M. LESZYNSKY expressed his interest in Dr. Brooks' description of hyperthyroidism in the soldier. He said that from his observations he felt confi-

dent that it was the emotional strain rather than a disturbance of the thyroid secretion that was responsible for the symptoms described. Many of these men, who were under observation would never reach the other side, and he could not help feeling that it would be an advantage to the Government if they did not get over, because men showing this instability would be more likely than others to suffer from war neuroses. It would be interesting to know what percentage of these men were found to be suitable for the army when the tachycardia had disappeared.

Dr. BROOKS replied that a small percentage became fit for army service and that many of them might be found to be useful in other work that would be helpful to the Government.

Dr. HACKETT, in reply to Dr. Northrup's question, said that they treated all measles cases in a warm ward, and at the same time all measles wards were well ventilated. He believed their low death rate for measles was due to this treatment. They had had one man with measles who developed a complicating *Micrococcus cattarrhalis* pneumonia in a poorly warmed ward. He was transferred to a warm ward and the improvement which followed was remarkable. Measles in the adult always did better in a well warmed and well ventilated ward, and the incidence of pneumonia was much less when the wards were well warmed.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, January 23, 1918.

THE PRESIDENT, DR. FRANK C. HAMMOND, IN THE CHAIR.

The Pathology of Goiter.—Dr. A. G. ELLIS in this paper considered a few general points of the pathology of goiter. Diagnosis and treatment, he said, were based upon the size of the goiter and the evidence of perversion of thyroid function rather than upon the exact pathology of the individual gland. In other words, size, contour, density, movability of the goitrous thyroid did not give trustworthy information regarding histology. Clinicians with large experience reported that the symptoms were indicative of the structure of the thyroid. The Mayo Clinic, he stated, apparently reached the greatest accuracy in this respect. McCarrison, however, claimed that Graves's disease might exist with any form of goiter, and many others believed that this affection had no specific histology of the thyroid. The point to be remembered was that those whose experience included dozens or scores of cases should be careful in their criticism of conclusions based upon hundreds or thousands of specimens. Dr. Author's limited study of goitrous thyroids had not led him to believe that the pathological anatomy was easily predicted from the clinical symptoms. This referred especially to the exophthalmic goiter, which had the most striking symptomatology. Dropping the idea that each symptom-complex in goiter had its specific thyroid structure, Dr. Ellis thought the findings not to be so disquieting. The nomenclature of the histology of goiter he regarded as varied and confusing. Clinically goiters might be divided into the non-toxic and the toxic. Those of the first group were of chief importance from the standpoint of influence on neighboring structures. Termed simple or endemic goiter, they included parenchymatous, colloid, cystic, and some of the adenomatous forms. These types he thought were possibly very largely but different periods in a clinical process marked by atrophy of essential cells and lessened function. Treatment was based upon symptomatology; and rules regarding the handling of local tissue overgrowth of all types were applicable. Differentiation from true malignant tumors of the thyroid was sometimes difficult. Chief among the toxic goiters was the exophthalmic form with its well-known but not always constant symptom-complex. The clinical features rather than the microscopic picture of the removed thyroid should be the deciding point in the classification of this type of thyroid. Some of the adenomatous goiters, he said, belonged to the toxic group. The character of the colloid content, in his opinion, determined the toxicity of the goiter. The point of emphasis was that treatment of the individual

case of goiter was to be guided primarily by the local or systemic accompaniments, and secondarily by the fact that there was present a colloid, cystic, adenomatous, or hyperplastic thyroid. There should be, however, as accurate information as possible regarding the structure of diseased thyroids and a correlation of clinical findings with the pathology of every removed goiter in the endeavor to determine the changes in the gland producing certain symptoms. Such knowledge might be an aid in diagnosis and treatment, and a step toward the elucidation of the cause of goiter. Regarding etiology, reference was made to McCarrison, who believed that endemic goiter was an infection, and that the organisms reached the alimentary tract through infected soil, water and food. Animal experimentation seemed to substantiate this view. Exophthalmic goiter was also believed to be of infectious origin, although not so definitely so as the endemic type.

Goiter from the Standpoint of the Internist.—Dr. JAMES M. ANDERS said that in the discussion of goiter the point to be stressed was that really useful information was to be gained from a few recorded cases accurately and thoroughly studied rather than from the many superficially observed. While the principal symptoms of the disease were apparently due to the overactivity of the thyroid gland, cases were seen to develop in the course of other toxic conditions. The writer had observed two well marked instances secondary to rheumatism in which cure had been effected by the use of the salicylates. Cases, he stated, were recorded of luetic origin which had been cured by the antisiphilitic agents. The majority of cases of exophthalmic goiter were probably caused by nervous perturbations, especially in subjects predisposed by neurotic inheritances. Pregnancy and childbirth also had a causative influence, to be followed, however, by diminished function of the thyroid gland after parturition. An intermittent hyperthyroidism of minor degree was that occurring in adolescent girls. The claim had been made that this type might occur without alteration in the size of the gland; such cases usually yielded to appropriate measures if the condition were recognized sufficiently early; otherwise, severe toxic symptoms might supervene and persist. In exophthalmic goiter the degree of enlargement was moderate, as a rule, and the right lobe, usually more swollen than the left. The “swirling” murmur audible on auscultating the thyroid was highly characteristic when present. It may be absent. In the author's experience, tenderness, emphasized by Kocher as a finding in this disease, was not invariably present. Exophthalmos, sometimes a late appearing symptom, he had found to be a prominent feature, although subject to variations. Among other ocular characteristics were Von Graefe's, Stellwag's, and the Kocher-Boston signs. These signs, however, were more or less inconstant, although Von Graefe's was usually present. Muscular tremors, involving especially the hands, were almost constantly present and of much value for diagnosis. The characteristic features of neurasthenia appeared in classical cases. Kocher had claimed that leucopenia was an early and important sign. Dr. Anders' own experience confirmed this opinion in certain cases only. In his complete clinical records of 33 private cases, of which 27 were females and 6 males, 7 gave a previous history of tonsillitis and 6 of rheumatism. In one instance goiter developed immediately after an attack of acute tonsillitis and in two during acute rheumatism. One case was distinctly associated with chlorosis. This disease, assigned as a leading cause of hyperthyroidism, in his experience was of little etiologic importance. The family histories of his cases had revealed goiter in three instances only. The results of treatment, so far as could be learned, were: Cured, 11 (3 as a result of operation); improved, 12; unimproved, 2; died, 1. Dr. Anders regarded it a reproach to the medical profession that earlier diagnosis of goiter was not made than was at present the rule. In his opinion, the administration of iodine or thyroid extract in dubious cases, with a view to developing the symptoms, if the case were one of incipient Basedow's disease, was quite justifiable. He observed it to be a common experience among internists that rudimentary cases often yielded to well directed medical treatment. Those, however, which had reached a marked

degree rarely responded to any form of treatment other than surgical. The combined presence of fine muscular tremor of the hands and persistent tachycardia, he believed, justified a tentative diagnosis of this disease. Not uncommonly exophthalmos, or thyroid enlargement, or both develop, confirming the diagnosis. Persistent tachycardia with marked nervousness should always arouse a strong suspicion of this disease, and the same was true of tachycardia associated with the Boston-Kocher sign. Heart hurry might be the only feature present to be followed soon or late by the other characteristic symptoms of hyperthyroidism. The condition was frequently overlooked because neither exophthalmos nor thyroid enlargement had appeared. These two cardinal features, often late in development, were not uncommonly absent temporarily in fully developed cases of the affection. Rarely either or both of these signs might be permanently absent. From the standpoints of treatment and diagnosis an attempt should be made to distinguish the hypothyroid from the more common hyperthyroid form of goiter. In the former the gland might be slightly enlarged; was soft but not tender; without expansile pulsation to palpation, and no “swirling” murmur was audible. In this type the body temperature was slightly subnormal, the hands and feet liable to be cold and there was marked sweating on slight exertion. Bradycardia was the rule in hypothyroidism, the pulse rate dropping as low as 40 per minute. In these cases the use of iodine and thyroid extract were required—remedies which invariably tended to aggravate the symptoms of Graves's disease. Hyperthyroidism might merge into a myxedematous condition and it was important to note the development of the signs of atrophy or loss of thyroid function when they supervened. Not only were some of the classical symptoms often missing in hyperthyroidism, but it was also found that degrees of thyrotoxicosis varying from slight evidences of overfunctioning of the gland to the most profound signs of Basedow's disease, as shown by basal metabolic studies, occurred.

The Heart in Exophthalmic Goiter.—Dr. H. A. HARE said that goiter in the sense of simple enlargement of the thyroid gland was almost symptomless, except from pressure symptoms when the growth was exceedingly large. It was of the utmost importance to separate true goiter from exophthalmic goiter, and that there should be made also practically a third classification of thyroid disease, which might be called the hypothyroid class, because in these instances the gland, although it became greatly enlarged, did so without the development of symptoms indicating parenchymatous change. That is, there was encountered considerable enlargement of the thyroid gland, in which there was probably some degeneration of its secreting substance, producing hypothyroidism, although hyperthyroidism in the sense of the enlargement of the gland was present. In other words, there was one type of great enlargement of the thyroid gland which was symptomless, except from pressure. There could be enlargement so small that it was easily overlooked and yet in it there was so much secretion symptoms of hyperthyroidism resulted. There were also enlargements of the thyroid gland associated with lack of secretion, hypothyroidism, which class very frequently was overlooked. In regard to the hyperthyroidism or cases in which there was excessive secretion, so far as the heart was concerned, Dr. Hare had been surprised to find that in a considerable proportion of these cases, in addition to the tachycardia there was not present the relaxation of the vascular system. There was often found an exceedingly rapid pulse with a very high tension, that is, a pressure of from 160 to 180. While he had been asked to discuss the action of the heart in exophthalmic goiter, he felt that he ought to decline because of knowing so little about it. While the results of the administration of thyroid substance were known, there was very little knowledge of the definite physiologic action. In clinical medicine any acute disease with a pulse rate above 120 gave a discouraging outlook, yet in exophthalmic goiter cases of rapid pulse continued for years with impunity and often stood forms of stress and strain which were alarming. In regard to the matter of the heart in connection with surgical treatment, it was interesting to note that the surgeon in the end accomplished that which the physi-

cian wished to accomplish in the first place. The surgical treatment reaped the credit, while, as a matter of fact, the rest cure after operation was largely responsible. To the three types of hyperthyroidism should be added a fourth in which there was enlargement of the gland with excessive secretion, but in which the interlocking directorate of the other parts of the body compensated. This was seen in pregnancy. In the treatment the rest cure was invariably applicable in the presence of much tachycardia. There was little use in trying to treat an exophthalmic goiter patient who lacked the means of a real rest cure. Therefore, Dr. Hare believed that this type of case was properly sent to the surgeon earlier than the patient who could afford a rest cure. Concerning the action of drugs, he had had little result from digitalis. So far as the pulse was concerned, his best results had been obtained from veratrum viride in 8 to 10 minim doses of the tincture five to six times a day. A scientific explanation of these results, however, Dr. Hare said he was unable to give.

The Non-Surgical Treatment of Goiter and Its Complication.—Dr. CHARLES E. DE M. SAJOUS said that simple goiter should be regarded, in the light of modern knowledge, as the expression of a defensive reaction of the thyroid apparatus, as he had pointed out fifteen years ago, against one or more poisons of endogenous or exogenous origin. The pathogenic agent could be in the form of various organisms or toxins originating from the tonsils, dental abscesses, sinus or nasal disease, impacted or retained feces, etc. By penetrating the blood one or more of these poisons could awaken the defensive reaction of the organ. When the latter was physiologically normal, it did not become enlarged, but when through either heredity or local lesions due to diseases of childhood, etc., its efficiency as a protective structure was reduced to the bare needs of normal catabolic functions, any one of these numerous toxics placed what remained of normal glandular tissue under severe stress, with congestion leading to hyperplasia as the main result. If the tissues involved in this hyperplasia, *i. e.* those remaining in excess of the fibrous or other functionless tissues were able to carry on the defensive function, no symptoms of hyperthyroidism would appear and the condition remained one of pure goiter without systemic disturbance, but if the proportion of hyperplastic tissue exceeded this limit, the secretory activity of the gland was correspondingly increased and symptoms of hyperthyroidism appeared, with Graves's disease as an advanced phase. The treatment resolved itself into removing the cause. In true goiter, where pressure symptoms were present or sclerotic changes prevented reduction of the mass, surgical measure might become necessary; but where the growth was purely hyperplastic, elimination of the causative toxic, whether this might be tonsillar, peridental, intestinal, waterborne, etc., besides thyroid gland to aid the antitoxic process and relieve the gland of excessive work, excellent results might be obtained. In Graves's disease, with the same line of treatment with the vasoconstrictors and rest, a cure might be obtained in all but a very small proportion of cases. Dr. Sajous said that surgery was resorted to with unwarranted frequency in such cases.

The Constitutional Disturbance of Toxic Goiter as Influenced by Surgical Therapy.—Dr. CHARLES H. FRAZIER said that the present status of the surgical therapy of toxic goiter was but a stepping stone in the development of a method of arresting the toxic functional disturbances of the gland. The toxic goiter had claimed attention in increasing numbers yearly. His experience with the surgical treatment of goiter comprised 268 cases, 185 of which had been of the toxic variety. There has been 237 operations, including 147 lobectomies and 40 ligations. He enumerated four groups of toxic goiter, including: (1) The adolescent type, in which the hypertrophy was so compensatory that evidences of intoxication were trivial and operation was deferred. Later, however, this type might become extremely toxic and in young girls from sixteen to nineteen years of age presented the gravest form encountered; (2) a group met with between the ages of thirty and forty, in which the patient had had an adenoma for years and which had been trans-

formed into a toxic state. The prognosis of surgical therapy here was favorable; (3) a group in which the cases were toxic from the beginning, presenting the picture of exophthalmic goiter; (4) a group including any of the toxic varieties of comparatively long duration. Permanent relief here was not to be expected. Two group of cases to be carefully analyzed before operation is sanctioned were represented by (1) the patient, a woman with a small adenoma and a group of nervous phenomena; (2) the patient in which the condition was characterized chiefly by tachycardia and but slight enlargement of one lobe. In the first group, upon the two or three occasions when Dr. Frazier had been overpersuaded to operate, the outcome had not been gratifying; in the second group in his experience operation had been beneficial in about half of the cases. As a result of the observations by Means, the author stated that DuBois and others had demonstrated that the rise in basal metabolism indicated the degree of toxicity of the thyroid gland. Dr. Frazier said that he was employing this test not only to determine the degree of toxicity as an index of the operative risk and as a guide to treatment, but as a means of determining the ultimate effects of the operation. In his investigations of the thyroid he emphasized the possible relationship of the thymus gland. Clinically some extraordinary results, he said, had been reported following a partial thymectomy in hyperthyroidism. In the cases of mildly toxic goiter there were no contraindications to an immediate lobectomy without preliminary ligation. While operation could not be said to be imperative, there was a substantial basis for early operative interference. In the graver forms of toxic goiter the cases were all hazardous. In the earlier stages of the disease occasionally a lobectomy might be justified as the initial step of treatment; in cases of longer duration, under no circumstances should more than a ligation be attempted. In his clinic the usual time for doing lobectomy was two months after the ligation. The mortality in Dr. Frazier's series of operations upon toxic goiters had been 3.5 per cent. He found that of the constitutional disturbances, operation was most marked in its effect upon the nervous phenomena; next upon the nutritional disturbance. Upon the circulatory disturbance the effect of the operation depended largely upon the condition of the heart at the time of the surgical treatment. Tachycardia was the most persistent symptom. Concerning the amount of tissue removed, his inclination has been to increase the extent of the resection so that not more than one-sixth of the total amount was conserved. Using the term "cure" in the sense of restoring the patient to a state of health permitting the resumption of customary duties, although moderate tachycardia and nervous disorder might be present, he recorded 70 per cent. of recoveries. For the satisfactory end results of operation the surgeon was dependent upon the co-operation of the family physician.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

THE NATIONAL BOARD OF MEDICAL EXAMINERS.

Chicago, October 10-18, 1917.

(Continued from page 398.)

MEDICAL JURISPRUDENCE.

- (a) Define lunacy as legally recognized. (b) Name and briefly describe the varieties of insanity usually recognized. (c) What do you understand by "interdiction"?
- (a) Define the medicolegal importance of feigned diseases. (b) Give three (3) examples of feigned diseases and indicate the method by which each may be discovered or confounded.
- (a) Name one irritant poison, and give the symptoms or evidences found. (b) Give the mode of determining that death was due to such poison, including the postmortem findings.
- (a) What is the difference between a "material" and an "expert" witness? (b) Give an example of a hypothetical question.

5. (a) What is the function of a coroner? (b) Give brief outline of the procedure to be followed in examining a body supposedly dead of asphyxiation by illuminating gas.

HYGIENE.

Give the routes of entry and exit of the casual organism in each of the following diseases: mumps, syphilis, dysentery, cerebrospinal meningitis, malaria.

2. What rôle does environment play in the spread of disease?

3. Discuss the advantages and disadvantages, from the hygienic point of view, of milk as a food.

4. Outline the steps in the eradication of an epidemic of bubonic plague.

5. What are the public health duties of a physician?

6. Discuss the biological transmission of disease, and name the diseases so spread.

MEDICINE.

Answer ten of the following questions:

1. (a) Discuss the etiology of aortic insufficiency as it pertains to childhood, the adult, and the patient past 50 years of age. (b) Describe the murmur and vascular phenomena characteristic of aortic insufficiency. (c) What is understood by the incomplete types of angina pectoris?

2. Give the physical and other clinical signs required as a basis for a definite or probable diagnosis of pulmonary tuberculosis in the absence of the demonstration of tubercle bacilli in the sputum.

3. (a) Discuss the diagnostic signs of acute appendicitis and the indications for surgical treatment. (b) Give the diagnostic symptoms of chronic disease of the appendix.

4. (a) Discuss the clinical significance of nucleated red cells in blood smears (properly stained). (b) Define splenic anemia, and discuss its relation to diseases of the blood.

5. (a) Describe the urinary findings in chronic nephritis. (b) Discuss the causes of death in chronic nephritis.

6. (a) Discuss briefly the principles which govern the diet treatment in diabetes mellitus. (b) What are the criteria of improvement in this condition?

7. Outline in parallel columns the differential diagnostic signs of epilepsy and hystero-epilepsy.

8. In the case of a man 48 years of age with a right motor hemiplegia which came on suddenly following a short period of unconsciousness: (a) Discuss the several causes of this condition. (b) Outline the characteristic symptoms of the above. (c) Discuss the prognosis.

9. In the case of a child 6 months of age affected with summer diarrhea, give the method of arriving at a diagnosis, and outline a plan of treatment for the condition.

10. Given a case of a girl 8 years of age who is suddenly taken ill with vomiting, headache and a moderate fever: a laxative is given, but the fever continues with an increase in the headache and vomiting. Twenty-four hours later a thorough action of the bowels is obtained, but the temperature is still 102.6° F., pulse 112, respiration 24. The physical signs at this time are negative with the exception of some rigidity of the neck. State how you would investigate further, and give the plan of treatment according to the results obtained.

11. (a) Discuss the etiology of amebic dysentery. (b) Outline a plan of treatment for this condition.

12. Describe the characteristic symptoms of plague.

ANSWERS.

MEDICAL JURISPRUDENCE.

1. (a) *Lunacy* is "that state of disordered mind in which a person loses the power of regulating his actions or conduct according to the ordinary rules of society."—(Taylor.)

(b) "*The best classification for legal purposes*"; (1) Idiocy; (2) imbecility; (3) mania; (4) melancholia; (5) monomania; (6) general paralysis of the insane; (7) dementia; (8) certain forms of mania without distinct etiological relations.—(Dwight's *Medical Jurisprudence*.)

"Idiocy differs from other states of insanity in the fact that it is marked by a congenital deficiency of the mental faculties. There is not here a perversion or a loss of what has once been acquired, but a state in which, from defective structure of the brain, the individual has never been able to acquire any degree of intellectual power to fit him for his social position. It commences with life and continues through it."—(Taylor's *Medical Jurisprudence*.)

The dividing line between idiocy and imbecility cannot be sharply drawn unless it is assumed that idiocy is congenital or follows disease or injury in very early life; that imbecility develops among children and young adults; and that dementia is a condition associated with the aged. Both idiocy and imbecility may be easily differentiated from other forms of insanity, with the exception of dementia, by the diminished power of thought and by the absence of hallucinations, which are so prominent in cases of mania and the other more active forms of insanity.

In both *melancholia* and *mania* there is a general perversion of the mental faculties, but the former is usually accompanied with more or less depression, and the latter with more or less excitement.

Monomania or *paranoia* "is a form of insanity which comes especially under the class of degenerative diseases. It is essentially characterized by a delusion or delusions of a fixed and systematized character. They are usually indeed of one kind, and the disease has perhaps for this reason been called monomania. This is, however, an unfortunate term, as we find this symptom not infrequently in other forms of insanity, as melancholia, where we always observe decidedly fixed ideas of depression. The main fundamental characteristic of this disease is a delusion which has become a part of the belief of the individual, and which he believes himself able to explain and defend."—(Witthaus and Becker's *Medical Jurisprudence*, etc.)

General paralysis of the insane is characterized by both mental and physical symptoms. It most frequently follows alcoholism and syphilis, and is sometimes apparently the result of severe mental strain.

Its onset is insidious. The first symptoms are usually those of changed mental habit, irritability, fretfulness, soon followed by "characteristic delusions of grandeur," with the resulting extravagance both financial and conversational. This delusion may take the form of wealth or of power. Somewhat later the signs of mental degeneration become more apparent, and as the disease progresses the gait and vision are impaired. Violent and melancholic periods may alternate or they may be hardly noticeable.—(Dwight.)

Dementia, or, as it is commonly called, *softening of the brain*, is a term which is applied to a condition of mental enfeeblement gradually increasing until it reaches a stage of absolute mental decay.

(c) *Interdiction* is the legal restraint or commitment of the insane by judicial order.

2. *Feigned diseases are of medicolegal importance* because: (1) Soldiers, sailors, and prisoners may feign disease in order to shirk their duties or to secure a more comfortable mode of life. (2) Civilians may feign disease in order to shirk jury duty, appearance in court, or military service. (3) Such motives as fear, gain, notoriety or laziness, and especially the idea of extorting money from individuals, corporations, etc., may induce persons to feign disease. In such cases it may become the duty of the physician to ascertain the truth of the matter.

Feigned incontinence of urine may be detected by giving the patient an opiate at night and introducing a catheter during his sleep, or by taking him by surprise during the day and introducing a catheter, when it will be found that the urine has not drained off as it was secreted, but that the bladder possesses the power of retention. If the disease is real the prepuce and glans are pale and moist and the clothes have a urinous odor.

Feigned deafness may be detected by making a noise at an unexpected moment, or by a sudden change in the examiner's voice; administration of ether may enable one to detect the fraud, as before the culprit regains thorough consciousness he is apt to forget his rôle and "give himself away."

Feigned (amaurotic) blindness may be detected by observing whether the patient avoids obstacles placed in

his way; if the pupils contract perfectly the case is feigned.

In all cases the examiner should note the history of the case, the patient should be carefully watched unawares, and examinations made when the patient does not expect it (such as immediately after such a visit).

3. *Potassium hydroxide or caustic potash* is an irritant poison. The symptoms are burning pain during swallowing and an acrid, caustic taste. If the fluid penetrates to the stomach, there is persistent burning pain. Vomiting may or may not occur. When it does, the vomitus will usually be brown in color; it may or may not contain blood, and will simulate very closely in appearance that found after taking any of the strong acids.

Post-mortem appearances: The mouth, throat, esophagus, and stomach will be stained brownish or black. The mucous membrane and other tissues are more or less disorganized according to the strength of the solution. When the poisoning has been less violent in type and death occurs more slowly, ulcerations may be found extending even into the intestine.

Tests.—The characteristic soapy feeling and frothy appearance of materials with which caustic potash has come into contact will be noticeable. Potash may be detected in the form of carbonates, or otherwise by evaporating the suspected liquid to dryness and then heating the residue in a porcelain vessel sufficiently to char the organic matter. In the ash so remaining potash may be detected by the ordinary tests. When burnt in a colorless flame potash will give a violet color. (Dwight's *Toxicology*.)

4. (a) An expert witness may give his opinion on facts or supposed facts as noted by himself or asserted by others. *Theoretically*, this can only be done by one perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practice is accepted as an expert witness. A *non-expert*, or *material*, witness testifies only the facts which he has seen, or heard, or with which he has become acquainted by personal observation.

(b) *Example of a hypothetical question:* "Suppose a person, whose birth was premature, whose mother, while in pregnancy with that person, was greatly agitated in a voyage at sea; suppose that person, up to the age of eleven or twelve years, evincing no great intelligence, meets with an accident, the result of which is a series of surgical operations upon the head or upon the ear of that person; suppose that person subsequently entirely changes in character, habits, and disposition, imagines that he is pursued and chased by persons who have no existence; whose nights are sleepless, he frequently awakens with exclamations of his being chased, or that a person desires to kill him when he is not being pursued or chased, and no person desires to kill him; that on one occasion, being sent for a pitcher of water, he returns, drops without cause the pitcher at the feet of his mother and stands in great excitement and terror; when asked the reason of his emotion he declares that he has been pursued and chased by somebody; the same person was discovered on two occasions in a room at night, towards the middle of the night, crouched in a corner of the room muttering to himself, mumbling to himself in a state of great apparent terror, with beads of perspiration on his forehead; the question being put to him as to the cause of his emotion he does not answer or mutters or mumbles something incoherently; the same person has a conspicuous falling off of memory, is sent upon errands and messages, and mistakes in part or in whole the object of the errand or message—that is frequently the case; the same person is not steady, except in one instance, to any employment. This person altering in no particular degree or character his general habit of thought or life up to the age of nineteen, what would you say that these facts, if true and proven, indicated?" (New York Court of Appeals, First Division, Vol. 19, 1890.)

5. The function of a coroner is to hold inquests upon the bodies of persons found dead from violent, sudden, suspicious or unknown causes; in some States additional duties may be added. In examining the body of a person supposedly dead of asphyxiation by illuminating gas, the position of the body and surroundings should be noted, also the condition of the body, signs of violence, rigor mortis, lividity, the color of the blood

(carbon monoxide makes it of a bright, cherry-red color). If an autopsy is made the brain will be found congested and the respiratory organs tinged with blood; rose-colored spots are often found on the body. The coroner should also determine if the case is one of suicide or if a crime has been committed.

HYGIENE.

1. *Mumps.* The route of entry is probably by nose and mouth; the route of exit is in the buccal and (probably) nasal secretions.

Syphilis. The route of entry is through injured skin or mucous membrane; the route of exit is by the injured skin or mucous membrane.

Dysentery. The route of entry is the mouth; the route of exit is by the bowel evacuations.

Cerebrospinal meningitis. The route of entry is by the mucous membrane of the nasopharynx; its route of exit is by the mouth and nose.

Malaria. The route of entry is into the blood by the bite of an infected anopheles mosquito.

2. *Environment* is an important factor in the spread of disease. Until recently it was either not recognized, or else disregarded. But each year it is being accorded a more prominent place by the hygienist. Many diseases are due largely or entirely to the climate in which a person lives, the insects and animals that abound there, to the seasons, to the occupations in which he is engaged, to his home surroundings, quality and quantity of food, alcohol, injuries, etc. Overcrowding, impure air, humidity, extremes of temperature, the soil and water, disposal of waste, and many of the surroundings in which people live and work, are now being recognized as having an important bearing on the question of health and disease.

3. *Hygienic advantages of milk as a food:* Milk is a perfect food for the infant, and is also useful for the adult, it contains all the essential elements of a well-balanced diet, it is cheap, it is readily digestible, it can be modified in numerous ways, it is abundant, and can be obtained almost everywhere.

Hygienic disadvantages of milk as a food: "Milk is responsible for more sickness and deaths than perhaps all other foods combined. There are several reasons for this: (1) bacteria grow well in milk; therefore a very slight infection may produce widespread and serious results; (2) of all foodstuffs milk is the most difficult to obtain, handle, transport, and deliver in a clean, fresh and satisfactory condition; (3) it is the most readily decomposable of all our foods; (4) finally, milk is the only standard article of diet obtained from animal sources consumed in its raw state." (Rosenau's *Preventive Medicine and Hygiene*.)

4. *Management of an epidemic of bubonic plague:* "The handling of a plague epidemic is conducted along two definite lines of activity. One is to find and care for the human cases, the other consists in a warfare against rats. The organization and general management of a plague campaign do not differ radically from similar work in other epidemics. Cases of the disease must be sought for and early diagnosis confirmed; all deaths no matter from what cause must be investigated, and the body examined by an expert before burial is permitted. A bacteriological laboratory is a *sine qua non*. Cases of the disease should be isolated and the usual disinfection of excreta and surroundings exercised. Particular care must be taken that the isolation wards are vermin free. The place from which the case is removed should be given a preliminary disinfection with sulphur dioxide or other substance that may be depended upon to kill rats and fleas, and a search made in the neighborhood for secondary cases both in man and rodents. The campaign against the rat is expensive and difficult, but must be vigorously prosecuted to insure success. The rat warfare may be briefly summarized as a simultaneous attack upon the habitation and food supply of the rat; the destruction of rat burrows and nesting places; the separation of the rat from his food supply by concreting and screening such places as stables, warehouses, markets, restaurants, etc., the prevention of the entry of the rat into human habitations by the use of concrete, wire netting, or other barriers; and the use of poisons, traps, etc. All the rats that are caught in traps or found dead are brought to the bacteriological laboratory, where they are exam-

ined and careful records kept concerning the species, the location, the place where the rat was caught, the character of the infection, etc." (Rosenau's *Hygiene and Preventive Medicine*.)

5. *The public health duties of a physician* are to report to the proper authorities all cases of notifiable diseases occurring in his practice, whether the diseases are classed as communicable or occupational; and to protect as far as possible both his patients and the community from all diseases.

6. *Biological transmission of disease* means that the disease in question is transmitted by the bite of an insect which acts as the intermediate host for certain pathogenic protozoa or organisms of unknown nature. There must be a period of incubation in the insect. Diseases so spread, are: Malaria, yellow fever, and Rocky Mountain fever.

MEDICINE.

1. (a) *Aortic insufficiency in childhood* follows endocarditis which is associated with rheumatism, or chorea, or (chiefly) septic endocarditis (such as the pneumococcal and gonococcal forms). In the adult, it generally follows syphilis, coming on in about two or three years after the infection and being generally accompanied by pains of an anginal character. In patients over fifty years of age its onset is ascribed to the presence of arteriosclerosis.

(b) The murmur is diastolic, and is heard at the base of the heart and transmitted down the sternum towards the apex beat or into the left axilla. The pulsation in the superficial arteries is visible, and the pulse is characteristic—the Corrigan pulse. In some cases there is also a presystolic (Flint) murmur, heard at the apex. The aortic second sound is more or less replaced by the diastolic murmur; a loud sound may sometime be heard over the femoral and other large arteries. At times a double murmur may be heard over the femoral artery, if it is slightly compressed.

(c) By the term *incomplete types of angina pectoris* is probably meant all those forms of angina pectoris which have not the gravity of the true angina pectoris; such are pseudo-angina, neurotic angina, angina pectoris vasomotoria, and various toxic, hysterical, and reflex varieties.

2. In the absence of the demonstration of tubercle bacilli in the sputum, pulmonary tuberculosis may be diagnosed by: (1) *Symptoms*. "In the majority of cases there is a gradually increasing sense of languor or weakness, with some loss of flesh and pallor of the face, unaccustomed shortness of breath on slight exertion, chilly feelings, loss of appetite, perhaps some pleuritic pain, and digestive disturbance. Then slight fever and moderate night sweats may occur. There may or may not be slight cough and expectoration, and physical examination of the chest may be either practically negative or reveal signs of disease which are just sufficiently marked to be recognizable. The onset and manner of invasion may vary. The initial symptom in many instances is an hemoptysis, an occurrence which should be considered indicative of tuberculosis unless subsequently proved to be otherwise. Gastrointestinal symptoms, such as epigastric distress, acidity, eructations, flatulence, or vomiting, may be prominent. A regularly intermittent fever, with chills and sweats, is not uncommon. Pleurisy with effusion, or a dry pleurisy at one apex, occur not infrequently as early symptoms, followed at varying intervals by evidence of pulmonary involvement. Most commonly bronchitis, following exposure, initiates the disease. The cough continues and the physical signs of a localized bronchitis at one apex are found. In some instances the presence of tuberculous lymph glands antedates the pulmonary disease, which is often latent. In other cases the earliest symptoms relate to the larynx. Finally, the disease may be latent and progress even to cavity formation before the occurrence of symptoms (perhaps hemoptysis) sufficiently marked to attract attention; or it may be quite overshadowed by the presence of grave disease elsewhere.

(2) *Physical signs*: "The physical signs of the incipient stage may be at first negative or very indefinite, but sooner or later become plainly manifest. Inspection may show the phthisical chest, with deficient expansion, either general or limited to one apex. There may

be impaired resonance or slight dullness over an apex, more commonly the right. Auscultation over this apex shows the presence of fine, moist, crackling râles at the end of inspiration. The breath sounds are frequently interrupted or cogwheel, and feeble, or harsh and bronchovesicular, or the expiration may be high-pitched and prolonged. The voice sounds, especially the whispered voice, are transmitted with more than normal intensity." (Butler's *Diagnostics of Internal Medicine*.) Various tuberculin reactions and tests have also been used; and microscopic examination of the sputum may show the presence of lung tissue.

3. (a) *Diagnosis of acute appendicitis*: "When the three cardinal symptoms of the disease are present—that is, sudden onset of acute abdominal pain, followed by vomiting, occurring in one previously well; unilateral rigidity of the right lower abdominal wall; tenderness over the site of the appendix—the diagnosis of appendicitis is warranted in nearly every case. . . . Failures in diagnosis, however, may often be explained by the fact that the initial symptoms were insignificant, were lost sight of, or were obscured by the injudicious use of opium. The commencement of an attack of acute appendicitis may very closely simulate acute indigestion, in that there occur vomiting, colicky pains, often implicating the entire abdomen, and tenderness. But in acute appendicitis there is nearly always a certain sequence of symptoms—pain, vomiting, tenderness—and rigidity of the rectus muscle is nearly universal. If this sequence of symptoms—(1) pain; (2) vomiting; (3) tenderness—is altered, the diagnosis of acute appendicitis may well be considered doubtful; and where acute appendicitis is present and these symptoms have not occurred in the order described, other signs are generally present which render the diagnosis certain. Fever nearly invariably appears later than the three symptoms first mentioned. If hyperpyrexia occurs first, typhoid fever may be suspected, or pneumonia; if vomiting occurs first, acute indigestion or scarlet fever may be the cause; while where tenderness precedes the other symptoms for some hours or days, pelvic disease, or chronic intestinal ulceration are to be considered." (Deaver.)

The indications for surgical treatment vary according to the views of the surgeon. Some maintain that every case of appendicitis should be operated on as soon as the diagnosis is made. Others would operate only in case of rupture, or when suppuration occurs, or in cases which do not improve in a week or so or in cases which are steadily getting worse. Probably all would agree in taking out every appendix that has undergone more than one mild attack. Deaver says that "any form of treatment other than the surgical is to be considered only because extraneous conditions or certain definite contraindications, local or general, render it necessary to abandon or defer operative interference."

(b) *Diagnosis of chronic appendicitis*: "The plainer cases give a history of more or less constant distress or pain referred to the region of the appendix and examination reveals definite soreness on deep palpation over the organ. Even in the absence of any history of acute attacks a diagnosis may be made with almost invariable accuracy on this combination alone. The type and severity of the pain may be exceedingly variable. It may be sharp and stabbing, dull and aching, burning, colicky, constant, remittent, intermittent, or practically constant. It may or may not excite nausea. Intestinal flatulence is a common symptom. Slight stiffening of the overlying muscles as determined by light, careful palpation is a valuable confirmatory sign. Occasionally a thickened or distended appendix may be palpated, but less reliance should be placed on this than on a deep soreness on pressure which can usually be elicited." (Deaver's *Appendicitis*.)

In *chronic appendicitis*, there is a history of one or more previous attacks in which no operation was performed, or perhaps the diagnosis was not made; attacks of pain occasionally occur in the right iliac fossa; there are various digestive disturbances, such as constipation, diarrhea, flatulency; a tender mass may be detected on palpation over the painful area; the pain generally incapacitates the patient for a day or two.

4. (a) "Normally, erythroblasts are present only in the blood of the fetus and of very young infants. In the adult their presence in the circulating blood denotes

an excessive demand upon the blood-forming organs to regenerate lost or destroyed red corpuscles. In response to this demand, immature and imperfectly formed cells are thrown into the circulation. Their number, therefore, is an indication of the extent to which the bone-marrow reacts rather than of the severity of the disease. Normoblasts occur in severe symptomatic anemia, leukemia, and pernicious anemia. They are most abundant in myelogenous leukemia. While always present in pernicious anemia, they are often difficult to find. Megaloblasts are found in pernicious anemia, and with extreme rarity in any other condition. They here almost invariably exceed the normoblasts in number, which is one of the distinctive features of the disease. Microblasts have much the same significance as normoblasts, but are less common." (Todd's *Clinical Diagnosis*.)

(b) *Splenic anemia* is a condition of extreme anemia with enlargement of the spleen. The anemia is chronic; nucleated red cells may be found, particularly in the sinuses of the spleen; leukopenia is observed. The cause of the disease is unknown. The anemia is of the secondary type and never precedes the splenic enlargement, but follows it.

5. *"Chronic Diffuse Nephritis."*—The quantity of urine is diminished, it is cloudy from urates, the specific gravity may be high in the early, but is low in the later stages. Albumin is abundant, sometimes more so than in any other disease. The heavy sediment contains large numbers of nearly all the varieties of tube casts, hyaline, epithelial, granular, and fatty. The latter are especially characteristic. Occasional red corpuscles, many leucocytes, and numbers of degenerated epithelial cells are also found. The amount of urea is decreased.

"Chronic Interstitial Nephritis."—The urine is increased in quantity, light yellow, clear, with a persistently low specific gravity. Albumin is scanty, occurring in traces, and is sometimes absent. A few narrow hyaline casts are almost constantly found in the very small deposit. Cellular elements are as a rule no more abundant than in normal urine. Polyuria, persistent low specific gravity, and the presence of a few hyaline casts constitute the urinary signs of this disease. Albumin may or may not be present in small quantity." (Butler's *Diagnostics of Internal Medicine*.)

The cause of death in chronic diffuse nephritis may be exhaustion from inability to assimilate nourishment, from anemia or edema; cardiac weakness, uremia, or some complication.

In chronic interstitial nephritis, death may be due to coma, cerebral hemorrhage, intercurrent disease (as pneumonia), cardiac failure, dyspnea, dropsy, uremia; frequently a combination of uremic and cardiac conditions.

6. *Dietetic treatment in diabetes:* "The essential part of this treatment is complete rest of the alimentary tract so long as even a trace of sugar is found in the urine. The patient is, first of all, starved until his urine is free from sugar and for a further period of twenty-four hours. During this period water, tea and coffee may be taken. The next step is the arrangement of a scheme for diet, in which the intake of proteins, of fats, and of carbohydrates, and the bulk of the food have each to be determined. It is impossible to lay down hard and fast rules; each case must be considered separately, and the treatment made as individual as possible. The following outline of this method of treatment has been prepared by Dr. Joslin and is issued by him to his patients: *Fasting*—Fast until sugar-free. Drink water freely and tea, coffee and clear meat broth as desired. In very severe, long-standing and complicated cases, without otherwise changing habits or diet, omit fat, after two days omit protein and halve carbohydrate daily to 10 gm., then fast. *Alcohol*—If acidosis (diabetic acid) is present, take 0.5 c.c. alcohol per kilogram body weight daily until acidosis disappears. Alcohol is best given in small doses every three hours. *Carbohydrate Tolerance*—When the twenty-four hour urine is sugar-free, add 150 gm. of 5 per cent. vegetables, and continue to add 5 gm. carbohydrates daily up to 20, and then 5 gm. every other day, passing successively upward through the 5, 10, and 15 per cent. vegetables, 5 and 10 per cent. fruits, potato and oatmeal to bread, unless sugar appears or the tolerance reaches 3 gm. carbohydrate per kilogram body weight. *Protein Tolerance*—When the urine has been sugar-free for two

days, add 20 gm. protein (3 eggs) and thereafter 15 gm. protein daily in the form of meat until the patient is receiving 1 gm. protein per kilogram body weight, or if the carbohydrate tolerance is zero, only $\frac{3}{4}$ gm. per kilogram body weight. *Fat Tolerance*—While testing the protein tolerance, a small quantity of fat is included in the eggs and meat given. Add no more fat until the protein reaches 1 gm. per kilogram (unless the protein tolerance is below this figure), but then add 25 gm. daily until the patient ceases to lose weight or receives not over 40 calories per kilogram body weight.

Reappearance of Sugar—The return of sugar demands fasting for twenty-four hours or until sugar-free. The diet is then increased twice as rapidly as before, but the carbohydrate should not exceed half the former tolerance until the urine has been sugar-free for two weeks, and it should not then be increased more than 5 gm. per week. *Weekly Fast Days*—Whenever the tolerance is less than 20 gm. carbohydrate, fasting should be practised one day in seven; when the tolerance is between 20 and 50 gm. carbohydrate, upon the weekly fast day 5 per cent. vegetables and one-half the usual quantity of protein and fat are allowed; when the tolerance is between 50 and 100 gm. carbohydrate, the 10 and 15 per cent. vegetables are added as well. If the tolerance is more than 100 gm. carbohydrate, upon weekly fast days the carbohydrate should be halved." (Hughes' *Practice of Medicine*.)

Criteria of improvement are: Retention of body weight; obesity; the urine remaining without sugar; carbohydrate tolerance; and absence of fatigue, vomiting, restlessness, drowsiness, listlessness, nausea, vertigo, headache.

7. EPILEPSY.

Distant warnings: Few, mental.

Aura: More frequent, momentary, oftenest unilateral or epigastric.

Cause: None.

Onset: Always sudden, often with pallor, cry which is never verbal, immediate falling and complete unconsciousness, with rigidity, etc.

Tongue biting, frothing: very common.

Convulsions: Generalized, tonic followed by clonic spasms, very rarely tonic alone; flexor spasm predominates.

Reflexes: Pupils contracted at onset, dilated later, immobile (in clonic period). Tendon and skin reflexes absent during and after attack.

Involuntary evacuations: Frequent.

The urine: Solids always increased, both nitrogen and phosphates.

Temperature: Sometimes elevated, 2°-3°.

Coma: Complete.

Duration of seizure: Very short.

Postparoxysmal: Sensory and motor exhaustion, ecchymoses, absent reflexes, mental incapacity, with no memory of transpired events.

HYSTERIA.

Distant warnings: Frequent, emotional.

Aura: Less frequent, longer, bilateral, foot aura, globus.

Cause: Emotional.

Onset: More gradual, rarely with pallor or cry, which may be repeated or verbal, and recur. Rarely brusque falling, slower and less complete unconsciousness, and may react to suggestion.

Tongue biting: Exceptional, or seemingly purposive.

Convulsions: Rigidity, to carry out semi-intentional movement; struggling; clonic, irregular spasms; extensor spasm predominant, "arc de cercle," clownism.

Reflexes: Pupils usually wide and react (may be immobile, Westphal). Sometimes convergent strabismus. Reflexes rarely absent; or increased.

Involuntary evacuations: Absent or most exceptional.

The urine: Solids decreased; altered ratio of earthy and alkaline phosphates.

Temperature: Practically never elevated.

Coma: No real coma.

Duration of seizure: Longer, recurrent, relapsing.

Postparoxysmal: Depression, fatigue, pain in the head or stomach, nausea, some memory of attack.

—(Edwards' *Practice of Medicine*.)

8. *Complete hemiplegia* is caused by a lesion of the knee and anterior two-thirds of the posterior limb of the internal capsule; in this case the lesion is on the left side of the brain. In addition to the hemiplegia there may be retention or incontinence of urine and feces, the body temperature will be at first subnormal and then raised slightly on the paralyzed side, the pulse becomes more rapid; if the coma persists there will be a rise in body temperature and also Cheyne-Stokes respiration. The tongue protrudes toward the affected side, and there may be hemianopia and disturbance of hearing; there may be anesthesia on the affected side. Most cases are not fatal; a second attack is likely to occur within a few years, from which a few may recover; a subsequent attack is very likely to prove fatal.

9. *Summer diarrhea in infants. Symptoms.* In the mild form the stools are curdy, loose and foul. The fever is moderate, and the child fretful. The character of the stools soon changes to a greenish-yellow, and they become more numerous, five or six a day, and the fever rises to 102° or 103° F. If prompt measures are taken, recovery is rapid and quite certain. In the severe form, there is vomiting, and loose, frequent, green stools. Fever, inability to take food, with weakness, rapid emaciation and prostration soon follow. The pulse is weak, the fever high; the stools may contain mucus and be streaked with blood. Sometimes delirium and coma supervene. *Treatment:* Place the patient in the coolest, cleanest and largest room possible. A cotton slip and diapers only are to be worn. Secure a competent nurse if possible to intelligently follow orders. Reduce the fever by frequent cool sponging or tepid baths. If the temperature is above 104° F. and the pulse permits, use an ice-bag to the head. An initial purge with castor oil or calomel is indicated. Stop milk in all forms for at least twenty-four hours, placing the child on a starvation diet of boiled water alone or on barley water, made with one ounce of flour to the quart. If at the end of a day the frequent stools persist, continue the substitute feeding until a change for the better is noticed.

If barley gruel is not palatable or tolerated, one may try rice water or albumin water. In the case of nurslings resume the feeding at longer intervals preceded by a dram or two of boiled water. In artificially fed babies, resumption to cow's milk feedings must be made only when the stools resume the normal type. Whey or buttermilk feedings are serviceable substitutes. Begin with a modification lower than the original prescriptions.—(Chapin and Pisek's *Diseases of Children*.)

10. Further investigation should include an examination of the blood; if there is a leucocytosis, chiefly of the polymorphonuclear cells, it will point toward cerebrospinal meningitis; the *tâche cerebrale*, Babinski reflex, and Kernig's sign, if present, will also confirm the suspicion of the same disease. Lumbar puncture will clinch the diagnosis; in case of cerebrospinal meningitis the spinal fluid will be cloudy or turbid, and will contain the diplococcus intracellularis meningitidis, and sometimes also streptococci and staphylococci. *Treatment* consists of rest in bed, quiet, darkened room, proper nourishment, skilled nursing, bowels kept slightly loose; plenty of water should be ingested; the head and neck should be raised and supported on a pillow; warm baths and cold applications to head and neck are indicated; the main therapeutic measure is the injection into the spinal canal of Flexner's antimeningitic serum.

11. *Amebic dysentery* is endemic in the tropics. There are two species of amœbæ having man for a host; one of them, the *Entamoeba histolytica*, is pathogenic; the other, the *Entamoeba coli*, is harmless. The disease is spread by carriers who have the encysted amœbæ in their stools; and when these carriers are employed as cooks the risk of infection is increased. Flies are also believed to be capable of transmitting the disease. It is not at present believed that food, fruit and water are important factors in the spread of the disease except in connection with carriers. *Treatment:* The emetine treatment is considered specific for amebic dysentery. From one-third to two-thirds of a grain of emetine hydrochloride is dissolved in sterile saline solution, and given by hypodermic injection into the subcutaneous tissues. Colonic irrigation with saline solution, or with quinine muriate in dilution of 1:2000, has also been recommended.

12. *The characteristic symptoms of plague.* The face is pallid, anxious, or apathetic; the gait is staggering; there is a fever of an irregular type, the pulse is at first soft and rapid and afterward thready and irregular; pneumonia or broncho-pneumonia may be observed; cyanosis and dyspnea are present; buboes are found in the inguinal and axillary regions, and the cervical and submaxillary glands are also involved; these buboes are very tender, and the skin over them often becomes necrotic and sloughs; the liver and spleen may be found congested and tender.

(To be concluded.)

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Volume 42 for the year 1917. 637 pages. Illustrated. Published by Wm. J. Dornan, Philadelphia.

PROCEEDINGS OF THE MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE, July, 1916, to December, 1916. Vol. IX; Part 2. 133 pages. Illustrated. Published by Panama Canal Press, Mount Hope, C. Z.

THE SPLEEN AND ANAEMIA. Experimental and Clinical Studies. By RICHARD MILLS PEARCE, M.D., EDWARD BELL KRUMBHAAR, M.D., Ph.D., and CHARLES HARRISON FRAZIER, M.D., Sc.D. 417 pages. Illustrated. Price, \$5.00. Published by J. B. Lippincott Company, Philadelphia and London.

BLOOD TRANSFUSION, HEMORRHAGE, AND THE ANÆMIAS. By BERTRAM M. BERNHEIM, A.B., M.D., F.A.C.S. 259 pages. Price, \$4.00. Published by J. B. Lippincott Company, Philadelphia and London.

TUMORS OF THE NERVUS ACUSTICUS, AND THE SYNDROME OF THE CEREBELLOPONTILE ANGLE. By HARVEY CUSHING, M.D. 296 pages. Illustrated. Price, \$5.00 net. Published by W. B. Saunders Company, Philadelphia and London.

MATERIA MEDICA, PHARMACOLOGY, THERAPEUTICS, PRESCRIPTION WRITING FOR STUDENTS AND PRACTITIONERS. By WALTER A. BASTEDO, Ph.G., M.D. Second Edition. Reset. 654 pages. Illustrated. Price, \$4.00 net. Published by W. B. Saunders Company, Philadelphia and London.

A CLINICAL MANUAL OF MENTAL DISEASES. By FRANCIS X. DERCUM, A.M., M.D., Ph.D. Second Edition. Revised. 479 pages. Price, \$3.50 net. Published by W. B. Saunders Company, Philadelphia and London.

THE IMMEDIATE CARE OF THE INJURED. By ALBERT S. MORROW, A.B., M.D. Third Edition. 356 pages. Illustrated. Published by W. B. Saunders Company, Philadelphia and London.

AMERICAN ADDRESSES ON WAR SURGERY. By BERKELEY MOYNIHAN, C.B. 143 pages. Price, \$1.75 net. Published by W. B. Saunders Company, Philadelphia and London.

THYROID AND THYMUS. By ANDRÉ CROTTI, M.D., F.A.C.S., LL.D. 567 pages. Illustrated. Price, \$10.00. Published by Lea & Febiger, Philadelphia and New York.

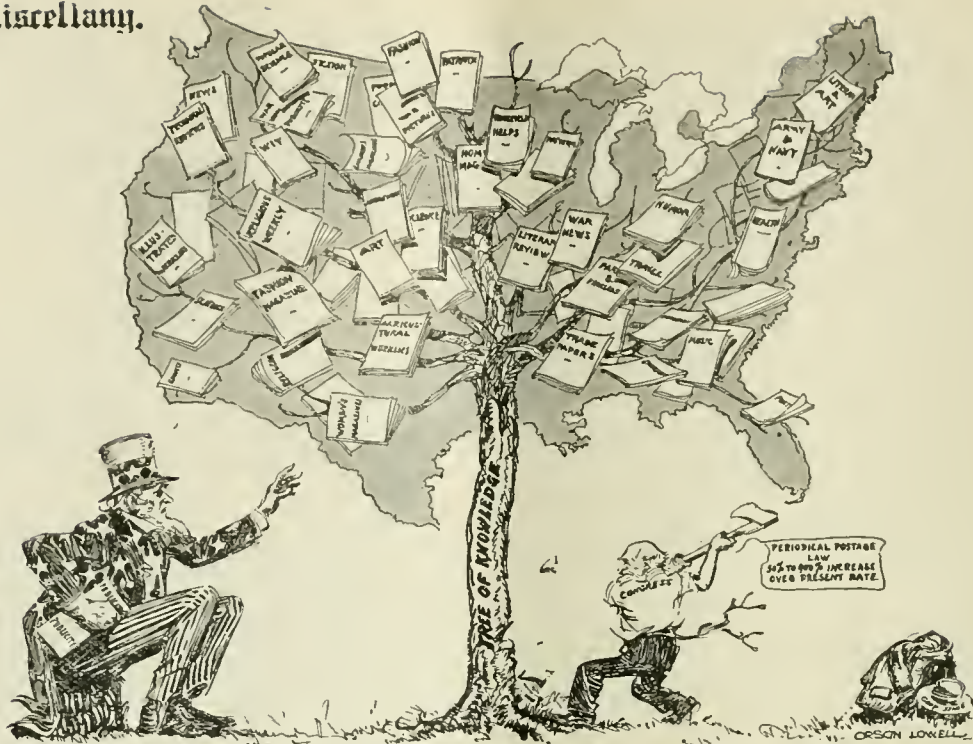
PRACTICE OF MEDICINE. By JAMES M. ANDERS, M.D., Ph.D., LL.D. 1259 pages. Illustrated. Price, \$6.00, cloth. Published by W. B. Saunders Company, Philadelphia and London.

NURSING ETHICS. By T. PERCY C. KIRKPATRICK, M.D. 38 pages. Price, 35 cents. Published by Ponsonby & Gibbs, Dublin, 1917.

BAILLIÈRE'S POPULAR ATLAS OF THE ANATOMY AND PHYSIOLOGY OF THE FEMALE HUMAN BODY. By HUBERT E. J. BISS, M.A., M.D. Plates by GEORGES M. DUPUY, M.D. Price, \$2.00. Published by William Wood & Company, New York, 1917.

A TEXT-BOOK ON GONORRHEA AND ITS COMPLICATIONS. By Dr. GEORGES LUYIS. Translated by ARTHUR FOERSTER, Captain R.A.M.C., M.R.C.S., L.R.C.P. 386 pages. Illustrated. Price, \$6.00. Published by William Wood & Company, New York, 1917.

Miscellany.



WILL YOU SANCTION THIS?

BY REX BEACH

PRESIDENT AUTHORS' LEAGUE

CONGRESS—or a sufficient majority of it—has voted to destroy magazine reading.

It has accomplished this by passing a simple law reestablishing a postal "zone" system for all publications—a zone system and postal principle that was abolished by President Lincoln in 1863, and by establishing through a complicated system postal rates that mean increases of from 50 to 900 per cent postage increases to all periodical readers.

By this "zone" system American readers of periodicals—home, educational, scientific, business, or religious—are to be penalized by enormous postage increases on the weekly or monthly papers they read, and the greater their accidental remoteness from the city of publication the greater is the penalty that is placed upon them.

Magazines have been a slow growth. In the process of their development and evolution it has happened that publishing is chiefly concentrated

remote from city life. It is the magazine combined with rural delivery that has brought to the door of the countrywoman material which helps her solve problems needing advice more easily obtained by her city sister. Through this medium she has known current events, has guided her children by the educational influences offered, and has been able to keep herself in harmony with the world from which she was separated. Periodicals and newspapers are as essential as food to the country home.

"Then again the attractive magazines in every city home means keeping together the family circle. To make the magazine prohibitive by excess postal rates would be to take away from mothers one of the means whereby they have battled against outside attractions.

"Now just because a woman lives in a Western State remote from publishing centers—and of course home interests affect the woman most—is she to be made to pay a penalty in order to bring opportunities to

her door? To enforce the 50 to 900 per cent periodical postage law would be causing mental starvation to many who have only this means of keeping abreast of the times.

"Every thinking Eastern woman should put her full strength into a drive which will give her Western sister the same advantages which she enjoys."

And to this may be added the splendid report of the United States Postal Commission appointed in 1844 to determine the functions and purposes of the Post Office in relation to the people of our nation. The function of the Post Office was, it said:

"To render the citizen, how far soever from the seat of Government, worthy, by proper knowledge and intelligence, of his important privileges as a sovereign constituent of the Government; to diffuse throughout all parts of the land enlightenment, social improve-

ment, and national affinities, elevating our people in the scale of civilization and bringing them together in patriotic affection."

This was the purpose of the Post Office.

This 50 to 900 per cent postage increase on magazines is not a war tax. Publishers were already taxed by excess profits and income taxes. It is not a war tax; Postmaster General Burleson has so stated in his annual report when he declared it is permanent postal legislation—unless repealed through your protests to Congress and Congressmen. Will you write—telegraph—or urge the passage of resolutions of protest against this destructive law?

WILL YOU HELP?

Write to your Congressman, protest against this destructive law, and demand its repeal.

Get your club or association to adopt resolutions demanding its repeal.

Will you enroll to help repeal this law that penalizes periodical readers with heavy penalties?

If so, send your name and address—and a copy of any resolutions adopted—to

CHARLES JOHNSON POST
200 Fifth Avenue : : New York City

It means that hundreds of thousands of readers will be compelled to give up their periodicals owing to the terrific increase in their postage cost.

And the tragedy of this 50 to 900 per cent magazine increase postage law lies in the fact that this loss of readers will come from classes and from sections of our nation where widespread reading should be most encouraged—from people in remote sections where life is a bitter struggle on the margin of subsistence—where the habit of reading is just forming and the little weekly or monthly budget for magazines has but so very recently become recognized as an important item in family life. The terrific magazine postage increase will wipe these out. That is the real tragedy to this nation.

I could do no better than quote the fine words of a Western woman, Miss Arminda Wood, president of the Woman's Club of Racine, Wis.:

"The many splendid magazines published to-day," she wrote in an appeal to Eastern women from the women of the West, "are a means of education to many a home where other opportunities are lacking. And many of these homes are remote from publishing centers—many even

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THE PREVENTION OF DYSENTERY IN ARMY CAMPS.

BY CHAMPE CARTER McCULLOCH, M.D.,
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DYSENTERY has no doubt existed from the earliest times. It is mentioned in the Papyrus Ebers (1600 B.C.). It was named by Hippocrates, the term meaning "bad bowels." Herodotus called dysentery the "war plague." In the army of Xerxes in 480 B.C. dysentery was very severe. It has often prevailed in epidemic form, especially following war and famine, and in jails, asylums, and crowded camps. According to Shiga, "always a constant companion of war, it has been more fatal to armies than powder and shot."

A modern French writer¹ says, "Bacillary dysentery is a scourge inseparable from the pathology of war. In all the epochs of history it has attached itself in a constant fashion to armies in campaign. The documents the most ancient show it raging among the troops engaged, and determining, from the time of mobilization, ravages assuredly more terrible than those occasioned by the fire of the enemy."

The English army, in 1415, was reduced to a quarter of its effectiveness by dysentery, and on this account had to be returned home after the battle of Agincourt.

In more recent times this disease was prevalent among Napoleon's troops in Egypt and in Poland. The "diarrhea of aggravated type" that gave so much trouble in our Mexican War was no doubt in large measure epidemic dysentery. In the Peninsular and Crimean Wars it was rife. In the Civil War of 1861-65 "dysentery and diarrhea" gave the largest admission rate of all diseases (600 per thousand per annum), and next to the largest mortality rate, being exceeded in the latter respect only by typhoid fever. It caused one death out of every 3.5 in that war. It is said that there were over a quarter of a million cases of dysentery in the Civil War. In the Boer War dysentery came second (next to typhoid) as a cause of death. While not very serious in the short Russo-Japanese War, it formed one of the largest sources of admission to sick report.

These instances could be multiplied indefinitely, but it is unnecessary to quote them further. The idea is no doubt clear to the reader. It will suffice, in this connection, again to quote Dopter, who con-

tinues: "Indeed, not a war has ever been waged in which dysentery has not scourged not only the belligerents but also the civil populations in the paths of the armies. Without being accused of exaggeration, one can affirm that all the great struggles of the seventeenth, eighteenth, and nineteenth centuries have been marked by its epidemic development, preponderating over that of all other infections."

It is only in the last half of the nineteenth century that we have secured definite knowledge of the etiology of dysentery and have been able to differentiate the amebic and the bacillary forms from each other. We now know that the epidemic form of jails, camps, and insanitary cities is bacillary in nature, and has occurred and may still occur in all climates, and that, on the other hand, the endemic form, that is almost confined to the subtropics and tropics, and principally to the latter, has a protozoal cause, the ameba. It was this latter form that caused us so much trouble during the early years of occupation of the Philippine Islands, and still claims its occasional victims among our soldiers there. The native Filipino seemed largely immune, but amebic dysentery has proved the greatest foe of the soldier and white American civilian in those islands; also of the English in India, and of the white man generally when he has attempted to colonize the tropics. In the early days in the Philippines in number of cases it came next to malaria, but much ahead of that disease in fatalities and in lasting disability, while we withstood without really serious involvement the cholera and the plague and the beriberi, which played havoc with the natives. We also had the bacillary variety there, but not great numbers of cases; this occurred nearly always in sharply defined small epidemics. Endemic (amebic) dysentery has as its principal centers India, the Malay Peninsula, China, Japan, and the Pacific Islands; Arabia, parts of Africa, and South America—in fine, the tropical and subtropical latitudes.

The dysentery that proved so serious in the Boer war was of the bacillary kind; the amebic form did not occur. In fact, the dysentery of history and that which has caused such havoc in warfare and in armies and camps generally was almost universally of the bacillary form. Of course, this is mixed up in the statistics with the ordinary simple diarrheas, but when very severe and disabling or fatal we can put it down without much chance of error as the real bacillary dysentery.

In all armies there has been a notably great reduction in the incidence of dysentery in the last few years, due to the marked improvements in general hygiene that have been recently instituted.

This decrease will not last, however, in active operations unless we keep strictly up to the mark our modern methods of camp hygiene, especially in regard to the establishment and care of latrines, and the warfare against flies. There has also been a notable decrease in epidemic dysentery among the civilian population in Europe and other civilized countries, due to improved sanitation. Its incidence in Europe before the present war was mainly institutional, except in camps.

There is no especial age or sex or race incidence in dysentery except for the apparent immunity of the native to the amebic form. It is more a disease of country districts than of cities, and of summer than of winter. Soldiers, sailors, and tropical explorers pay the heaviest tribute to it. Davidson says it is notably the poor man's disease.

As in all infectious diseases, adequate *diagnosis* is a necessary preliminary to any practically successful prophylactic measures. In dysentery our modern methods of diagnosis depend, first, on the history and symptomatology of the cases; secondly, on microscopic and laboratory methods of investigation.

Cases of amebic and bacillary dysentery when carefully studied show marked differences in the totality of the symptoms as well as in the history of their incidence. Amebic dysentery in the first place is, as above stated, endemic rather than epidemic in character. The clinical characteristics of this type, as distinguished from the other, are insidious onset, marked tendency to chronicity, relapses alternating with periods of comparative quiescence, great liability to abscess of the liver, and confinement to warm climates or the warm season of temperate climates. Whitmore describes it as usually subacute from the onset; McCaw says it is "insidious in its approach." Recurring attacks come on showing the clinical symptoms of pain, tenesmus, mucus and blood in the stools, and of greater or less severity. These attacks are, however, separated by periods, sometimes long, of complete absence of the local symptoms, indeed quite generally with a condition of obstinate constipation. The disease is not immediately fatal but tends to resist complete cure.

The bacillary form of dysentery on the other hand is epidemic in its incidence. It is a specific acute infectious disease, resembling the other type only in the local symptoms of pain, tenesmus, and bowel passages. It usually begins like the other acute infections—suddenly or with short prodromes of malaise or digestive disturbance. As McCaw says, the cases are abrupt and threatening from the beginning. It is a true infection or intense intoxication which generally terminates quickly in death or recovery, and only very exceptionally glides off into a subacute or chronic form. With the local symptom there is quite generally marked general depression, and other constitutional symptoms of great gravity. The mortality is high.

Thus, in identifying the type of the disease with which we have to deal, the history of the case and the circumstances attending it generally give us a pretty good line as to its proper classification. However, it will be readily understood that the only sure means of diagnosis is microscopical and bacteriological.

The definite diagnosis of amebic dysentery is made by finding the ameba in the stools. Sometimes it is easily found, again only with considerable difficulty. One picks out a fragment of the stool and compresses it under a cover glass; when the organisms are scarce, the watery stool resulting from a saline purgative may be examined. The stool should be fresh when examined and should be kept warm to keep up the motility of the parasite. It is unsafe, according to Whitmore, to try to diagnose the fresh ameba when it is quiescent. We differentiate the pathogenic *Entamoeba histolytica* from the non-pathogenic *Entamoeba coli* by the peculiar characteristics of the former—that it is larger, more active and contains red blood corpuscles.

Some authorities state that unless cysts are found (containing eight nuclei in *Entamoeba coli*, but only four in *Entamoeba histolytica*) the ordinary observer is not expert enough to distinguish with certainty between the microscopic appearances of the two forms. A difficulty here is that the cysts do not generally appear until towards convalescence, and that some facility with the technique of staining is required. Emulsifying the feces in Gram's iodine solution is, however, usually sufficient. Several examinations of the material are necessary before arriving at a negative conclusion. It is as a means of picking out "carriers" that the staining of the cysts is especially useful.* In doubtful cases the material may be fed to a young kitten or better injected directly into its cecum. The therapeutic test with emetine is occasionally of value.

In the bacillary form of the disease, laboratory diagnosis is more difficult and therefore less practical, owing to the more elaborate technique necessary and to the fact that agglutination phenomena do not appear until about the twelfth day. The only absolutely sure method of diagnosis is the isolation of the bacilli from the stools. This will no doubt be more practicable in the Army than formerly owing to the modern use of the motor field laboratory. One selects pieces of mucus from the stools and washes them thoroughly with sterile saline solution to remove other bacteria. These are emulsified in bouillon and a few loopfuls of the emulsion placed on some differentiating restraining medium such as Endo's lactose-fuchsin-agar. Resulting colonies are like those of typhoid, but the bacilli are non-motile. These colonies may be "fished" and subcultured and put through the usual tests, including planting upon the various sugar media. Agglutination reactions are of considerable value in determining the nature of the bacilli thus isolated and in differentiating the Shiga-Kruse strain from the Flexner-Strong and "Y" varieties. It will be recalled that the two latter, unlike the former, produce acid in mannite media. Stitt says that the therapeutic polyvalent serum can be used for diagnostic agglutination tests and that organisms, recovered from the feces and agglutinating in 1 to 50 or 1 to 100 dilutions, will confirm the diagnosis of bacillary dysentery as against the amebic form.

*It has been found by British investigators that at least 10 per cent. of soldiers returning from tropical service carry the cysts, irrespective of whether or not they have shown clinical symptoms.

The *prevention* of dysenteric disease is, as we have seen that history shows us, liable to be of the greatest importance in connection with our big new Army cantonments and camps, as well as in the billets and trenches on the other side of the water.

A brief general outline of our present day methods of attack may therefore serve to interest, or perhaps instruct, some of those civilian physicians now taking up army commissions, whose former professional work has not led them to look at this kind of problems from the army point of view. We may consider rational prophylactic measures against dysentery from two different angles: that is to say, first, the general sanitary measures that may be put in force, and, second, specific methods of procedure. It is not necessary to take these up here in minute details as they are fully described in various recently published manuals of military hygiene or in War Department circulars.* The idea is merely to give a broad and comprehensive view of the fundamental principles of the subject, to emphasize its importance, and to try to induce the lately appointed medical officer to familiarize himself with the plan of campaign necessary in controlling the incidence of the intestinal type of infectious diseases. We have now learned how to prevent and have indeed practically eliminated the typhoid group of fevers. If we could control dysentery as successfully, the biggest outstanding problem in military hygiene might be considered as satisfactorily solved. It may be noted here that in accomplishing the prevention of bacillary and amebic dysentery we would at the same time control the simple or so-called catarrhal dysenteries and the ordinary camp diarrhea, diseases which, while not in themselves dangerous to life, yet serve to largely bulk the sick reports at times, and thus interfere seriously with military efficiency.

As in all infectious diseases, we should endeavor to prevent the operation of the usual predisposing causes, which act by lowering the vital resistance of the individual. We should avoid, so far as possible, fatigue, exposure to cold and dampness, overcrowding, indulgence in alcohol, in fact, general bad personal hygiene of any kind. It is possible, too, that mechanical or chemical irritation of the mucous membrane of the large intestine from unripe or decomposing fruit, or indigestible food, or food in which the germs of putrefaction have begun to work, may predispose to dysenteric attacks.

The dysentery class of diseases, to note their fundamental epidemiology, is spread through the bowel passages of a patient or carrier, infecting directly or indirectly, water and food, or the hands, clothing or bedding, and being thence taken into the intestinal canal of another individual through the mouth.

Given a reasonably vigorous and healthy personnel, what general measures should we then adopt in an antidysentery campaign?

1. We *isolate* patients. We disinfect their stools by 5 per cent. liquor cresolis compositus in equal parts, mixed and left to stand for an hour. We sterilize infected clothing and bed clothes, pre-

ferably by heat where steam sterilizers are available; if not by immersing the articles in a 2½ per cent. cresol solution.

2. It goes without saying that we should look most carefully after the *water supply*. The new development of motor laboratories marks a decided advance in this connection in the field. The examination of water is usually limited to estimation of the total bacterial count (on agar) and to obtaining figures for the least amounts of the water samples containing lactose fractors, (McConkey's bile-salt-lactose-litmus broth). These simple determinations have been found to serve in practice as a satisfactory means of differentiating unsafe waters. Any water not tested or not responding satisfactorily to these simple tests must be sterilized before use. The method of purification by boiling, of course, is always sufficient when practicable. When this plan is not available, the method most generally suitable has been found to be chemical sterilization, and the reagent now most used is bleaching-powder (calcium chloro-hypochlorite), using one part per million of available chlorine. This strength requires about one gram of the salt for the Lyster water bag of our Army, or two grams for the English Army water-cart. Samples of the chemical should be titrated from time to time to check the loss of strength to which it is liable (by Penot's arsenious acid method or by the thiosulphate test).² Filtration methods are unreliable in the field.

3. The careful supervision of the methods of *food supply* is a prime necessity in antidysentery work. Milk supplies should be boiled. Screening of food and of cooking and eating utensils against flies is naturally of great importance. Fresh vegetables are a great source of danger, especially in tropical countries where the native and Chinese truck-gardeners use, for fertilizing, the method of sprinkling liquid sewage and excrement over the growing vegetables. We found at Corregidor in the Philippines that the prohibition of the importation of green vegetables was followed by a drop almost to zero in the dysentery rate which had previously been large. The most important procedure of all in relation to the soldier's food supply is the elimination of "carriers" from among all having to do with the cooking and serving of food, and this measure seems to have special importance in relation to dysentery. The chief factor in the spread of the amebic form of the disease seems to be encysted amebæ in the stools of convalescents and healthy carriers. It is evident then that it is extremely dangerous for these men to handle food. The inculcation of the habit among soldiers of washing the hands before eating is a measure of priceless value in preventing the spread of dysentery, probably more important than in any other disease except cholera.

4. In fighting all the infectious diseases of intestinal nature, it is an absolute necessity that we pay the most careful attention to methods of disposal of *excreta and wastes*.

(1) For the satisfactory handling of human excreta, we usually adopt for temporary camps the English shallow straddle sink method, preferably with the Patterson modification of wooden covers; for semi-permanent camps, we use the deep trench latrine pit in connection with the Havard type of

*See Havard's Manual of Military Hygiene, Third Edition, 1917; Lelan's Sanitation in War, 1917; Stitt's Diagnostics & Treatment of Tropical Diseases, 1917.

box with covered seats. The pits are burned out daily with straw and oil or sprayed with lamp black in kerosene. Lucas of the New York National Guard has developed the Patterson cover idea so as to make it apply to the pit method. A flat cover is made to fit closely over the top of the trench and holes with self-closing lids are placed conveniently along the length of the cover.³ This device is probably, at least with reference to dysentery, an improvement on the boxed seat, as it is less liable to fouling and can be more easily cleaned. All these details are of course adopted for the purpose of fly-proofing and preventing the breeding of flies. Special methods of handling urine are less important in dysentery than in typhoid owing to the fact that in the former neither the amebæ nor the bacilli are excreted in the urine. However, owing to the frequent stools in dysentery and the mucous consistency of the discharges, contamination of the hands and of the seats of the latrines is much more likely than in other intestinal diseases. We should therefore wash off the seats frequently with 5 per cent. cresol solution and keep the same solution handy, requiring the soldiers to wash their hands with it after using the sink.

(2) Kitchen wastes and the general waste of the camps can only be handled satisfactorily in one way, according to modern ideas, and that is by incineration. The principal thing here, of course, is the warfare against flies. If we have mechanical crematories, well and good; if not we extemporize rock pile kitchen and camp incinerators, usually according to the Straub models⁴ which have given good service in many camps, even divisional in size.

(3) The proper handling of horse manure is naturally of importance in any situation that requires the control of fly-breeding. Careful daily removal of manure from and cleaning of the picket lines is essential, as also the burning over of the surface of the ground concerned. The refuse itself must be carted away a sufficient distance or preferably dried and burned in some one of the extemporized incinerators that have been invented for this purpose.

The question of the transfer of dysentery by dust has not been conclusively settled. If by the methods above described, soil infection can be adequately prevented, dust will, however, not be dangerous in this connection.

Taking up now the very important problem of the specific measures that may be made available against dysentery, we shall consider separately the amebic and the bacillary forms.

1. Since amebic dysentery is no doubt largely spread by cysts in the bowel passages of "carriers," the specific treatment with ipecac of the latter, especially convalescents and those carriers having to do with the preparation of food, such as cooks and mess orderlies, is rational.

For the abolition of the cysts in the stools, not less than 12 grains of the emetine salt, administered in one grain doses daily, is necessary.

A late improvement is the substitution of emetine bismuth iodide for the formerly used hydrochloride salt. This is given in large doses, *i.e.* not less than a total of 36 to 40 grains in daily doses of three to four grains. Very successful results have been obtained by the use of this method. The dif-

ficult thing, of course, is the locating of the carriers.

2. Unfortunately it cannot be said that the present status of the question of the specific prophylaxis of *bacillary* dysentery is entirely satisfactory. There have been certain results, it is true, from the experimental work that has been done along these lines, but they are not yet in the practical shape that we would like to have them for use in the Army. However, it seems to me that the situation is at least encouraging, though some authorities are inclined to be pessimistic as to the future of the problem.

Shiga in Japan in 1898-1900 vaccinated with dead bacilli, plus specific serum, 10,000 inhabitants of a district where the disease was prevailing, and while the incidence was apparently not lowered, the mortality was reduced to about one-third of what it had formerly been.

Castellani in 1913 reported "fairly good results" from the use of dead bacilli, followed a week later by live non-virulent germs. He now uses a polyvalent vaccine, a carbolized emulsion (others prefer cresol) of least-virulent strains prepared from agar cultures without heating. He avoids the use of broth in the preparation of cultures on account of the severe local and general reactions that follow the use of vaccine made in that way. Indeed this severity of the reaction—this violent "kick" as one may say—has been one of the principal stumbling blocks in the way of successful experimentation.

There have been some rather promising results obtained in the last few years. In Kanagawa Ken in Japan in 1908, 3253 persons were vaccinated against dysentery. Of these thirteen or 0.4 per cent. contracted the disease with no deaths. Of 632 individuals not vaccinated, eighty-eight or 13.92 per cent. did contract it with twenty-one deaths.⁵ These figures are not large enough to prove the case conclusively, but are nevertheless highly significant.

There was an epidemic on the borders of Galicia in 1915 in which several hundred persons were inoculated with a polyvalent vaccine. The epidemic was apparently stopped in this way.

F. Noc in Cochín China, in 1915 claimed to use immunization with antidysentery vaccine, plus serum, with good results. Busson in Germany in the same year found in animal experimentation that the best results, including a lessening of the severity in the reaction, came from the use of the dysentery toxin plus the antitoxin, the latter being used in a quantity insufficient for the complete neutralization of the toxin.

In a local epidemic of bacillary dysentery in the German army, in 1916, 2000 inoculations were made, and it is said that no further cases occurred in the infected district.

In Hawaii in 1916 an epidemic in children was completely aborted by inoculation of vaccine in the healthy (the "Y" organism isolated from the stools).

Gibson of the Royal Army Medical Corps thinks there is a good chance of the success of the inoculations in the army. They were being tried in the field in France last summer. Reports of the results are not yet obtainable. He used a trivalent vaccine of the Shiga, Flexner, and "Y" types.

The short immunity so far obtainable (only a few months at the best) is one of the things that has discouraged the investigators. It is to be hoped that some method may be found to extend this period materially. In any event even that short time, if really obtainable, might under army conditions be found to be of the utmost importance. The newly discovered methods of using oil in the injections will no doubt greatly reduce the severity of the reaction and thus tend to encourage experimentation on a large scale among the troops.* The desideratum is of such vital importance to the well-being and the future of armies, that it seems to me it merits much greater attention and perseverance than has heretofore been given to it by laboratory investigators.

A valuable hint and a hope that the problem may still be solved has very recently been given by M. Roux.⁶ One of his collaborators found that the disappearance of the dysentery bacillus from the stools of convalescents coincided with the appearance of an invisible antagonistic microbe. A bouillon culture after 18 hours at 37° C. was passed through a Chamberland filter, L2. The filtrate was found to have the property of arresting cultures of the Shiga bacillus, causing death and finally lysis (on agar plates, circles where the culture is null show disappearance in those places of the dysentery bacillus). The antagonism is apparently not inherent in the invisible microbe but acquired by symbiosis. This microbe has no pathological action on experimental animals. Rabbits are immunized by the culture of Shiga which has undergone lysis, that is by the culture of the antimicrobe, against a dose of toxin killing controls in five days. Roux calls this a heterologous antimicrobial immunity. While this discovery may not prove to have an important bearing on the solution of our problem, it seems to indicate that there is no reason why we should become discouraged. It is probable that we have not yet learned everything about the complicated question of immunity, even in its more practical aspects. Let us endeavor to stimulate our laboratory associates to work out a practicable method of anti-dysentery inoculation. One who could do this would indeed accomplish more lasting good than a hundred doctors in the trenches.

REFERENCES.

1. Ch. Dopter: *Paris Médical*, 1915, No. 51, p. 510.
2. Lelean: *Sanitation in War*, 1917, pp. 313-320.
3. Havard: *Military Hygiene*, Third Edition, 1917, pp. 636-653.
4. —: *Ibid.*, pp. 668-674.
5. Prof. A. Ascoli: *Il Morgagni*, Parte II, Riviste, 17, November, 1915.
6. Roux: *Comptes Rendus des séances de l'Académie des Sciences*, Paris, Sept. 10, 1917.

*Whitmore at the Army Medical School has recently prepared an oil-suspended triple dysentery vaccine, containing the Shiga, Flexner, and "Y" types of bacilli. Results so far have been quite encouraging, both as to lack of toxicity and for immunity response.

Alcohol and Blood Pressure.—Lian examined 150 soldiers aged 42-43 years. Of 16 sober men (who did not exceed a liter of wine daily) but one showed hypertension; of 13 moderate drinkers (1 to 1.5 liters of wine), one also showed hypertension; of 6 ordinary drinkers (2 to 2.5 liters of wine plus bracers of spirits), one was hypotensive. Of heavy spirit drinkers one in four showed hypertension.—*Archives Médicales Belges*.

A CASE OF PATENT URACHUS, WITH ABSCCESS, COMPLICATING AN HYPERTROPHIED PROSTATE.

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ALTHOUGH surgeons and anatomists for several hundred years have recognized the existence of urachal abnormalities, indicating the patency of that structure in one form or another, the occurrence of these cases, especially complete patency in subjects well advanced in years, is sufficiently rare to justify the report of a case recently operated upon in the Central and Neurological Hospital.

In very early fetal life the urachus develops from the allantois and forms a canal from the bladder to and sometimes through the umbilicus. It is normally patent at the second month of uterogestation, but later on in fetal development the canal should become obliterated and its walls consolidated to form a more or less distinct fibrous cord, which becomes the median suspensory ligament of the bladder in its lower part, and its upper portion is usually imbedded beneath the peritoneal layer of the anterior abdominal wall. If, after birth, this cord should continue to remain pervious to the slightest degree, permitting communication with the bladder, it becomes possible for a urachal sinus or cyst to develop, especially if any interference with the expulsive function of the bladder should arise from an imperforate urethra or a tight prepuce.

Where the urachus remains more or less patent in adult life, the canal may open into the bladder with the distal end closed; the distal end may remain open, and communicate with the umbilicus with the bladder end closed; in another type, both the proximal and distal ends may be closed, leaving a fusiform cyst between; the most uncommon type in adult life is where the entire urachal tract remains patent. Beadlike or fusiform cysts of the urachus of varying sizes, but usually small, may be encountered in median laparotomy incisions where the patient and the surgeon were previously unaware of the existence of such a condition.

The largest number of urachal abnormalities is encountered in the newborn, where urinary fistulæ at the umbilicus are occasionally found after the cord has dropped off, but if there is no real obstruction to the bladder outlet from an imperforate urethra, or an abnormally tight prepuce, these urachal fistulæ will gradually close and disappear. Ordinary urachal abnormalities, such as blind fistulæ, cysts, etc., cause little or no discomfort unless they become infected and produce abscesses of the anterior abdominal wall, which may open into the bladder or through the umbilicus. A blind urachal fistula opening into the bladder may be the site of the formation of a urinary calculus, and give rise to obscure bladder symptoms.

Urachal cysts are usually small and unimportant, but occasionally cysts of this type have grown to enormous size. One reported by the Mayo brothers was the size of a uterus at term, and another mentioned by an earlier writer weighed over 100 pounds. These very large urachal cysts are so rare that they are usually diagnosed as ovarian, and only differentiated at operation.

The types of pathological urachus which are of the greatest interest to the surgeon are those which produce symptoms necessitating operative interference for their relief, but a patient may go through life with a pathological condition of the most interesting kind involving his urachus and never be aware of the fact unless some obstruction to the normal bladder outflow, due to prostatic hypertrophy, impervious urethral stricture, impacted calculus, or obstructing new growths, produce such an amount of bladder distention that the urine, following the line of least resistance in seeking another outlet, enters the patent urachus and produces symptoms calling attention to the condition. Complete urachal fistulæ due to hypertrophy of the prostate in the aged is one of the most infrequent types of urachal abnormality, and but few cases have been recorded.

Urachal cysts are more common in women, but completely patent urachal sinuses occur more often in men, owing to the greater frequency of urethral obstruction among them. Many of these conditions may exist during the life of the patient, producing no symptoms, and may not be discovered unless encountered in the course of an operation or at autopsy.

The following case was especially interesting on account of the man's age, the duration of his disability, the complete restoration of bladder function, and the closure of the urachal sinus:

M. T., aged seventy-four years, was admitted to the Central and Neurological Hospital, December 5, 1916, suffering from general abdominal pain and discomfort, complete cessation of urethral urination and passing all his urine through the umbilicus. His family history was good. Personally he had always been in good health. Had typhoid fever when thirty years of age. For many years he had been in the habit of drinking eight or ten glasses of beer and several glasses of whiskey daily. His heart, lungs, and gastrointestinal organs were normal, but he had lost fifteen pounds in weight during the past year.

Three years ago he began to suffer from dull pains in his hypogastrium, with distended bladder and the gradual cessation of the free flow of urine from his urethra. The flow gradually became dribbling in character, and several months before entering the hospital urine began to exude from his umbilicus, and as the urethral flow diminished the flow from his umbilicus increased, until finally about a month before his admission his urethral flow ceased entirely and he passed all of his urine through his umbilicus.

The patient was short and stout, anemic, with small flabby muscles and atheromatous arteries. His abdomen was distended, his umbilicus protruded and from it flowed constantly a cloudy fluid with a urinous odor. A rounded mass, dull on percussion and tender to pressure, was found in the hypogastric region just above the symphysis. His prostate was very much enlarged, especially the middle lobe, and a small sound could be passed with difficulty into his bladder. His urine drawn by catheter contained pus in considerable quantities and a few hyaline casts. The fluid from his umbilicus contained a larger admixture of pus than that obtained by catheter from his bladder. Methylene blue appeared in his urine twenty minutes after the tablet had been swallowed. His blood pressure was low for his age; systolic 130 mm., diastolic 60 mm. Differential blood count was practically normal.

He was treated expectantly for some time with tonics and bladder irrigations until his cystitis had greatly improved and his general health was as good as could be expected, when suprapubic prostatectomy was resorted to early in February, 1917.

Under general anesthesia the bladder was irrigated and distended with about twenty ounces of warm boric acid solution, and after the usual preparation an in-

cision 8 cm. long was made in the median line, just above the pubes. On dividing the fascia, rectus and pyramidalis muscles a considerable amount of indurated tissue and adhesions were encountered over the bladder, and on going a little deeper an abscess cavity was entered near the apex of the incision. This was evidently the distended urachus and contained about 60 c.c. of pus having a urinous odor. This abscess was evacuated and carefully wiped out, and on dissecting deeper over the bladder in the median line, in the lower angle of the wound, an irregular diverticulum of the peritoneum was entered, but the rent was quickly sewed up.

The bladder wall was very thick and adherent to the surrounding structures, and there was a marked inflammatory exudate on its anterior surface. The bladder was more or less fixed and it was impossible to push the peritoneum upward from its anterior surface. An incision about 4 cm. long was made into the bladder, as near the fundus as possible, and through this incision the enlarged prostate was very easily enucleated, lobe by lobe, aided by an assistant's finger in the rectum. A general oozing from the bed of the prostate persisted and was controlled by hot packs. A large self-retaining drainage tube was fixed into the bladder and held by several layers of purse-string sutures in the bladder walls and fascia. The wound was closed with tier sutures in the muscles, fascia, fat, and skin. A self-retaining urethral catheter was left *in situ* for twenty-four hours.

A continuous drainage of urine was maintained, the bladder was irrigated with warm boric acid solution three times daily, and the patient made an uneventful recovery. As he continued to pass all his urine through the upper drainage tube, after a reasonable time this was clamped off in an effort to make him pass urine naturally through his urethra, with very gratifying results. On the twelfth day after the operation the suprapubic tube was removed, and the edges of the wound brought together with adhesive strips. The suprapubic wound closed promptly without suppuration. There was no leakage of urine through the umbilicus after the operation.

The pathological report of the specimen removed showed hypertrophy of the prostate of the interstitial type.

The patient has been passing his urine normally at normal intervals, and has returned to his work.

42 WEST SEVENTY-FIFTH STREET.

TRAINING THE MYOCARDIUM.*

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IN the treatment of heart disease first place should be given the myocardium. Its efficiency should be determined at the outset. The significance of valvular defects is no less than when until recently text-book authors made them the essential factors in heart pathology. It is highly important that valvular defects be recognized and differentiated, for the treatment of mitral diseases may be quite different from that of aortic disease, and that of mitral stenosis quite different from that of mitral insufficiency, yet, no matter what the lesion the efficiency of the heart is in direct ratio to the strength of the myocardium.

Of the five special functions of the heart as demonstrated by Gaskell, namely that of stimulus production, of excitability, of conductivity, of contractility, and of tonicity, the last two are of particular interest in relation to our subject. MacKenzie states that the function of contractility is

*Read at the Annual Meeting Wayne County Medical Society, Lyons, New York, December 11, 1917.

the power to contract when stimulated, and the function of tonicity the power to retain a certain amount of contraction when the muscle is inactive. An abstract example of the relative loss of function of contractility is the heart at the close of a typical run of typhoid fever; of the function of tonicity, the dilated heart following physical overstrain. It is obvious that a disturbance of either function tends to involve the other, nevertheless our conception of the needs of an imperfectly functioning myocardium is the clearer, if in our analyses we consider them as distinct.

The underlying principle in training the myocardium is essentially the same as that in training the voluntary muscles, namely, alternate exercise and rest. Exercise should stop short of exhaustion either immediate or remote. Rest should provide time only for recuperation and reaction. Either over-done is fatal to results.

To determine the reserve force of the heart it is essential to observe closely subjective symptoms and changes in rate and character of pulse and in systolic, diastolic, and pulse pressure under exercise or change of position, as from the reclining to the upright. Any scheme for working this out is better than none. None is infallible. As a routine we note pulse, systolic, diastolic, and pulse pressure, first with patient reclining and fully relaxed. The reclining position should be always the same in relation to a given patient for the reason that there is a difference of from 5 to 20 mm. Hg. between the supine and the lateral positions, the pressure in the supine being the greater. This difference is so constant that for the purpose of estimating myocardial reserve we believe it best to make use of the lateral reclining position. If the patient is ambulatory, we then have him walk at ordinary speed, 100 feet, then read the manometer and take the pulse as before with him standing. After resting, sitting for a minute, we have him walk down and up a flight of stairs without hurrying, and read as before. We then have him lie down for the purpose of observing how long it takes the pulse to return to the rate of the first test. These findings are recorded side by side and interpreted in terms of myocardial efficiency. In a normal heart there should be a pulse increase of from 10 to 15 in the second over the first test and from 10 to 20 in the third over the first; with, upon resting, a return to the rate of the first in one minute or less. There should be an increase in systolic pressure and in pulse pressure of from 10 to 15 mm. Hg. in the second over the first, and of 10 to 20 or more in the third over the first. At the same time there should be no undue increase in respiratory rate, no dyspnea nor chest discomfort. The color should be somewhat heightened and the pulse fuller. Any departure from the normal may be interpreted in terms of myocardial efficiency, *e.g.*:

	Pulse	Systolic Pressure	Diastolic Pressure	Pulse Pressure
Test 1.....	80	120	80	40
Test 2.....	90	125	80	45
Test 3.....	100	135	75	50

Return of pulse rate to that of Test 1, one-half minute. This is a normal response.
Take another case with the same response in Test 1:

	Pulse	Systolic Pressure	Diastolic Pressure	Pulse Pressure
Test 1.....	80	120	80	40
Test 2.....	100	120	90	30
Test 3.....	120	110	90	20

Return of pulse rate, 2 minutes. In the second case it is obvious that under light exercise and change from the reclining to the standing position the cardiovascular system, and probably the myocardium in particular, is incompetent, while under the third test (walking up a stairs) incompetency is apparent. In the two cases the readings in Test 1 are identical. The blood pressure picture based upon the three tests in the first case suggests normal myocardial function, while in the second case it suggests markedly deficient function.

Once one has determined the myocardial reserve, the heart at stated intervals should be made to utilize a part of the same. Static force should be converted into dynamic. Every school boy knows what happens to the biceps when so treated; so also the myocardium. Exercise of function begets function, so long as the reserve is not exhausted. In bed cases myocardial training should be essentially of the passive order, but may be both passive and active. In ambulatory cases it should be essentially active, but may be both active and passive. By passive training we mean the use of any means other than contractions of the voluntary muscles. By active training we mean the use of the voluntary muscles. Passive training makes use of drugs of the digitalis group, the therapeutic action of which is to stimulate the myocardium to utilize its reserve, and to increase further that reserve by lengthening the heart's diastole. It makes use of the carbonated saline or Nauheim bath, which tends to raise the blood pressure sufficient to increase moderately the work of the heart while under treatment, to improve capillary circulation, and to stimulate the sympathetic system. It makes use of Swedish or other passive exercises which quicken the blood flow and indirectly improve the cardiovascular tone. It makes use of massage which flushes the blood and lymph channels of the deep tissues as well as the superficial.

Active training makes use of resistance exercises whereby individual groups of muscles are made to labor, little or much according to the judgment of the operator. It makes use of inhalation and exhalation, somewhat beyond that of the physiological need, at stated intervals and for a prescribed time. It makes use of walking or any sport in which walking is the chief physical element.

To elaborate: According to Cushny, digitalis in therapeutic doses stimulates the muscle cells of the heart (augments the function of excitability) and slows the heart by stimulating the inhibitory centers in the medulla; transmission being by the vagus. This dual action leads to increased response to stimuli, as may be seen in the occurrence of extra systoles, and to slowing of the heart with resulting increase in length of diastole and in force of systole.

In the carbonated saline bath the essential factor is cold. Cold causes contraction of the arterioles, elevation of blood pressure, deeper inspira-

tion and expiration, and consequently extra heart work. The CO₂ saline mixture makes possible a cold tub bath without discomfort or shock because the ingredients stimulate the cutaneous circulation and retard heat radiation. By this physiological complex of increased blood pressure dilated capillaries, stimulated sensory and vasomotor nerves, and augmented respiratory function, the heart is made to draw upon its reserve, while at the same time the peripheral field is freer because of a better cutaneous and pulmonary circulation.

Passive exercises consist of movements of the joints in all directions without any effort on the part of the patient. The system is of use at the beginning of myocardial training when reserve is very small and the individual physically weak. The exercises can be given by a nurse or a trusty member of the family, but at first this should be under the observation of the attending physician, in order that a safe estimate of myocardial reserve may be made.

Resistance exercises are embodied in a system, a description of which can be found in special works and in some text-books on general medicine. The essential element in the system is exercise of single groups of muscles against resistance, by either a second person or oneself; for instance, with the patient standing, the forearm is slowly flexed upon the arm while the attendant resists the effort by pressing in the opposite direction, the palm of his hand being against that of the patient's. The arm is then extended in like manner. This procedure is repeated four to six times. After a few minutes' rest a second group of muscles is treated and so on; or the patient may resist his own effort by contracting the opposing muscles. The number of exercises at each séance and the degree of resistance should be determined by observation of symptoms and myocardial reaction. No treatment should exhaust the myocardial reserve.

Massage stimulates the whole circulatory tree by increasing the circulation within the vessels and lymph channels. It is applicable to both bed and ambulatory cases and in degree may be given from the lightest possible manipulation of a single member for a few minutes to a deep full body treatment lasting an hour. Each treatment should draw upon myocardial reserve, but again not to exhaustion of the same. It is to be remembered that much harm as well as good may be done the heart by massage. The operator should understand the needs of the case at the outset.

In ambulatory cases there is no single agent more potent than walking. This exercise should be graded according to the needs of the case, remembering that there is no agent so fraught with harm. The prescription may be definite as to time, grade, and speed, but a failure as to results; for the act is essentially volitional and, pathologically speaking, individuals are seldom good judges of their own needs. The essentials in myocardial training by walking are use of the voluntary muscles, especially those of legs, back, and chest, an increased exchange of the gases of the lungs, and exercise of the myocardium. To be effectual, walking must involve active contraction of the

leg muscles. The weight of the body should be raised on the ball of the foot and toes with each step. At the same time the body should be erect, chin in, and chest elevated, in order that the heart may have free play in the chest and that full inhalation and exhalation may be possible. Unless the patient is instructed in the matter of walking properly he may saunter in a listless manner with relaxed muscles the prescribed time, with resulting harm rather than benefit. He should be made to understand that in walking he is taking a treatment for his heart. He should be informed of the gross physiology of the heart and the object of the exercise. To avoid the danger of overtax, we have adhered to a rule that seldom fails. After estimating, approximately, the myocardial reserve the patient is instructed to walk on the level in the manner noted and in the open air, if not contraindicated, 5 minutes every two or four hours throughout the day, according to the case. The second day the time is increased to 6 minutes, and so on until 15 minutes is reached, the goal being an hour's walk in 4 to 8 periods daily. Each period must be followed by rest, reclining, and fully relaxed from one-half hour to the whole interval. In some cases it is best that the patient spend the whole day in alternate exercise and absolute rest. This plan meets the two essentials in the development of a muscle, namely, alternate exercise and rest of that muscle; its benefits are multiple in that it develops at the same time the heart and the skeletal muscles and increases metabolism. Once myocardial reserve is sufficient to warrant it, a light grade is added. When the myocardium is sufficient for this, heavier grades are added until hill-climbing is easy. During this training the patient is learning his physical capacity, a most important matter in relation to his future.

In this cursory review of methods of physical training which are adapted to the rebuilding of a weak myocardium, I have attempted to say that increase of storage energy is best obtained by systematized use of existing energy to the point of development of function; that the same general rules apply to training the myocardium as to training voluntary muscles; that intelligent co-operation on the part of the patient, including a sufficient knowledge of the physiology of the heart and the object to be obtained, is important; that systems of training the myocardium, both passive and active, may well be utilized, either separately or in combination, in the treatment of almost all weak hearts; that graded exercise by walking is a potent method in ambulatory cases; and that a combination of systems, as, for instance, exercise by walking alternating with rest, carbonated-saline baths, massage, and digitalis, which combination stimulates to better function the whole circulatory tree from the heart to capillaries, lymphatics, and veins, is in many ambulatory cases more potent than single remedies.

Bright's Disease and Tuberculosis.—Nathan, who has seen cases of this coincidence, states that hypertension is naturally a bad element for the consumptive, while edema is prone to have a pulmonary localization.—*La Presse Médicale*.

A STUDY OF GENITAL AND PROGENITAL PAPILLOMATA AND EXCRESCENCES.

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THE growths noted in the above title, which stands in lieu of the timeworn and obsolete designation "Venereal Warts," have received but little attention heretofore in medical literature. Some authors merely suggest their existence in a cursory manner, and those who consider them somewhat in detail fail to view them from a scientific standpoint, intimating solely the clinical aspect of these lesions and paying little heed to their morbid anatomy and etiology. The writer has reason to believe that they are of much interest, not alone to the genito-urinary surgeon, but also to the general practitioner. They are not infrequently the first messengers of some affection in distant organs or tissues of the body, permitting by their presence a number of valuable inferences to be drawn, serving as important diagnostic indices for certain abnormal states of the organism, and aiding greatly rational therapeutic efforts in overcoming concomitant conditions, of which they are only expressions or symptoms.

Our first attention will be directed to the study of the genital and progenital papillomata; subsequently other excrescences will be discussed in order of their frequency.

The former may be divided, for convenience of study, into the following classification: (a) papilloma simplex; (b) papilloma acuminatum; (c) papilloma gigantum; (d) papilloma latum; (e) papilloma molle; (f) papilloma maligniforme, and (g) a type sui generis—papilloma urethrale.

Following the reader will find an elucidation of each variety separately, giving briefly its pathology, enumerating the etiological factors leading to its inception, outlining the methods of treatment now in vogue, and stating the prognosis in relation to other morbid states of the economy.

Papilloma Simplex.—This is the form designated in older writings as "venereal wart." It is of common occurrence, especially during the periods of puberty and adolescence. Males are more frequently affected than females, particularly those of a weak and unstable nervous constitution. Its location is in the integument of the genito-urinary tract and its adnexa; the sulcus glandis in the male and labia majora in the female being favorite sites. It denotes an intensification of anabolism, an exaggeration of tissue construction met with during the period above mentioned, wherein the anabolic activity far exceeds catabolic counteraction. This constitutes a most important predisposing etiological factor. Uncleanliness of the genitalia and the contiguous parts, a tight prepuce, the presence of the smegma bacillus, and occasionally some forms of helminthiasis are responsible for its production. Hyperactivity of the sebaceous glands in the preputial sulcus is another potent cause. Excesses in venery, ungratified sexual desire, and the irritation attendant upon masturbation are likewise apt to induce this affection. By reason of the influence which the vasomotor nervous system exercises in the period of extreme growth and functional activity, as during pubescence, the nervous system is

likely to be burdened with the brunt of the process, which is partly characterized by an augmentation or rather perversion of function of the nerves regulating circulation and nutrition. Local vasomotor paralysis ensues, eventuating in dilatation of the capillaries of the layers of the corium and thus favoring transudation within the adjoining structures, factors instrumental in the production of the simple genital papillomata. The morbid anatomy of this form of wart is comprised in the foregoing explanation of the agency of the vasomotor nervous apparatus in the causation of these lesions. In short, the entire process may be regarded as a trophoneurosis. Simple papillomata manifest no subjective symptoms, being *indifferent* throughout. Their color varies from a dirty gray to a yellowish brown or black, with numerous intermediary shades.

The treatment of papilloma simplex consists in the removal of the causes productive of this lesion. Of course, we cannot curtail the physiological period of adolescence, but we can materially aid in removing the lesions by topical applications. Cleanliness is not only curative in the majority of cases, but it is also a valuable prophylactic agent. Bathing the genitalia and adnexa with a weak solution of boric acid, as hot as it can be borne, acts very favorably upon the growths. In no instance should heroic measures be employed. Cauterization should be avoided by all means, and resorted to only when all other measures fail. After the papillomata have been washed with the above mentioned solution, they may be dusted with a drying powder of the following composition:

R Aristolis 2.0
Bismuthi subnitratris 8.0
Magnesii silicatis 20.0

M. et fiat pulvis; or the following solution may be applied:

R Acidi tannici 4.0
Adrenalin solution 1-1000. 2.0
Collodii flexilis, or
Tr. benzoini comp. q.s. ad. 15.0

Sig. Apply with a camel's hair brush every second day.

In case they seem rebellious to the above procedure, more potent remedies may be tried, namely:

R Ac. salicylici 4.0
Sol. adrenalin 1-1000..... 2.0
Resorcini 1.5
Collodii Flexile 8.0

Sig. Apply with a camel's hair brush once or twice a week.

After three or four applications, the warts drop off, leaving a normal or slightly reddened base underneath. If pain is experienced during the exhibition of the above applications, a few grains of the hydrochlorate of cocaine may advantageously be combined with the foregoing formulæ. As already intimated, the use of escharotics or highly irritating agents must be refrained from, lest an ugly ulcer result, which may prove very obstinate and resist treatment. Thuja occidentalis, which has been recommended by some authors, has proven ineffectual in my hands in this form of papilloma. Magnesium sulphate in ten grain doses three times a day has in few cases acted admirably in eradicating these lesions without having recourse to any other form of medication. When cleanliness is per-

severed in, the simple papilloma is likely to disappear without the aid of medical agents. Small doses of zinc phosphide tentatively administered have a very pronounced effect upon those growths, the result of perverted nerve activity, and are mainly indicated in nervous individuals. *Tinctura cocci cacti* in ten minim doses is warmly recommended by some authorities. The administration of a mixed staphylococcus vaccine has proven efficacious in a number of instances.

Papilloma Acuminatum.—This is a variety of papilloma peculiar to the genital region only. It is an essential genital lesion. In the male, it is found on the mucous or cutaneous surface of the prepuce and its sulcus. Occasionally entire ridges may be seen to extend in a perpendicular direction on the dorsal surface of the penis. The scrotum participates in the process, and may be studded with a number of these growths. In the female, the posterior commissure and the fourchette may be the seat of this particular form of papilloma. The labia majora may likewise be involved, less so the labia minora, which are the habitat of another variety of excrescence, namely, the *papilloma molle*. The individual lesions resemble ordinary warts, but are more pointed than the latter, acuminated, very slender, considerably indurated, and their surfaces are extremely rough and corrugated. They seldom exceed one-eighth of an inch in depth, and are more or less sensitive. They are of a muddy, gray, or brownish-black coloration. Their cause is to be sought in some abnormal condition of the genital organs. Gonorrheal erosions, ulcerations, both luetic and chancroidal, or those due to pre-existing herpetic eruptions, furnish an adequate soil for the development of this variety of wart. A number of cutaneous diseases, as scrotal eczema, lichen, keratosis pilaris, and the syphilodermata affecting the prepuce and dorsal surface of the penis and scrotum in the male, and the posterior commissure and labia in the female, may bring out this dermatosis. Urethral inflammations, specific or otherwise, and leucorrhœal discharges, diseases of the uterine mucosa, giving rise to irritating secretions, may likewise produce it. Vesical calculi have been known to cause acuminated papillomata, reflexly. A redundant and constricted prepuce, increased secretion of smegma, and the presence of round worms are apt to cause it. Adolescence and middle life are the ages mostly attacked. The morbid anatomy of this variety of papilloma is identical with that of papilloma simplex, and hence need not be repeated.

The treatment consists in the removal of the causative factor and the institution of scrupulous cleanliness. The local applications recommended for the former variety are equally applicable to this condition. Besides these, the cautious application of chromic acid or the use of a strong solution of silver nitrate will eventually eradicate the malady. The area adjoining the wart, however, must be well protected, lest the caustic come in contact with the healthy tissue and work havoc on it. The electrocautery may at times be necessary to destroy these growths, but it is a painful method of procedure, and should be resorted to only after all the milder remedies fail. Ablation by the knife is much better than the use of escharotics, after which the raw

surface may be touched with a mild astringent and stimulating agent, as tincture of iodine or a solution of silver nitrate, 10 grains to the ounce. The tincture of thuja occidentalis acts well in this particular form, and should be given in ascending doses. If there is a syphilitic basis underlying this form of papillomata, specific treatment must be instituted without delay.

Papilloma Giganticum.—This variety of papilloma invades most often the ischio-rectal space, perineum, the inner aspect of the thighs, and the genitalia in both sexes, and may assume enormous dimensions, reaching at times the size of a hen's egg. The anal region is a favorite location of papilloma giganticum, which may completely encircle it. It gives rise to subjective disturbances, as smarting, burning, and itching, and thus occasions a great deal of suffering and discomfort.

The etiology of this form of papilloma is rather obscure; venereal causes do not seem to influence it much, for very few individuals, the subjects of papilloma giganticum, are the subjects of venereal affections. Rectal diseases, as hemorrhoids, fistula in ano, fissures, and neoplasms of the rectal mucosa, are credited with its causation. Many nervous disorders, as hysteria, neurasthenia, general paresis, tabes dorsalis, and disturbances of the vasomotor nervous apparatus are known to be accompanied by papillomatous excrescences in the regions above mentioned. Vaginal affections and disorders of the uterus are etiological factors, known to have inaugurated this form of wart. Its pathology may be summed up in the following short description: The papillæ of the corium are enormously enlarged and the rete mucosum is filled with large pigment granules of an abnormal type; there is also a hyperplasia of the various layers of the stratum corneum. Their color varies from yellowish gray to that of a dirty brown; some assume a greenish hue.

The treatment consists in the extirpation of these growths by the knife. Chemical escharotics and the electrocautery are of no avail in this form. Concomitant affections must be remedied, pathological conditions within the rectum removed, and uterine abnormalities corrected. The higher nerve stimulants may be tried, if there are coexisting nerve lesions. Arsenic in the form of Fowler's solution is indicated under these circumstances, or the intramuscular injections of sodium cacodylate acts very beneficially upon the local diseases as well, by virtue of its epithelial predilection.

Papilloma latum and *papilloma molle* may be considered collectively, as they constitute really various grades of the same affection, differing only in degree, not in kind. They are of a soft consistency, and their favorite location is the perineum, anus, and the integument of the penis in the male, the labia majora and minora and the posterior commissure in the female. The gluteal fold and ischio-rectal space may likewise be the seat of this form of papilloma. They may also be occasionally observed in remote places, as in the hypogastric region, the lower third of the inner surface of the thighs, and the popliteal space. The papillomata lata are apt to assume considerable proportions. In color they suggest a pearly hue, bordering on grayish-blue. They may take upon themselves numerous shapes and configurations, viz., ovoid, oblong,

circular, irregularly spherical, etc. They predominate in the female sex, although males, as remarked above, are by no means exempt. *Pregnancy* is a predisposing factor in their development, but an exciting cause is necessary for their final appearance. This exciting cause is to be found in uterovaginal secretions of a leucorrheal nature, so commonly met in the early months of uterogestation. Then again, the nervous element plays an important rôle in their causation. Condylomata lata must not be confounded with papillomata lata, the latter being non-contagious in character. Moreover, other symptoms of syphilis are likely to be present at this particular juncture. They may also be ascribed to the presence of anemia or chlorosis. Vulvovaginitis and various dermatosis of the genitalia are equally responsible for the condition under consideration. They may also be attributed to friction between two adjoining surfaces, as the ischiorectal space and the inguinoscrotal fold, and to irritation due to the accumulations of offensive secretions in these localities.

Their pathology may be viewed as a proliferation of the tissues of the corium, maceration, and ultimate desquamation of the cuticle, and a slight transudation of serum in the delicate and abraided cutis. In short, they are ordinary warts, which have been deprived of their superimposed corneous covering and possessing slight moistures. They impart to the examining finger an unctuous feel. Some authors assert that there is a contagious element about them, but this has not been verified in the writer's experience. Cohabitation does not seem to transmit the lesions to the unaffected person.

The influence of the nervous system in this form of papilloma becomes again obvious, for there are cases on record wherein the sudden occurrences of papilloma molle is solely traceable to emotional states and hysterical paroxysms. They are more prone to make their appearance during the warm season and entail much discomfort on part of the individual thus afflicted, giving rise to subjective manifestations, especially pruritus.

The treatment is both local and systemic; all dyscrasias must be remedied and the causes favoring their productions removed. Washing the lesions with a mild solution of an alkali, both deterges and disinfects them, leaving a clean surface for the application of the remedial agents. Astringents and protectives may be used locally, as well as mildly stimulating applications. A very efficacious prescription is the following:

R Ac. salicylici 0.60
Zinci oxidi 4.0
Amyli 8.0
Pulv. talci.....20.0

or

R Thymolis iodidi 4.0
Bismuthi subnitratis 20.0
Lycopodii 8.0

If they are stimulated in the inguinogenital fold the adjacent surfaces must be separated by means of gauze, into the meshes, of which one of the above powders is thoroughly incorporated. No ointments of whatsoever kind should be used in this variety of wart, nor should any caustic agents be employed.

Papilloma Maligniforme.—This variety of papilloma is a most serious one, in view of the fact that it invariably culminates into malignancy. Although not a very common affection, yet if it does exist it is most frequently met with in middle aged or old persons, the male sex predominating. It commences as a moderately sized wart on the genitalia or their adnexa. It very rapidly increases in size and assumes considerable proportions, some of them attaining the size of a hen's egg. There are more or less subjective sensations accompanying it, such as slight burning and smarting. For a time they proceed without any gross alterations in their structure, when suddenly our attention is called to a slight maceration of their surface; a mucopurulent exudate may be seen to transude from between the corrugated projections, emitting a somewhat disagreeable odor. Ulceration soon supervenes and proves intractable, while the subjective symptoms become more and more pronounced. The inguinal glands enlarge; the patient assumes a cachectic, sallow appearance and loses rapidly in weight. In short, we have to deal here with an epithelioma, due to the malignant degeneration of a papillomatous growth.

The only hope of a cure is total extirpation of the lesion and the removal of the inguinal glands, with or without subsequent radiotherapy. We must rigidly refrain from any other methods of procedure, except perhaps exposures to radium, which has in a number of instances proven efficacious.

Papilloma Urethrale.—This is really an exaggerated form of granular urethritis, mainly located in the fossa navicularis, pendulous portion of the urethra and rarely in the membranous portion of the canal. They exhibit the appearance of soft papillomata and spring from the mucosa. If situated within the posterior portions of the urethral tract, they give rise to subjective symptoms upon urination, with a marked thinning or curving of the urinary stream. Urethroscopy is the only method whereby they can be recognized, and these are readily seen filling the fenestrum of the urethroscope. They are of a lobulated or corrugated character, of the color of the adjoining mucosa. Concomitantly the patient suffers from an acrid mucopurulent discharge, which examined microscopically may contain staphylococci and diplococci. Occasionally they are caused by a gonococcus infection.

The treatment consists in (1) their slow reduction in size by means of a 15 per cent. solution of silver nitrate urethroscopically, (2) reduction by the electrocautery in the same manner, or (3) ablation with a special urethroscopic blade, intended for such lesions. In the latter method there is considerable bleeding, but the instillation of adrenalin will soon check the hemorrhage. If the urethra is abundantly studded with the papillomata, the process is necessarily a lengthy one and may extend over months. Two or three urethroscopic treatments weekly will suffice, as too frequent séances may irritate the canal and cause subjective disturbances on micturition. Internally an alkaline with hexymethylenamine may be administered, so as to reduce the acidity of the urine passing over the partially healed lesions.

SOME IMPORTANT POINTS IN THE TREATMENT OF GONORRHEA, AND SOME OF ITS COMPLICATIONS.*

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FROM a theoretical standpoint, the treatment of gonorrhea in the male is often considered most simple and easy by the layman, and I am sorry to say that the opinion of the doctor is not infrequently the same. Yet from a practical standpoint this disease or its complications is at times one of the most intractable of diseases. From a study of the various methods advocated for its treatment one can readily understand that no one method in the past has been specific. Even to-day we have no known specific. In some cases the patients seem to respond to any method. In other cases they neither respond to any one method nor to a combination of all methods.

In regard to the simplicity and ease with which some cases are cured there is no doubt that such is the case in a great many patients, and those are the cases we as specialists rarely see. As a general rule, we see the subacute, more often the chronic cases, after they have run the gauntlet of the entire therapeutic armamentarium of the various doctors under whose hands they have been, and yet are not cured of their disease. It is for this reason that I shall devote the greater part of this paper to the discussion of some of the salient features in the treatment of these resistant chronic cases.

Before going into a discussion of the chronic type of case I shall say something about the acute type. In the acute cases one has the patient take anterior injections by means of the hand syringe, one with a capacity of a dram or dram and a half, preferably made of glass so that the patient can see how successfully he is injecting himself. This syringe should have a rubber tip and a blunt point, to avoid the danger of breaking off a piece of the tip of the syringe and having it injected into the urethra. The patient is instructed to void his urine before injecting, in order to wash out the urethra, so that the medication can the better reach the mucous membrane, and, more important still, so that any pus that is in the urethra be not injected or forced back into the posterior urethra. The drugs mostly used to-day are argyrol, protargol, collargol, novargon, etc. These silver albuminates are in great favor to-day because of their non-irritating and strong antiseptic properties.

In treating gonorrhea to-day, we aim at curing the patient in the shortest possible time with the least amount of pain and suffering and with the fewest complications. Personally, I prefer argyrol to any of the other silver albuminates, because I have not alone found it less irritating in the great majority of cases, but also because I have positively found it to be most soothing to the very inflamed and painful urethra and at the same time it compares very favorably with the other silver preparations in diminishing the discharge and causing the

disappearance of the gonococci. Some cases respond better to protargol. The latter, in my experience, are in the minority. One cannot, however, lay down general laws for the individual case.

In the early stage of acute gonorrhea we have the patient inject himself either with 3 per cent. argyrol t.i.d., and receive a 5 or 10 per cent. injection in our office every day or every other day. The injection that we give in the office is with a Bangs syringe sound, or with an Oultzman. This is given only into the anterior urethra. The injection that the patient takes, and also the ones given in the office, are allowed to remain in the urethra about three minutes. If there is an undue reaction the time is diminished to one or two minutes. Later on, as the patient becomes less susceptible, the drug is allowed to remain in the urethra as long as five minutes. Also the strength of the injections that the patient gives himself are gradually increased to 20 per cent argyrol or 2 per cent protargol.

In those cases in which the patients are tolerant of protargol it is used in strengths varying from one-half of one per cent to two per cent. This is given as an anterior injection, in the same manner as argyrol, in gradually increasing strengths, commencing with a one-half of one per cent. solution and gradually increasing the strength and length of time the drug is allowed to remain in the urethra.

After the pus discharge has become serous in character and gonococci have disappeared or considerably diminished in number, and the urine contains considerable mucous shreds and very little pus, then one commences with astringent injections into the anterior urethra. Various preparations are used for this purpose, among which may be mentioned zinc sulphate, zinc iodide, and zinc chloride. I personally prefer the following astringent hand injection: Zinc iodide and zinc chloride, each one-half a grain, added to 2 ounces of water. An injection of this strength is given twice a day and allowed to remain in the urethra about two minutes. If this is well borne, then the strength may be gradually increased to two grains of each of these drugs in two ounces of water. It probably would not be out of place to mention that in a good many of these cases we do not make a sudden change from the silver preparations to the zinc, but rather favor a gradual change by giving two silver injections a day, one in the morning and one at night, and in the middle of the day we give a zinc injection. This is done especially in cases where there are still a fair number of pus cells in the discharge, even though the mucous shreds predominate. The reason for making this gradual change is that we have found that where the change is made suddenly from silver to zinc that there is a sudden recurrence of symptoms manifesting itself by a marked increase of pus discharge. If the symptoms improve under the two silver and one zinc injection, then gradually two zinc and one silver are substituted, and finally three zinc injections. As the patient gradually improves under the zinc injections they are gradually diminished in frequency and the treatment of the posterior urethra is commenced.

In addition, during the acute or subacute period the patient receives antibleorrhagics or antiblenor-

*Read at a meeting of the Bronx County Medical Society, Jan. 16, 1918.

rhagics combined with the alkaline diuretics, such as the acetate, bitartrate, and citrate of potash, ten grains of each three times a day in water. In addition, the usual dietary orders—no alcohol, and a non-stimulating diet. One should advise cleanliness and bathing of the penis, also a suspensory for the testicles, etc.

There are some who recommend high Valentine irrigations, and still others who advise intravesical irrigations with various antiseptics. For my part, I simply mention these methods in order to condemn them because of the large percentage of cases in which complications follow their employment.

In taking charge of a new case, especially one that is chronic, it is important to emphasize the fact that there may be, and usually are, many factors that must be considered before the proper treatment can be given. A careful history is most important. Before going into the present history it is essential to take the past history. In taking up the past history one can readily divide this into two parts: first, family history; second, personal history. In going over the family history it is essential to inquire as to tuberculosis in father, mother, brothers, or sisters. Next comes the question of syphilis from parents, if this is obtainable. The family history having been inquired into, the next question to take up is the personal history, the past and also the present. The past personal history can conveniently be subdivided into two parts: first, infectious diseases non-venereal; and second, venereal. Under the caption non-venereal it is essential to inquire as to pneumonia, which may have been a tuberculous process; also ask if patient has ever been generally run down and was advised to go away for a rest, as this may possibly have been pulmonary tuberculosis. And also ask if the sputum has ever been examined for tubercle bacilli, and the results of the examination; also if the patient has ever been suspected of tuberculosis; also if the patient is subject to coughs and colds; also if the patient has ever had inflammation of any of the joints, especially the hip joint, which condition was suspected of being tuberculous, etc. Remember that there are two diseases which patients try to live down; the one is tuberculosis and the other syphilis. So, in taking a history on this point, always reserve an absolute decision for the future, and do not place too much reliance on a negative answer on these two points in the history. Typhoid fever should also be inquired into. Under the second division of past venereal diseases, syphilis should be inquired into. Chancroids, so called, are not infrequently initial lesions, so go carefully into the history of the same. It is essential to go into the details of the previous attacks of gonorrhea. Try to find out if the patient really ever had gonorrhea. Not all the patients who come with the history of having had gonorrhea have really had this disease. This you can be reasonably certain of by the history of onset. If the patient gives the following history of his supposed attack of gonorrhea, that the attack developed after four weeks' incubation, that there was no redness of the meatus, no burning at the tip of the penis, very little discharge, and that mostly mucous, and that this was his first and only attack outside of his present illness, you can be reasonably sure that the patient

never had gonorrhea, even though he may have received considerable treatment for his supposed gonorrhea. My reason for making this statement is that the gonococcus, in the great majority of cases, causes markedly acute symptoms when attacking a urethra for the first time. After a patient has had a number of attacks of gonorrhea the reaction may be quite slight, but it is not apt to be so when attacking what we call a virgin urethra. That is, one that has never been previously infected.

In following up the history still further, it is necessary for one to ascertain how many attacks the patient has had, the intervals between attacks, and what the symptoms were.

A very important point is the careful study of the past treatment of the patient. In this study you must go into detail as to what treatment the patient had, whether anterior or posterior, and the kind, and, if possible, the strength of the solutions used, whether irrigations, instillations, injections, sounds, or prostatic massage. Another important point is to ascertain the frequency of treatment, rather the interval between treatments; also the duration of individual treatments and the period over which these treatments were given. In other words, while taking the history one aims to ascertain, if possible, whether the patient has been over-treated, undertreated, or properly treated. In regard to the over or undertreatment of these cases I shall go more into details further on.

After one has obtained a complete past history one tries to obtain an accurate present history, paying particular attention to subjective symptoms.

After a complete history has been obtained the external genitals are examined. Not every patient who comes to you for the treatment of gonorrhea has that infection. So we inspect the external genitals for lesions. If there is a discharge under the prepuce we try to retract the same in order to look for possible lesions underneath. One then inspects the scrotum and abdomen for lesion or pediculi. If a discharge is present at the meatus a smear is immediately taken for gonococci. However, while doing so one inspects carefully the discharge as to its color and quality, whether purulent, serous, sero-purulent, sanguineous, mucous, etc.; also the quantity. In estimating quantity it is necessary to know how many hours' accumulation is present. This, of course, is judged by knowing how many hours previously the patient has voided urine. One then inspects the meatus to ascertain whether there is a narrowing of the same, also whether there are any false cavities in the meatus, with possible membranous partitions between. If so, these are cut at the very earliest convenience, because they may harbor gonococci, for even though the rest of the urethra may be properly medicated, and eventually cured, these small pockets remain a favorite resting place and focus for the diplococcus of Neisser. One also looks for enlargement of the glands of Littre. The testicles are inspected and palpated for enlargement, presence of thickening or nodulation in the epididymis, hydrocele, and varicocele. Inspection also will demonstrate the presence or absence of inguinal adenopathy.

After this part of the examination is done with, the patient is requested to void his urine, so that one can obtain a general idea of its macroscopic

appearance. I again take the liberty of reminding you that in order to value the macroscopic appearance of the urine properly you must know how many hours' accumulation there is in the bladder. One has the patient void about one-half or one-third of a glass of urine in the first glass and about the same quantity in the second. One requests the patient to retain the remainder in his bladder until after the prostate and vesicles have been examined and massaged.

The next step is the examination of the post-prostatic rectovesical space. By means of the index finger in the rectum the prostate and seminal vesicles and the base of the bladder are mapped out. The doctor must be able to tell which prostatic lobe is involved, the consistency of the involved lobe, whether simply catarrhal swelling or purulent tumefaction, whether the inflammation is located entirely in the prostate or in the vesicles, or in both, or whether the entire post-prostatic rectovesical space has become thickened and hardened by a dense layer of connective tissue. It is just as essential for the doctor who practises urology to see with his finger tip as it is for the gynecologist to map out the organs in the female pelvis. After the prostate has been massaged and the vesicles stripped, the patient is requested to void the third specimen of urine, and this is also inspected for its general appearance. At the time that the rectal examination is made the base of the bladder should also be palpated for a possible new growth; occasionally stones have been palpated at the bladder base.

After one has come to a decision in regard to the post-prostatic rectovesical space, one then examines the urethra. First, one examines the urethra, as previously mentioned, for redness of the meatus, discharge, presence of pockets and sinuses. If on inspection one was suspicious of a sinus, one further verifies this observation by passing a fine probe into the suspected area and trying to find out the direction, width, and depth of the same. The next examination of the meatus is to test its diameter. Inspection alone is often deceptive as to the real diameter of the meatus. One often finds a meatus which appears normal, as if it would readily admit a 24 Fr., yet on an attempt being made to pass a 24 Fr. one will find a definite obstruction about half an inch within the meatus. The opposite is also true, namely: a meatus which looks very small will readily admit a good-sized sound. So that one must not rely on inspection alone. If the diameter of the urethra has been tested, and it has been found that a sound no larger than a 20 Fr. can be admitted, and if lesions are suspected to be present in the urethra, it is advisable to do a meatotomy. This is particularly apt to be necessary in the chronic cases, where, because of this narrow meatus, the patient has not been able to receive the proper dilatation, or where it is necessary to inspect the urethra through the urethroscope. In a few cases I have also found it necessary to perform a meatotomy during acute gonorrhea, when the opening at the meatus was so small that the patient's urethra could not drain properly.

After the meatus has been properly dilated it becomes necessary to explore the rest of the urethra. In a general way the first conditions that we look for are either granulation tissue or a later

stage of granulation tissue, namely fibrous tissue, called, because of its mechanical obstruction, stricture. We detect stricture by means of either the bougie à boule or sounds. If, with careful, non-forceful use of a sound one has a marked amount of bleeding, one can be quite sure that granulation tissue is present in the urethra. In regard to the detection of a stricture, one first attempts to pass a 28 or 30 Fr. sound; if this fails, then one tries a size smaller; if that fails, then one tries a size still smaller, and so on, until one finally passes the point of obstruction. The statements above made apply both to the sound and the bougie à boule. In using the bougie à boule one makes the diagnosis by meeting an obstruction as one tries to pass the stricture with an instrument which is too large, and then using smaller sizes until one finally passes. After having passed the point of obstruction, on attempting to withdraw the instrument one finds that the shoulder of the instrument is caught in the folds of the stricture and pulls backward as one pulls forward. In other words, the diagnosis of stricture by means of the bougie à boule is first made by meeting an obstruction on attempting to introduce the instrument and pass the same beyond the stricture, and then is confirmed after it has passed by finding that the instrument is caught in the stricture, and when one pulls forward on the bougie the fold of the structure pulls backward. In passing, I might say that the diagnosis of stricture can be subsequently verified by means of the urethroscope. Granulation tissue can be inspected; it looks similar to granulation tissue elsewhere in the body. Strictures look like white scar tissue.

If one has come to the conclusion that a stricture is present, or that granulation tissue is present, then the patient is to have a sound passed every five days, with gradually increasing sizes. The object of passing a sound in a stricture case is to dilate gradually so that the urethra will no longer mechanically obstruct the flow of urine. The object of passing a sound on granulation tissue is to iron out these granulations. After the patient is dilated up to 22 or 24 Fr. then one can pass an endoscopic tube and inspect the urethra, and if localized areas of inflammation are present they can be touched with 5 per cent. nitrate of silver. This can be done every 10 to 14 days by means of cotton on an applicator.

In a great many cases of chronic posterior urethritis, dilatation by means of the Bangs syringe sound combined with instillation of nitrate of silver solution, in strengths from 1/2000 up to 1/100 every fifth day, can be made with considerable benefit. Those cases of chronic posterior urethritis which receive instillations, and also the stricture cases which need dilatation, should not be instrumented more frequently than every fourth or fifth day. Yet it is not at all infrequent for patients to tell us that they had a sound passed every day or every other day into the posterior urethra. A prostate also should not be massaged more frequently than every fourth or fifth day.

As a general statement, one might say that there are two types of mistreated cases. First, there are those cases that are undertreated; second, those overtreated.

In the first class of cases, namely, the under-

treated, I might safely say are patients who come under the care of doctors who have an aversion to treating gonorrheics, but nevertheless undertake to treat them by sitting at their desk, not even allowing the patient to expose his penis so that an inspection might be made of the kind and quantity of discharge. No local treatments are given during the entire course of the disease. Sometimes only internal medication is given. Occasionally this kind of treatment is sufficient, and in spite of this poor management, and no treatment to speak of, the patient gets well; but in the vast majority of cases this treatment is insufficient, and a great deal of valuable time is lost, with the result that the gonorrheal condition becomes chronic and the gonococci are got rid of with great difficulty.

The other type of case is the overtreated patient. In this type of case the well-meaning doctor overdoes things and causes so much trauma by chemical and mechanical means at his disposal that at times the damage is almost if not entirely irreparable. The gonococci, after such treatment, are usually gone, but also the urethra. In addition, the patient has had many complications that might possibly have been avoided. Most of these cases, I might safely say, are those in which the patient has given himself too frequent injections, or solutions which were too strong. Those cases, however, which are under the doctor's orders are usually medicated too frequently rather than by too strong injection solutions. I have repeatedly obtained the history that during an acute infection the patient was ordered to inject every hour. Still other patients have during the acute stage received intravesical injections every day. Speaking of the subacute or chronic stage, these patients would report that they received sounds every other day for weeks at a time. The following is a report from my private records of a patient overtreated and overinstrumented:

Dr. XX, age 30, single; infected with gonorrhea. Was ashamed at the outset of his infection to consult any of his confrères, so treated himself. In his history he admits injecting himself with a hand syringe as often as the inclination seized him to do so, which was about eight or ten times a day. After the acute process had subsided, he consulted a friend of his, who massaged his prostate three times a week, for a number of weeks, until the entire process again became subacute and the patient became worried and finally a neurasthenic. I do not wish to cast any reflection on either of these men. I simply wish to emphasize the fact that it does not seem to be generally known that treatment at too frequent intervals is harmful. Dr. XX, who was the patient was one of the brightest men in our class at college and a very bright hospital intern. The doctor who treated him was also an excellent student and hospital intern and a most capable clinician, but when it came to the management of this simple case, both men lost their heads in an effort to effect a prompt cure. I explained to the patient that this was a case of over-treatment and advised cessation of instrumentation for a time. After which time I advised that he receive massage of his prostate every fifth day. Eventually he no longer had his neurasthenic symptoms, nor symptoms of his mechanical urethritis or prostatitis. To-day he is married and the proud father of a child.

These cases of overtreatment I believe fare worse than those of undertreatment, and I am sure that I would much rather handle a case that has had insufficient treatment than one that has been overtreated. In the cases that come under one's care where undertreatment has been given, the rational therapy quite naturally will be to commence to

give the patient proper local treatment, either anterior or posterior injections, or instillations, as the case may require. Usually commence with anterior and terminate with posterior treatment. It depends, however, on conditions present.

In cases of overtreatment the best thing to do is to stop all treatment and give some placebo or oleum santali internally, while one is watching the case to see how much of the discharge is chemical and mechanical reaction. In some cases one may have to refrain from giving treatments for two or three months. In some of these cases, especially if the patient is very much run down, one advises a rest in the country, and in that way one increases the recuperative powers of the patient. In the last-named type of patient one will often be surprised to find that after the patient has had a rest he will respond to treatment which failed to be efficacious prior to his rest in the country. After this rest from treatment, either in the city or country, one recommences with weak solutions applied at long intervals, as above mentioned.

Conclusions.—1. During an acute anteroposterior urethritis one is to give no injections either in the anterior or in the posterior urethra so long as frequency, urgency, or strangury is present, several authorities to the contrary notwithstanding. As soon as the posterior subjective symptoms disappear one can slowly and carefully give anterior medication; no posterior treatment, however, until only the morning drop is present and gonococci either very few or absent.

2. When the gonococcus activity in the posterior urethra has quieted down then one may give instillations or pass sounds as may be indicated, but never give posterior instrumentation any more frequently than once in four or five days; some cases only once in seven days, depending on the amount of reaction following each instrumentation. The same applies to massage of the prostate or stripping of the seminal vesicles.

3. In this paper I have attempted to lay down some general principles to be followed in the treatment of gonorrhea, the most important of which is conservatism. When one considers the pathological condition in the early acute stage, namely, that the gonococci are already in the deep layer of the mucous membrane when we see the patient, and in order to kill these deeply seated cocci it would be necessary to use a most powerful antiseptic, almost a caustic. If this were done, the mucous membrane of the urethra would be destroyed. On the other hand, one does not recommend ultra conservatism. That is, one does not recommend doing nothing. But mild antiseptics, such as argyrol, protargol, collargol, novargon, etc., are recommended, especially for the anterior urethra, during the acute stage.

4. In the chronic stage, conservatism is also recommended. In that, treatments in the posterior urethra should not be given at too short intervals, in order that there should not be too much chemical and mechanical irritation or trauma to the urethra. In the subacute or chronic stage, however, one may use silver nitrate instead of the less irritating drugs such as argyrol, etc.

5. It is important to emphasize the fact that a very careful history of the case is most essential to the proper treatment.

6. It is also important in the study of your case to ascertain whether the patient still harbors the gonococcus in his urinary tract, or whether he is suffering from both the presence of the gonococcus and the sequelæ thereof. In passing, it might be mentioned that in the great majority of cases of so-called gonorrhea the gonococcus is long dead, but the havoc that it has raised is still there. There are, however, cases reported in the literature in which the gonococcus has lived twenty and even thirty years. Several years ago I reported a case in which the gonococcus was present for eleven years, even though the patient had had treatment for a good part of that time. So do not exclude the presence of gonococci unless you have had numerous cultures made from the expressed fluids of the prostate and seminal vesicles, and also from the urine voided after these glands have been expressed.

Finally, I wish to say that I have not attempted in this paper to take up the entire field of the treatment of gonorrhea, but rather to emphasize some points that I considered important in diplococcus of Neisser therapeutics.

40 EAST FORTY-FIRST STREET.

MESENTERIC THROMBOSIS WITH 88 INCHES OF INTESTINE RESECTED.

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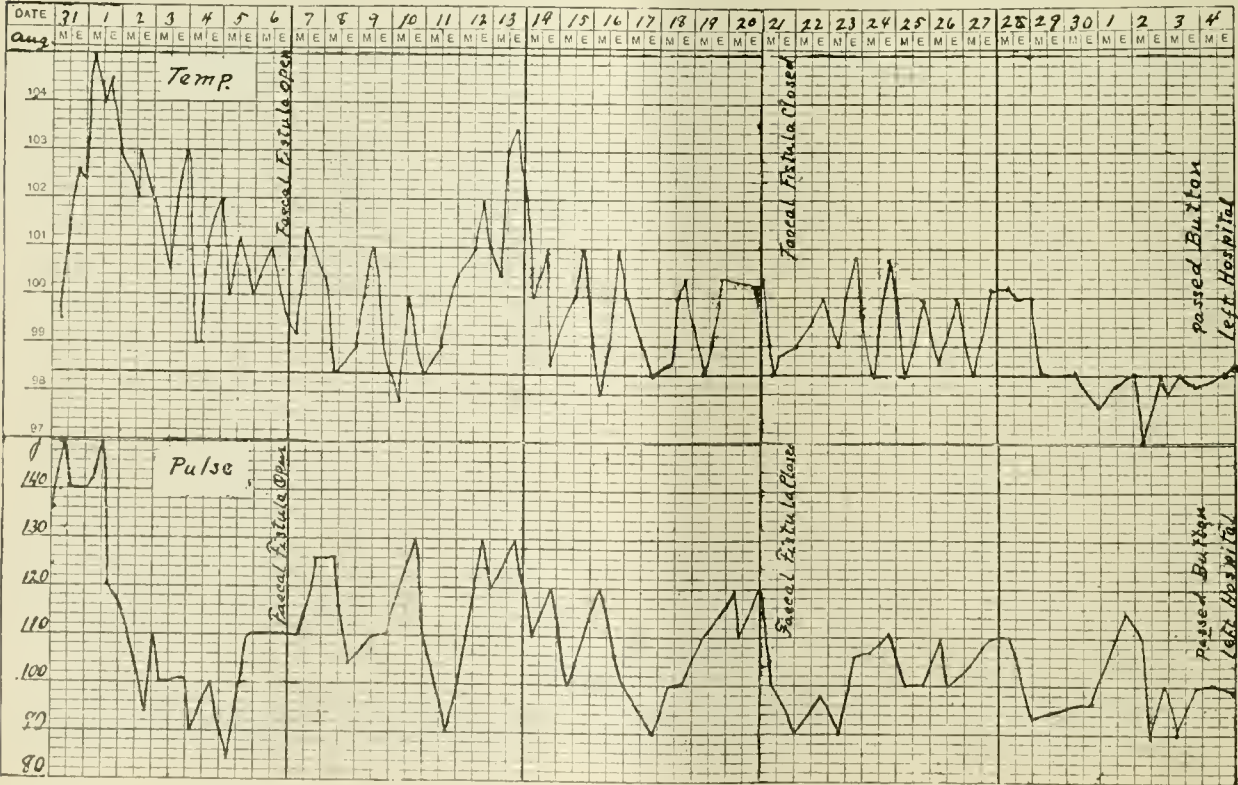
AFTER searching the literature, I find only two cases of very extensive bowel resection for mesenteric thrombosis with recovery. In the first one, reported by McGuire' (*Surg. Gyn. and Obst.*, Jan., 1913), amount resected was 336 cm. In this case, while recovery was good, bowel movement remained very frequent. In the other case, reported by Brougham' (*Surg. Gyn. and Obst.*, 1917, v. 782), the amount

resected was 345 cm. In this case recovery was good, but the patient lost weight, and after the operation the bowel movements were very frequent.

Mrs. W., married, age 28, rather tall, weight 140 pounds, in good physical condition. Patient had gained 20 pounds the last year; appetite good; bowels regular. Patient was operated on for a pelvic inflammation Dec. 20, 1916, at which time both Fallopian tubes were removed. The wound was drained for two weeks and the patient made a very rapid recovery; left the hospital in three weeks and remained in good health until Aug. 30, 1917.

The onset was sudden, the patient was just through eating a hearty meal; while still at the table she was taken with a sharp cutting pain in the epigastrium. The pain was so intense that morphine gave her very little relief; vomiting was frequent but not fecal. I saw the patient about 12 hours after the onset. Her bowels were locked and no results could be obtained with castor oil, enemas, olive oil by rectum, pituitrin, etc. There was only slight coloration of the enemas returned. The patient passed some flatus; no trace of blood, no abdominal distention, temperature 99°, pulse 90, no shock, only slight rigidity of abdominal muscles; still complaining of intense abdominal pain, the woman slept at short intervals to be awakened by violent pain. Ten hours later the above described condition was about the same, with added marked rigidity of the abdominal muscles; some modular masses could be palpated through abdominal wall. The diagnosis was not made before operation.

The patient was taken to the hospital within 24 hours from onset, the skin was painted with iodine, and an exploratory operation removed the scar of the previous laparotomy. The peritoneum was congested and there was much sanguineous fluid in the abdomen, numerous coils of small intestine with dark blue infarct being seen. These coils were bound down by many firm adhesions and were highly congested. An extensive V-shaped area of mesenteric infarct extending to the median dorsal attachment was seen after liberating the intestine from the many adhesions. The exact location of the involved bowel was not ascertained, as time was a factor for possible recovery, but as near as could be determined the lower end of the resected bowel was about 24 inches from the ileocecal valve.



A length of 88 inches (224 cm.) of gangrenous intestine, including the involved mesentery, was resected between clamps. The mesentery edge was closed by continuous Glover's suture and drawn purse-string fashion, obliterating the edge nearly entirely. The intestinal ends were united with a Murphy button. A soft rubber drain (piece of glove) was anchored to the mesentery and one was placed in the cul-de-sac. The wound was closed by approximating each layer with Van Horn 20-day No. 1 catgut doubled, and stay stitches of silkworm gut, applied according to the author's method⁴ over glass rods, leaving one rubber drain at each end of the wound. During the operation the patient completely collapsed, but revived after the administration of 700 c.c. of physiological saline solution intervenously. She was taken to bed under almost complete surgical shock. During the following 24 hours she was stimulated with neutral camphor oil. Digitalin and a hypodermoclysis of saline were given, also quinine muriate by the rectum according to the author's method.⁵ As a result of the quinine, peristalsis was reestablished and flatus passed freely within 12 hours. The patient had no nausea or vomiting or the slightest postoperative discomfort.

The only complication was a fecal fistula which discharged freely through both drainage openings on the sixth day, and the surrounding skin became very irritated. I found that by using castor oil freely about the wound it relieved this irritation entirely and skin became normal.

The drains were removed at the end of one week, the stay stitches were left in place 12 days. At the end of the third week the fecal fistula had entirely closed and the wound did not gap. At the end of the fifth week a radiograph was made showing the button still in place; two days later she passed the button, and went home the same day.

When the patient left the hospital she weighed 114 pounds; three months later she had gained 19 pounds. She is now feeling fine, she has about two bowel movements daily, good appetite, and no discomfort whatever. She has returned to housekeeping, doing all her own work.

Summary.—The reader will note that the complete operation was done at one stage, contrary to the plan at present advocated of first doing an enterostomy, followed later by intestinal anastomosis; also that the intestines were not irrigated, that seemingly there was very little absorption, as evidenced by the temperature and pulse chart, and that, aside from the traumatic reaction and some acceleration of the pulse, due to weakness, the temperature receded rapidly. The temperature rose, and the pulse became rapid and somewhat irregular after the appearance of the fecal fistula, due no doubt to peritoneal absorption.

No doubt the early restoration of peristalsis, with the resultant bowel movement (12 hours after operation), was due to the quinine by rectum, and to this was due the recovery.

REFERENCES.

1. McGuire: *Surg., Gynecol. and Obstet.*, Jan., 1913.
2. Brougham: *Surg., Gynecol. and Obstet.*, May, 1917.
3. Bonnot, Edmond: New Stay Stitch for Deep Wounds, *Journal of the American Medical Association*, April 17, 1915.
4. ———: Quinine Salts in Postoperative Cases, *Journal American Medical Association*, Jan. 9, 1915.
5. Bonnot, Edmond, and Cleveland, A. H. Quinine After Operation, *Journal of the American Medical Association*, Aug. 7, 1915.

GRAND AND PARK AVENUES.

The Battle Line and the Adrenals.—According to Sergeant life at the front favors in every way the super-vention of adrenal insufficiency—through traumatism, infections of all kinds, overwork. Hence suprarenal therapy has a wide field of usefulness.—*La Presse Médicale*.

THE PSYCHOPATHIC HOSPITAL IDEAL.*

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WE have heard a great deal, first and last, of the psychopathic hospital *idea*, but only a very little concerning the psychopathic hospital *ideal*, and yet this is of fundamental importance as determining the value of the *idea*.

Broadly stated, the *ideal* of the psychopathic hospital must be *service*: service of a particular sort, but limited in its scope only by the limits of the field of abnormal mentality, in whatever way manifested. The opportunities for service are *medical*, *social*, and *public*, to adopt Southard's triadic analysis of hospital problems.

The *medical service* has a number of potentialities. First, the patient must be carefully studied from every possible point of view. The patient (or family or friends) has the right to expect the most searching analysis that can be made. Accordingly, such analysis must begin with the study of the entire background of the person—the family, the social and economic status, the past life of the patient, make-up, reactive possibilities, diseases, conduct disorders—all of the manifold factors which have determined the activities of the individual. Then the *status præsens* of the patient—physical condition, nervous functions, mentality, and mental functioning—must be thoroughly gone into, using all the aids which modern medicine has devised (the laboratory, lumbar puncture, the Wassermann test, psychometrics) until the *whole* individual—static, dynamic, and potential—is understood. Only in this way can we avoid the pitfalls of diagnosis, render a reasonably correct prognosis, and decide upon treatment.

In this connection, a word about records of patients seems important. All records should be objective, and as nearly complete and accurate as circumstances will permit. The ideal should always be to record accurately, concisely, and completely all that can be learned concerning the patient, leaving out personal interpretations. Stereotypy of records is very difficult to avoid—but it must always be remembered that each case is an individual—and so our records must vary somewhat. Care must be taken that all abnormalities are obtained and are correctly ascribed to their proper fields of mental activity. Records should be so objective and so complete, so analytic and so synthetic, that a later reader can get the facts without feeling everywhere the personality of the examiner.

An important part of medical service is research—experimental, laboratory, psychological, clinical, and pathological. Psychiatry as a science is yet young; the lines are not closely drawn; the possibilities are enormous. Only by much carefully conducted research can we hope to benefit those who are now mentally sick, or learn how so to order the reactive life of the mentally well that they shall not become mentally ill. Everywhere in the world is the search for causes: in science, in social life, even in the problems of war. Causes are what we must seek in psychiatry.

*Psychopathic Hospital Contribution.

The psychopathic hospital service must be educationally applied to the medical profession, to medical students, and in a mutually reactive way to the State hospitals. That which we learn, if of value to us, is of equal value to the State hospitals, and we in turn should learn from them. The profession as a whole is rather ignorant of psychiatry. Each specialty claims the same thing, and this statement is often regarded as undeserved criticism, yet it is not so to be regarded. The peculiar conditions under which psychiatry must be practised have led to the condition. How fundamental it is that students and physicians learn more of normal and abnormal mental life, of the importance of early treatment, of guiding measures for those who are potentially abnormal! All such educational measures react to the ultimate benefit of the patients.

So it appears that the medical ideal is threefold in application: the study and treatment of the individual patient; research into nature, causes, diagnosis, and treatment; education of the profession—all aiming to serve the patient.

A threefold division of service also appears in its social ideal. Here the problem is one of study and adjustment of the mentally abnormal in some social position; in other words, it has to do with the individual patient. Now, each patient usually is the center or a part of a social situation involving a family. This family is likely to need medical care, aid, or some form of social adjustment. The ideal is to see that this is received in all cases where needed. Furthermore, patients may often occupy a fairly normal place in society if correctly guided and helped. In this field, which may be spoken of as the socializing of psychiatry, lies the large opportunity of the immediate future, and this is the zone of effort and ideal of individual and group social service.

Finally, there is the great ideal of educating the lay public to the enormous importance of right living and thinking from the standpoint of mental hygiene; the pervading influence of the reactive possibilities of individual and crowd; the prevention of those diseases and excesses which may be destructive to normal mental life. The very foundation of this is the training of children: obtaining a correct physical and mental balance, proportioned activity, correct reactions.

The ideal of *public* service has to do with the medical and social service offered to courts, to educators, to various public and semi-public organizations in dealing with their human problems. More and more are judges, charitable organizations, etc., coming to see that problems of misconduct, poverty, etc., are very frequently problems of failure or abnormality of mental reactions, and they are realizing the value of careful psychiatric examination early, rather than late. This side of the socializing of psychiatry is advancing rapidly of late years. After all, how can corrective or helping measures be successfully applied if we do not know what we are correcting or aiding? Of what value is punishment to the feeble-minded or insane, or to the unjustified victim of a morbid impulsion? These things can be determined only by examination. This part of the ideal is extremely important, and the ground it is rapidly gaining is one of the encouraging signs of the times.

So it appears that the ideal of the psychopathic hospital is the highest possible type of service medical, social, and public, in the interests of the mentally abnormal, either as individuals or as groups; the determination of causes, the care, treatment or adjustment; the protection of the individual or of society; the education of public and profession; in other words, making a broad and vital contact between psychiatry and society, to the benefit of both.

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Medicolegal Notes.

Action for Services Rendered.—Where it was undisputed that a defendant employer promised to pay for the plaintiff physician's services in treating injured employees of the defendant, and that the plaintiff rendered services of a value not disputed, and that part at least of the services were rendered after the promise to pay was made by the defendant, the New York Appellate Division holds that a judgment for the defendant was erroneous and a new trial was ordered.—*Rosenthal v. Greenberg*, 168 N. Y. Supp. 488.

Hospital's Liability for Nurse.—The Washington Supreme Court holds that an incorporated hospital, having no stock, organized to treat sick persons and authorized to perform gratuitous services, and also to exact fees from persons capable of paying, is liable, when a patient is injured by the negligence of a nurse, only for its own negligence, if there has been any, in hiring the nurse.—*Maguson v. Swedish Hospital* (Wash.) 169 Pac. 828.

Malpractice—Care Required.—The Oklahoma Supreme Court holds that the law imposes but one standard of diligence and that is reasonable and ordinary care. That, however, is a relative term; and what would be reasonable and ordinary care under some conditions would amount to negligence under others. The importance, delicacy, hazard, and moment of the undertaking all enter into the question as to what, under the circumstances, amounts to reasonable and ordinary care, and is a question of fact for the jury. In an action for malpractice the evidence was that the defendant before beginning the operation counted the sponges to a trained nurse who had been furnished by the husband of the patient and repeatedly admonished her to keep an accurate count of the number of sponges inserted into the cavity, and did all he could to impress upon her the importance of her accurately counting the number of sponges taken from the cavity, to insure that none that had been inserted remained therein. He asked the nurse, before closing the cavity, if she had counted the sponges, and if all that had been inserted had been taken out, and she assured him that she had counted them, and that they had all been taken out. It was also in evidence that this was an approved method, used by many leading surgeons, of keeping track of the number of sponges used in an abnormal operation. Under the law on diligence and the facts in the case the court adhered to its opinion originally filed (150 Pac. 139) that the defendant was not liable.—*Cassingham v. Berry*, 168 Pac. 1020.

Recovery of Money Paid Under Duress.—The Washington Supreme Court holds that where a physician, falsely charged with abortion, pays money demanded to avoid disgrace, and fearing a false written statement by a subject of abortion supposed to be dying, the compounding of a felony is not a defense in an action to recover the money.—*Bertschinger v. Campbell*, 168 Pac. 977.

Expert Opinion Testimony.—The North Carolina Supreme Court holds that a physician, testifying in an action for the death of a man run over by a train, having made a professional examination of the deceased immediately after the injury, was competent to testify that from the nature, condition, and position of the wounds he was of opinion that the deceased was lying down at the time of his injury.—*McManus v. Seaboard Air Line Ry.* (N. Car.), 94 S. E. 455.

Military Medicine.

Reclaiming the Maimed in War.—Major R. Tait McKenzie, R. A. M. C., delivered an address before the College of Physicians of Philadelphia, on February 6, on this subject. He said that when, in the spring of 1915, he presented himself at the Surgeon-General's Office in London, and during the course of the preliminary examination, mentioned that he had had some special training in physical therapy, the examining surgeon was not cordial, saying that if they listened to all the men who were specialists they would get nowhere at all. So McKenzie said, "Well, put me at something." At Aldershot he gained some insight of the work done by the Royal Army Medical Corps and the work was of an exceedingly high order. Although it has been said that the work of the base hospital is to treat the men surgically, in his experience the aim of the average officer in command of the base hospital is to get his beds empty just as quickly as he can to be ready for the tremendous number of men who may suddenly need urgent surgical attention.

At first the man leaving the base hospital was passed on to one of the Red Cross hospitals scattered throughout the country, where he was treated by the local physician, where he was nursed, very often, by the lady of the house and her friends, and rapidly and inevitably spoiled by every attention, by hero worship, and by general indulgence. In order to stop this demoralization of fine men it was found necessary to establish, not only hospitals, but great convalescent camps in which the men were kept under military discipline and received treatment directed to putting them into condition for the front; or, at least light duty. These camps had a capacity of from 4,000 to 5,000 men with a variety of conditions. There were, first of all, the nerve cases, men suffering from "shell shock," which is, of course, a very elastic term, covering both mental and circulatory disturbances. Then there were the debilities following dysentery and occasionally typhoid. There were innumerable wounds of all parts of the body and of all degrees of severity. If at the base hospital in France it is found that a man will require prolonged treatment he crosses the Channel and goes into a great base hospital somewhere in England. From there he goes to a convalescent hospital and then to a command depot or physical training camp, where he is put into condition to rejoin his battalion and return to the front. If he is never likely to be put in condition for active service he is kept under military control and note is taken of his profession or trade with the idea of returning him to civil life as a self-supporting man. In Canada, under the Military Hospitals Commission, he may be sent directly to his home or elsewhere for vocational training. If further treatment is required it is given in a special hospital. In the Command Depot at Heaton Park the officers were practically all men who had been wounded, or men over age. The wounds of these officers were interesting; one had a fragment of shrapnel in the heart. He was the star patient, and was x-rayed repeatedly for demonstration. One officer had part of the hand off;

another had lost an eye. There was a staff of masseuses and medical officers and in addition four civil practitioners to care for the casual sick. Four men blinded in action did splendid work as masseurs.

It was necessary to improvise many of the means for carrying out the treatment at first. One of the huts, for example, was turned into a hydro-pathic establishment. It contained a pool bath filled with water at a temperature of 94°. Cases suffering with irritable heart, respiratory disorders, or mental disturbance the result of shell shock were greatly benefited by these baths. Progressive gymnastic exercises also formed a part of the treatment for these heart conditions. The whirlpool bath was introduced by the French. The water enters at three places, runs around the side and produces a whirlpool action at high speed and is kept at a temperature of 112°-115°. It was used in the treatment of painful scars and painful nerve conditions. It was a frequent and very distressing occurrence to see men coming in, wounded in the shoulder, with the arm blue, cold, and very painful. Massage alone was quite impossible. With the limb in the arm bath for about twenty minutes the blueness disappeared and the greatest possible relief was gained. Men who had not been able to sleep were made comfortable and massage and other treatment were made possible.

In the early part of the war there were many injuries from the hand grenades, which were often caught by the men in the endeavor to return them before they exploded.

The faradic current was used for muscle testing and muscle development. The galvanic current and ionic medication were also employed. In cases where a piece of shell had taken away part of the muscular tissue of the arm or thigh ionic medication with saline solution and radiant heat was frequently used. The small hinged shoulder bath was of value in preparing the region for massage. Massage is twice as effective if the part is well prepared by hot water, radiant heat, or electricity. Some badly contracted scars are treated by radiant heat rather than by the whirlpool bath, where they show a tendency to become sodden and break down. If, however, radiant heat and massage are persistently applied about the region of the scar it can almost always be slowly and progressively loosened and softened. Ionic medication is also used for the softening of the scar. In a large number of stiffened joints it was found very useful to have some means of recording the amount of movement gained.

Because of the great number of wounds affecting the hand and arm there was more necessity of devising appliances for developing the various movements of this number than for any other part of the body. In devising these appliances it was made a rule to keep all stretching movements under the control of the patient as much as possible. If this control was not held by the patient there was danger of continually stretching or tearing and adhesion which make the latter end of the condition worse than the first. A stretching movement was worked out in this appliance for circumducting the ankle. This also was under the control of the patient.

For the more skillful movements the pulley and weight were used a good deal. The exercises were arranged in a series including stretching and voluntary movements and were done in a definite order. The men came in classes of ten or twelve at a time. They were then given gymnastic exercises in classes of thirty to fifty. Provision was also made for deep breathing exercises, applicable mostly to the gassed cases, for balancing exercises to steady the nerves of the shock cases and restore their sense of equilibrium and their courage. On alternate days the men were sent off on a two-mile march, and this was gradually lengthened until they got up to a six-mile march, which was considered sufficient to return them to their reserve regiment.

A few pictures were shown illustrative of the metal facial masks made to cover the deformities and enable the men to go about without attracting attention. Many of the men so disfigured become morbid because of the horror which they seemed to incite and some in their depression had even committed suicide. Plastic surgery has done much for these men. But in cases in which the nose is completely destroyed a cast is made of the face; a new nose is modeled in clay, and from a cast of this an artificial nose is made of copper, silver plated, and tinted to blend with the skin. It is usually held in place by a pair of glasses or by spirit gum. By such means the man is enabled to return to his work. In the loss of the arm there have been made many successful devices, or "salary hooks" as they are called. Artificial legs are also supplied and trades are taught so that many men coming to the hospitals are sent back with a vocational training which they before lacked, and thus a wound may be really a blessing in disguise.

About 40 per cent. of the men were returned to the front line, about 17 per cent. to the lines of communication, and about 15 per cent. to clerical work at home; so that, for military purposes, perhaps, 70 per cent. were returned. The percentage sent back, however, depends largely upon the need of men at the front. In England now, where there is a call for 500,000 men, every man who can carry a gun will undoubtedly be sent back. Here, where there is, and will be, an abundance of men, the percentage sent back will probably be very small. It must be, therefore, always a question of supply and demand. In the convalescent hospitals and camps there will be a vocational officer whose duty it will be to ascertain a man's qualifications and preferences in reeducation that these may be adapted to his ability and desire. Usually these hospitals are established near a university or other institutions of learning. For example, in Montreal, they are located in close proximity to McGill University. In farming countries the men take up such occupations as chicken and truck farming, bee keeping, etc. Only about 7 per cent. of the men need to learn a new trade. There is always the tendency among men to choose an occupation that will keep them in the city, and the great endeavor of the Government has been to prevent this. Nearly all the men without a trade want to become operators in a moving picture show. They are so accustomed to life in the

crowd that they are unhappy if they are alone.

In conclusion Major McKenzie said he had been much touched by a tribute to the Highland regiments paid by Major Greenwood, and it reminded him of a letter which he had received recently from a friend who had been visiting a hospital, telling of a young Scotchman fatally wounded by a shell. He said to her, "I was twice gassed at Ypres, once badly; I was sore wounded in the side, and I had my leg broken and my arm hurt, and they put me out of the army three times because I was under age; but," he said, "I ay got back." When you meet men with a spirit like that, the speaker said, there is nothing that can equal it in inspiration—or surpass it in courage and devotion.

Treatment of Fractures of the Jaws and Injuries of the Nose, with Special Reference to Military Surgery in Germany.—Hedlund has made three trips to Germany for the purpose of studying military surgery. In the spring of 1917 he was at Düsseldorf where there is an admirably appointed hospital for the treatment of injuries of the jaws, etc. Here he studied injuries of the face and from the wealth of material seen here and in part in other hospitals he has collected notes of 56 cases personally investigated. Naturally our knowledge of the types of injury in question and of the treatment of facial traumas has been greatly expanded, and we are able to lay down certain principles for the readjustment and immobilization of fractures of the jaws, as well as for the after treatment, when plastic work or bone transplantation is required. In pseudarthrosis or bony defects, autoplasmic work answers well, the bone to be taken from the projecting portion of the ilium. In other cases portions of clavicle or rib may be used, especially when flaps of soft tissues are required. Bone from these sources is adapted to cases in which there are defects in the mucosæ. The time is as yet insufficient to determine the type of end results and we do not know much about the ultimate fate of the bony transplant which may in certain cases undergo absorption. The use of silver or ivory inserts is not recommended, for these are very apt to come away. So-called temporary prosthesis is often required in both simple and plastic cases. Dental prosthesis is usually necessary, both for functional and cosmetic purposes. In rhinoplasty for nasal injuries the old Hindu method (transplants from the skin and bone of the forehead) and the modern European methods may all be useful. Free bone transplants from the ilium or tibia are used to form a bridge to the nose. The Italian arm method answers for soft flaps after the bony insert has been made. But the number of possible procedures is very large and thus far the author does not have any special indications, save that only autografts are used.—*Hygiea*, December, 1917.

Dysentery Among the British Troops in Salonica.—As may be imagined, there has been a good deal of dysentery among the British forces stationed at Salonica, the majority of these cases being of the bacillary type and amenable to treatment. In the *Lancet*, January 12, 1918, Major Duncan Graham of the Canadian Army Medical Corps

deals with some points in the diagnosis and treatment of dysentery occurring at this place. The dietetic treatment of bacillary dysentery, Graham says, is the most important factor in its cure. Serological examinations have shown that second attacks of bacillary dysentery are very seldom new infections, but relapses from previous ones which have not been cured owing to absence of efficient treatment. In bacillary dysentery the intestinal mucosa is sensitive to sudden changes of diet, and consequently it is not surprising when relapses occur in patients shortly after leaving hospital, the ordinary diet of beef, vegetables, and bread having been changed to one of bully beef and biscuits in addition to exercise. Changes of diet must be gradual and according to Graham the test of cure in a patient before returning to duty should be, "Can he, while undergoing moderate exercise, withstand the ration he will receive on leaving hospital without having intestinal discomfort?"

It is pointed out that in the treatment of the acute phase of the disease dehydration of the tissues must be prevented, the food must contain sufficient calories for the increased metabolism, and be easily digested and assimilated. The amount of fluid taken by the mouth is not sufficient to keep the body fluids normal or above normal, so that the administration of 300 c.c. of saline solution intravenously and a half-liter subcutaneously is necessary for the first few days in severe bacillary dysentery. In very toxic cases the substitution of 5 per cent. glucose in distilled water for the saline solution has a better effect. By this means not only is the required amount of fluid provided, but the heart is stimulated and an extra number of calories is supplied in the food. Milk should not be given during the first three days. At first the diet should consist of albumin water, gruels, and clear tea sweetened with lactose. Lactose is valuable because it supplies food calories as well as on account of its favorable action on the bacterial flora of the intestines. The diet should be gradually changed to one of arrowroot, malted milk, sour milk, or diluted ordinary milk, diluted lactose being continued. The mouth should be kept clean by washes and the chewing of a solid substance while the patient is still on a liquid diet. When mucus has disappeared from the stools, soft poached eggs and a couple of biscuits may be given, custards, pudding, and dry toast being added to the diet gradually. As improvement continues a more solid diet may be given, but it must be borne in mind that untoasted bread is a very disturbing factor and should be forbidden until the patient has become accustomed to a solid diet. Those patients who stay long enough in hospital should complete their dietetic treatment by being given the army ration of bully beef and biscuits, and should take a moderate amount of exercise. Graham draws attention to the importance of careful nursing of dysenteric patients, and holds that a competent nurse is an asset of much value in a dysentery ward. Unless there is supervision by such a nurse dietetic regulation cannot be properly enforced. The good-hearted soldier will share his last crust with his neighbor restricted to a liquid

diet, and this is generally the cause of the disappointing progress of the case.

Laboratory Course in War Service for Women.—With the cooperation of the War Service Committee of the Medical Women's National Association, a second course in medical laboratory work is offered to applicants who have the preliminary training in science and scientific methods obtained in a four years' college course or its equivalent. The object is to fit workers for war service in medical laboratories in this country and in Europe, whether they take the place of men who have been called to the front, or go themselves as members of a unit which may be called for active service here or abroad. Dr. William H. Park of the New York University and the City Health Department, Dr. Anna W. Williams of the Bureau of Laboratories of the New York City Board of Health, and Dr. Elise L'Esperance are in charge of the course, which will extend over a period of three months, requiring six hours' work each day. The New York University, the Health Department, and Cornell Medical College have offered the use of their laboratories. Classes will be limited to about twenty. Application may be made to Dr. Anna W. Williams, Research Laboratory, foot of East Sixteenth Street, New York City.

Another Attack on a Hospital Ship.—On March 10, for the second time within a fortnight, a German submarine has made an attack on a hospital ship flying the Red Cross. This attack was made on the Guilford Castle, which had on board 450 wounded men from German East Africa. While the ship was seriously damaged the wounded and the hospital staff were safely landed without loss of life.

Hudson Street Hospital for the Navy.—The wards of the Hudson Street Hospital have been taken over by the Federal Government and will be devoted to the care of men in the navy for the period of the war. There are accommodations for about 65 patients, and already 35 patients from the navy are being cared for in the hospital. The ambulance service has been discontinued. Dr. Hughes Bayton and Dr. J. P. Hoguet will continue as head of the medical staff.

A Maternity Hospital Bombed.—A Parish despatch reports that a German aircraft dropped bombs on a maternity hospital at Nancy. A bomb fell between two occupied beds but failed to explode. The French hospital authorities sent to the American Red Cross Hospital at Toul requesting that they remove the patients. Dr. Maynard Ladd of Boston, in charge of the American hospital, provided facilities and received all the patients within twenty-four hours. Dr. Robert G. Sharp remained on duty for twenty-four hours and all the nurses worked overtime to meet the emergency.

Ellis Island Turned Over to the Army and Navy.—An agreement has been signed by the Department of Labor whereby Ellis Island has been turned over to the army and navy for joint occupancy. It is the intention of the Navy Department to use its space for the accommodation of several thousand sailors pending their assignment to ships. The War Department expects to

establish temporary quarters for wounded men before removing them to permanent hospitals. The Immigration Service will be taken care of by the retention of parts of the property and the use of various steamship docks in New York harbor. It is possible for the Immigration Bureau to do this, as only about 60,000 immigrants a year now pass through Ellis Island, this being less than one-tenth the former number.

Lieut. E. W. Young and Lieut. G. S. Condit of the Medical Reserve Corps have been invalided home, the former suffered a fractured skull from a shell fragment on his third day in France, and the latter broke down under the strain of work just back of the battle front at Ypres.

Red Cross on Transports.—Announcement is made from the headquarters of the Red Cross in Washington that transports carrying American soldiers abroad will have on board representatives of the Home Service Section of the American Red Cross to look after the comfort of the men. These Home Service men perform two duties. First, they learn by personal conference the anxieties of the soldiers on board and forward knowledge of these to the home department, and, secondly, they send communications from the man in the service to his family.

Red Cross Traveling Laboratories.—Four fully equipped traveling laboratories, outfitted at a cost of \$52,000, have been in commission since December 1 for service at the various cantonments. The plans for these cars were furnished by the Medical Advisory Committee, the cars were built by the Pullman Company, and are maintained by the American Red Cross at a cost of \$1,200 a month. Their bases are Washington, Nashville, Chicago, and San Francisco. Whenever the head of the Army, Navy, or Public Health Service sees the need for the services of the traveling bacteriologists a car is despatched from the nearest of the bases.

American Women Physicians at the Front.—During the last few months thirty-four women physicians from all parts of the United States have been sent to Europe by the American Red Cross, all of them having passed through the New York office of the American Women's Hospitals. Not one of them has official rank, although she wears the military uniform. The American Women's Hospitals has not urged the commissioning of American women physicians, but they have felt that commissions would probably come when these women had proved themselves fully as capable in certain branches of war work as their brothers in the profession. The American Women's Hospital now calls attention to the fact, in connection with the subject of commissions for nurses, that it is even more of a handicap for the woman physician to conduct her work without a commission than it is for the nurses doing war service. The American Women's Hospitals will inaugurate a campaign on March 26 to raise a fund to establish hospitals and clinics in the allied countries to be conducted entirely by American women physicians and surgeons. The campaign will last for ten days. A woman physician in every State has been appointed by the committee to organize her colleagues for future service abroad and for immediate service in the campaign.

Bill to Commission Trained Pharmacists.—A bill has been introduced in to the House of Representatives designed "to increase the efficiency of the Medical Department of the United States Army and to provide a pharmaceutical corps in that department, and to improve the status and efficiency of pharmacists in the army." The bill provides that the proposed corps shall be officered by one pharmaceutical director with the rank of major, five deputy pharmacy directors with the rank of captain, and as many pharmacists with the rank of lieutenant as may be deemed necessary. The principal duties of the corps as outlined in the proposed bill are the following: To purchase all medical, laboratory, and hospital supplies required by the Medical Department; determine the purity and quality of all such materials; hold and dispense all liquors and habit-forming drugs; perform all diagnostic and chemical tests, and do first aid and other similar work when necessary. The advocates of the bill claim that it will add greatly to the efficiency of the Medical Department of the Army and will also free many army surgeons for strictly professional work who now spend their time in clerical duties.

Appeal for Gifts for Columbia Base Hospital.—The Columbia War Hospital, situated at Gun Hill road in the Bronx, announces that 600 patients are now being treated there. These are men from the draft camps all over the country and from the Regular Army. An appeal is made for gifts which states that the following articles would be most acceptable: Talking machines, with records; bookcases and books, games, wicker chairs, playing cards, tobacco, jellies, jams and fruits. Personal visits are not desired as they interfere with the routine work of the hospital.

Quarantine at Camp Dix.—Following the discovery of a case of cerebrospinal meningitis in the Officers' Training School at Camp Dix, two student companies numbering 200 men each have been placed under quarantine.

Devens Healthiest Camp.—Camp Devens at Ayer, Mass., is the healthiest National Army cantonment in the country, according to a statement given out at the base hospital recently. The sick rate is only 32 in 1,000. There are 913 cases in the hospital at present, including 46 cases of pneumonia, 14 of measles, 15 of scarlet fever, and 2 of diphtheria.

Trench Fever Experiments.—The American Red Cross Research Committee recently announced that eighty-eight Americans, all soldiers from the New England States, had volunteered to suffer from trench fever in order that the origin of the disease might be traced. "One cannot speak too highly of these volunteers," a member of the research committee said. "They were subjected, first of all, to the strictest surveillance, were put upon an extremely restricted diet while undergoing the first disagreeable experiences, and were in anxious suspense while waiting for the painful period of the disease to set in. It was this suspense that caused the only murmurs of impatience." The committee announces that as a result of these experiments it has been definitely determined that trench fever is transmitted by lice. The pathogenic agent has not yet been discovered, but whatever it is, it occurs in the peripheral blood, and most abundantly during the first forty-eight hours after infection.

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THE OWEN-DYER BILLS.

SURGEON GENERAL GORGAS has a record of many memorable achievements, but there is none of them to be compared, in its far-reaching consequences, with what he did recently in Washington, when he appealed directly to Congress to pass the Owen and Dyer bills to promote the efficiency of the medical corps of the army. We say this advisedly and without exaggeration. It was a great thing to free Havana from yellow fever, it was a great thing to make possible the building of the Panama Canal, but a greater thing by far will be to insure the winning of this war against the conscienceless enemy of God and man and the would-be wrecker of civilization. Wars have been won with little or no aid from medical science, and it is possible that this one might be if all the armies were equally defenseless against disease. It is safe to say, however, that there is not one single fact in the way of sanitation, prophylaxis, and therapy, learned by Germany in pre-war days from the leaders in medical science in France, England, and America which she is not employing to the limit for the preservation of her fighting men. If we are not equally alert and medically resourceful we shall find ourselves in imminent danger of defeat through depletion of the man power by preventable sickness. Our allies must have our help now to win, but we can give them little help if our armies are decimated by disease as they were in the Spanish war. General Gorgas served during that war, and he knows from personal observation the intolerable conditions arising when the medical officer is snubbed and his recommendations overruled by medically ignorant line officers. It is to prevent just such evils that the bills giving suitable rank to the medical officers have been introduced.

What these bills aim to do, and how the army will profit by the increased rank and dignity of the members of the medical corps, the MEDICAL RECORD has already explained in its issue of February 16. We have since received from the New York Medical Section of the Council of National Defense a letter setting forth certain arguments in favor of adequate rank for officers of the Army Medical Department; these we reproduce in part as follows:

"Rank is to a medical officer what professional eminence is to a civilian practitioner. The higher his rank the greater his opportunity for instituting and carrying through large and effective measures for the sanitary protection and care of troops. A medical officer's authority is measured entirely by his rank, not by his professional ability. If his rank is not sufficient to insure great authority he will be unable to apply his knowledge and skill to the best advantage. The best of advice is no good unless taken and acted upon, and in the army it is not often taken and acted upon unless the adviser has sufficient rank to add the weight of authority to his advice. Great responsibility demands, and should be accompanied by, great authority. Those medical officers upon whom rests a large responsibility for the safety and comfort of many troops should be given authority commensurate with that responsibility. In the army this means high rank. The medical officer cannot have anything like a free hand unless his rank is properly proportionate to that of the commanding officer for the sanitary care of whose troops he is made responsible. The failure of England's Mesopotamia expedition is said to have been due to disease among the soldiers. The disease among the soldiers is said to have been due to a failure of the commanding general to accept the recommendations of the chief medical officer regarding their sanitary care. This failure to accept the recommendations of the chief medical officer is said to have been due to his lack of authority with which to impress the commanding officer. We ought to try to obviate the possibility of any such reports regarding the American expedition to France!"

If General Gorgas, by his bold act of insubordination succeeds in procuring the passage of these bills he will have once more shown himself a doer of mighty deeds. We entreat our readers to hold up his hands in this war-winning effort by telegraphing at once to their senators and representatives in Congress, urging them to vote for the Owen and for the Dyer bill respectively. And we beg of them not to stop there, but to make their patients do the same. It is the latter who have boys at the front and in the cantonments, preparing to go over, and it is to save the lives of these that the bills have been drawn. Every father, every mother, every wife of an American soldier should demand the passage of these life-saving measures.

SYPHILIS OF THE NERVOUS SYSTEM.

THE most dreaded effects of syphilis are manifested upon the nervous system, and therefore the main object of treatment is to overcome these manifestations. A good deal of pessimism is displayed with regard to the effective treatment of syphilis after it has passed a certain stage, and it is the general belief that dementia paralytica and long-standing cases of tabes dorsalis are hopeless and incurable. However, these are not the views of all.

The *Lancet*, February 16, 1918, publishes a lecture delivered by Surgeon H. Carlill, R.M., before the Royal College of Surgeons of England on February 11, 1918, in which he discourses in a very optimistic vein concerning the treatment of syphilis of the central nervous system. Of course, he, like all others, is insistent that a hopeful outcome of treatment of nervous syphilis depends very largely upon an early diagnosis, and he dwells upon the point that the outlook of sufferers from early nervous syphilis is now the reverse of dark, provided that physicians are constantly suspicious of a syphilitic basis of the symptoms and provided that they do not rest content until they have proved the presence or absence of the disease. Moreover, as said before, Carlill is sanguine that many even long-standing cases of *tabes dorsalis* may be cured by treatment. He concludes that the possibility of a syphilitic basis should be considered in every case of nervous disease. Nervous syphilis can be proved by the examination of the cerebrospinal fluid. The Wassermann reaction, however, is of little value in the diagnosis of these cases. Provided that the diagnosis is made early, and prompt treatment given in adequate quantity, syphilis of the nervous system appears to be curable in very many cases. The real result of treatment can be determined only by repeated examination of the cerebrospinal fluid, hence the absolute necessity of painless lumbar puncture. Some cases of curable meningo-vascular syphilis are diagnosed as incurable dementia paralytica, and treatment is withheld. Often, however, the precise diagnosis can be made only by watching the result of treatment, and therefore all cases should have treatment. In some cases of even long-standing *tabes dorsalis* the syphilis appears to be entirely curable by treatment, and in nearly all cases symptoms can be greatly alleviated by remedies of the salvarsan class. The outlook of sufferers from early neurological syphilis is very bright, and will be brighter still when the general standard of knowledge of neurological diagnosis is less inadequate than it is to-day. Indeed, Carlill says if the profession and the public learn to apply our present knowledge of syphilis and its treatment it is not too much to hope that future generations of students will learn of *tabes dorsalis* and dementia paralytica only from the textbooks. While, therefore, the real hope of curing nervous syphilis must still rest upon early diagnosis and vigorous treatment, at the same time it is encouraging to be assured by a man of Carlill's experience and knowledge that syphilis of the central nervous system, even in its later stages, is by no means incurable.

THE EVOLUTION OF GUNSHOT WOUNDS OF THE SPINAL CORD.

For convenience, the evolution of wounds of the spinal cord from missiles of war can be classified into three phases, namely, the phase of paralysis, the phase of reaction or inflammation, and a termi-

nal phase—that of aggravation or disorganization.

The symptoms of the first phase are pain, paraplegia, sphincteric disturbances, and decubitus. During the second phase, which can be looked upon as facultative, meningeal inflammation occurs when infection of the wound has developed. This inflammatory process may be merely localized, giving rise to a febrile reaction and spasms, and contractions in a limb, or, on the other hand, it becomes diffused, involving the cranial meninges, usually ending in sudden death of the patient, who will have presented all the manifestations of suppurating generalized meningitis. If the patient should survive this phase, the evolution of the wound enters upon the third phase made evident by disappearance of the reflexes, purulent cystitis, often with pyelonephritis, and a rapid extension of the decubitus. The latter accident results in death after a more or less brief delay.

The three phases, the succession of which culminates in death, are far from being always present. The patient may die during the second phase, or, in favorable cases, this phase may not develop, so that a partial or complete recovery may ensue. In these favorable cases the disturbances of the sensibility are the first to improve, while motility is little by little reestablished either partially or completely. The amelioration of the paralysis is slow in making itself manifest and in general recovery is imperfect. The subject will be saved so far as life is concerned, but he will always retain a partial infirmity.

The primary disturbances, which persist or even become more marked, are due to the absence of nerve-repair, to myelitis, ascending degeneration of the posterior tract of the cord, or descending degeneration of the anterolateral tract. Occasionally, even after this apparent partial recovery, tardy accidents may appear, such as ataxic symptoms, progressive muscular atrophy, hystero-epilepsy of spinal origin, and diabetes. Ocular disturbances (amblyopia) have even been reported, which are assumed to be due to an ascending meningitis resulting in nutritive disturbances of the retina and optic nerve.

Fractures of the spine without lesions of the cord may be followed by difficulty in movement of the spinal column, resulting from the formation of a voluminous callus.

Taken all in all the prognosis of medullary lesions would seem to demand the greatest reserve. At all events this would appear to be the conclusion from the experience gained during the past three years. However, laminectomy has proven to be a relatively simple operation when resorted to in non-infected wounds of the spine and has given some encouraging results.

Laminectomy is indicated in all cases of compression of the cord by either missile, bone splinter, or hematoma, likewise for extra or intradural abscess, and the earlier the operation is done the more hopeful will be the results. In incomplete or complete

division of the cord, laminectomy followed by suture will probably not darken the prognosis, but the results so far obtained are certainly not brilliant.

WAR SAVINGS.

AFTER the war is over international relations, as well as the political organization and the economic policy of the world, will be different from what they were previously. The old principle of *laissez faire, laissez aller* is being rapidly swept away by war efficiency, and it can never be resuscitated to the extent to which it prevailed before the present cataclysm. Under the system of *laissez faire* we admittedly tolerated a great deal of waste. We have built up an easy-going philosophy of spending and we indulged in a wastefulness equalled, perhaps, by no other nation. The grim realities of the present, in the face of the stupendous undertaking which we must carry to a successful finish, call for a revision of our theories of easy spending as fundamental for general prosperity. Economists have repeatedly pointed out that extravagant consumption prevented the concentration of labor and capital in basic industries. Now is the time for heeding their advice. We should put all our capital and energies into the industries which will make for the greatest effectiveness of this nation in the present struggle. All the non-essential things should be eliminated and a campaign of intensive saving encouraged. It is not only the advantage which accrues to the individual from practising thrift that is important. It is the increase in the productiveness of the essential industries which will ensue if the demand for the customary comforts shall have been materially decreased. In spite of our living in one of the largest communities of the world, we are governed in our expenditures by the standards prevailing in the immediate group of our friends and associates. We must conform to the requirements of the group with which we associate if we do not wish to be *déclassés*. The National War Saving Committee has very wisely recognized this sociological fact and is endeavoring to use the group as a means of enforcing saving. It is accordingly calling upon the associations of all kinds to organize thrift circles. The movement has been started recently and promises to bear excellent results. Physicians can help in this splendid work by stimulating such collective saving facilities in their professional connections and through such organizations as the hospitals and dispensaries. Further information on the subject may be obtained from the Executive Secretary of the Public Health Committee of the New York Academy of Medicine, who is Chairman of the Hospital and Health Section of the War Savings Committee.

ABORTION STATISTICS.

GOOD statistics of abortion are difficult to obtain because we have only official cognizance of such cases as reach the hospitals. In large cities, many abortions occur of which there is no official knowledge, and it is estimated that there is at least one abortion for every birth. In a small university city like Helsingfors the number of public cases ought

to give a better idea of the actual number. In the *Finska Läkaresällskapets Handlingar* for November last, Spoof publishes an account of 2,909 cases treated in the University Gynecological Clinic during 1901-1916 inclusive, but in 1901 the number treated was only 39, while in 1915 it had reached 418, a slight increase over 1916 (362). For the most part the increase was steady. Thus in 1903 the figure was 75; in 1908, 126; in 1911, 217, etc. Of the 2,909 cases of abortion, 786 were febrile. During the same period the total number of abortions treated in the public hospitals at Helsingfors rose from 39 in 1901 to 673 in 1916 (these figures include those of the Gynecological Clinic). There is also to be noted a decided increase in the frequency of febrile abortions—from 10 per cent. in 1901 to 38.4 per cent. in 1916. These figures are out of proportion to the increase in population, to the number of marriages, and to the number of births. The only conclusion which can be drawn from such figures is that most of the abortions nowadays are provoked. Some parallelism is seen between the increase in abortion and lack of employment. The proportion of abortions which there is reason to believe were spontaneous—30 per cent.—shows a remarkable constancy from year to year. Just why the spontaneous and provoked abortions should maintain a constant ratio while the total number increases rapidly is inexplicable. Nor is it at all intelligible why the ratio of febrile abortions should quadruple itself.

A NEW METHOD OF TESTING THE FUNCTIONS OF THE SPLEEN.

A PAPER with above title was read by Steiger before the Society of Zurich Physicians last November (*Correspondenz Blatt für Schweizer Aerzte*, February 9). The new method involves recognition of the leucocytosis—chiefly lymphocytosis—which follows the injection of adrenaline, and which may be shown to be a purely splenic reaction. In splenectomized rabbits the latter never occurs. The rationale is given as follows: The adrenalin excites the fibers of the splanchnic which innervate the splenic capsule and blood-vessels. The organ contracts, and lymphocytes are forced into the circulation. A man with sound spleen gives a strong leucocytosis after having received 1.5 to 2 mgm. of the drug. The total number of leucocytes is increased by 2,000 to 3,000, of which 50 per cent. are lymphocytes. The maximum reaction is three-quarters of an hour after injection. The reaction informs us as to the number and quality of lymph follicles present in the spleen. In Banti's disease, syphilitic cirrhosis, pernicious anemia, myeloid leucemia, etc., lymphocytosis is but slightly in evidence. A further use of the diagnostic adrenaline injection is in abdominal tumors, for in splenic tumors alone can a reduction in size be thereby obtained.

RANK IN THE MEDICAL CORPS.

THE opponents in the War Department and in Congress of the Owen and Dyer bills, giving higher rank to a few of the members of the Medical Corps of the army, assert that the creation of some seventy generals, which the bills provide for, would

disorganize the service and give disproportionate importance to the medical branch. But even then our army would be behind most of those of our Allies in this respect. The British Army Medical Corps, for example, has 1.10 per cent. general officers, the French 0.47 per cent., the Italian 0.52 per cent., and the Japanese 0.89 per cent. The United States Navy Medical Corps has the equivalent of 0.50 per cent. general officers; the United States Army Medical Corps has approximately 0.005 per cent. general officers! That is to say, in a force of 16,000 medical officers, it has one general. Is it unreasonable to demand that the Medical Department of the army be put on an equality in rank with that of the navy?

News of the Week.

The International Surgical Society.—It was agreed at a meeting held in Paris on November 3, 1917, of delegates of the International Surgical Society from Belgium, France, Great Britain, Serbia, and the United States of America, that: (1) The International Surgical Society be dissolved after the publication of the Volume of Transactions of the meeting held at New York City, April 14, 1914. Should any money remain after the publication of the volume, such money will be divided pro rata among members. Each member of the Austro-German group will receive his share; but the money belonging to members from other nations will be retained and applied to some object of scientific reparation in Belgium. (2) A new society will be created after the war on a similar basis, to be called the "Inter-Allied Surgical Society." Surgeons of neutral countries may also be elected members.

Surgeon General Gorgas Appeals for Passage of Owen Bill.—Surgeon General Gorgas, on March 15, appealed to the Senate Military Affairs Committee urging them to report favorably on the Owen bill, putting men of the Medical Reserve Corps upon an equal plane with the Navy Medical Corps as to rank. The passage of this bill would result in the creation of 70 new generals, 800 new colonels, and 1,700 new lieutenant-colonels. Surgeon General Gorgas was supported in his appeal by Dr. Charles H. Mayo and Dr. Franklin Martin. President Wilson favors the bill, while Secretary Baker, the War College, and the General Staff are said to oppose it.

Control of Milk Supply Urged.—The Children's Bureau of the United States Department of Labor has issued a bulletin calling attention to the results of underfeeding or indiscriminate food substitution in childhood. The report states that "Never before in the history of civilization has it been so urgent a matter that every child should have breast milk for as long a time as possible." The report emphasizes that it is the duty of every individual community to see that its children have milk of good quality, and in sufficient amount to assure their normal development. To do this the price of milk must be controlled or fixed, and the milk supply to infants and children carefully safeguarded. Poverty and ignorance of dietary essentials have been ever-present factors in the malnutrition of the young, and war conditions cannot fail

to increase the gravity of the situation and the difficulties of maintaining the health of the nation. European nations have found it necessary to regulate the sale of milk and cream; we should not be slow to follow their example.

Smallpox in New York City.—During the year 1917 there were 14 cases of smallpox in New York City, 11 of which were contracted out of town. During January and February of 1918 there have been five cases of small pox in the city, two of which were contracted outside of the city. The Health Department calls attention to the fact that the number of cases of smallpox contracted outside of the city by individuals coming to the city and traveling about freely before the nature of their disease is known constitutes a menace, and should be guarded against by stricter attention to vaccination and revaccination.

Henry Street Nursing Service.—Figures recently given out by Miss Lillian D. Wald, head of the Henry Street Nursing Service, in connection with an appeal for funds with which to carry on and expand the service, are interesting as demonstrating the value of such a service to the community. During 1917 these nurses have visited 32,753 patients in New York City. Among these were 2,500 children under five years of age suffering with pneumonia. The total number of pneumonia cases nursed was 3,899, the mortality rate in this group of cases being 8.7 per cent., which is considerably lower than the death rate from pneumonia in the best conducted hospitals. The settlement during this period cared for more than 3,700 mothers and 3,500 new-born babies. Almost 12,500 minor surgical dressings were made. The year's total work required 277,170 visits by an average staff of 135 nurses.

Public Health Service to Study Communicable Disease.—Secretary of the Treasury McAdoo has ordered the United Public Health Service to make an investigation having as its object the improvement of methods for the prevention and control of communicable diseases, especially near the army cantonments. The study will commence immediately, and will involve both laboratory and field work. The laboratory work will relate largely to the standardization and preparation of serums. The effort will be made to find a more reliable serum for cerebrospinal meningitis and to find an immunizing serum for this disease. Efforts will also be made to improve the serums used in the prevention and cure of other diseases.

School Inspection in Extra-Cantonment Zones.—Medical inspection of school children has been undertaken by the United States Public Health Service to prevent the carrying of communicable diseases to the troops. Such inspection has been undertaken in practically all the zones surrounding army cantonments. An officer is detailed to give his full time to the work, and has an office and the assistance of school nurses or other help. The expenses are met jointly by the Red Cross, the local health authorities, and the Public Health Service. In but few of the places where this work has been commenced had school inspection been previously practised, and in none had the full time of a physician been devoted to it. This undertaking is primarily for the protection of the troops, but at the same time

the other benefits to be derived from school inspection are not overlooked. While all the children in the areas around the cantonments are examined frequently for communicable diseases, they are also to be examined at least once a year for physical defects. When defects are found, the parents are informed, and urged to have them corrected. The nurses not only assist in making the examinations, but go to the homes, follow up cases of communicable disease and tell the parents how to prevent the spread of infection, look up children reported as absent, and give advice in regard to personal hygiene. An attempt is also made to determine cases of defective or retarded children, so that they may be given special instruction. Encouragement is also given to the teaching of personal hygiene in the schools. The work will be conducted with a view to interesting near-by localities in school inspection.

Dr. Wesley Grove Vincent has been appointed provisional assistant visiting surgeon to the Harlem Hospital for 1918—not physician, as was stated in a recent issue.

James M. Munyon, the manufacturer of the widely-advertised homeopathic patent medicines, died suddenly at the Poinciana Hotel, at Palm Beach, on March 10, at the age of 70 years. He is reputed to have been a millionaire, and to have spent more money in advertising his wares than any other patent medicine manufacturer.

Gifts and Bequests.—The will of Henry L. Einstein leaves \$75,000 to be added to a previous contribution of \$125,000 for the erection of the Lewis Einstein Memorial Pavilion at the Mount Sinai Hospital, New York.

Indiana State Licensing Board.—At the recent meeting of the State Board for Medical Registration and Examination officers for the coming year were elected as follows: *President*, Dr. J. M. Dinnen, Fort Wayne; *Vice-President*, Dr. A. E. Caine, Marion; *Secretary*, Dr. W. T. Gott, Crawfordsville; *Treasurer*, Dr. M. S. Canfield, Frankfort. A resolution was adopted at this meeting to the effect that hereafter only one examination for physician's license will be held each year, and that the examinations shall be in English only. At the last examination one applicant was examined in Greek, and several women applying for licenses in midwifery were examined in Polish.

Obituary Notes.—**Dr. JOHN FRANKLIN SOUTH-MAYD**, a graduate of the College of Physicians and Surgeons, in 1892, died at his home in Brooklyn, N. Y., on March 12, aged 49 years.

Dr. J. H. LAMPTON, a graduate of the Louisville Medical College in 1875, died of tuberculosis at his home in Springfield, Ky., on February 25, aged 64 years.

Dr. R. J. PATTERSON, for many years a practitioner of medicine in Bennettsville, S. C., and a graduate of the Oglethorpe Medical College, died at his home, on February 24, aged 82 years.

Dr. OSCAR J. RUSSI, a graduate of the medical department of the University of Pennsylvania in 1901, died from pneumonia at his home in Jersey City, N. J., March 9. He was formerly house physician of St. Francis College.

Dr. ANTHONY GEORGE BAKER died of pneumonia at Philadelphia on February 17 at the age of 61

years. He was graduated from Jefferson Medical College in the class of 1887, and he was physician-in-chief to the Chinese Medical Dispensary.

Dr. CHARLES SMITH TURNBULL died of pneumonia at Philadelphia on February 21 at the age of 71 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1871. He was for many years surgeon major of the First Regiment, N.G.P., at one time ophthalmic surgeon to the German Hospital, a Fellow of the American Academy of Medicine, a member of the Association of Military Surgeons of the United States, of the Philadelphia County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association.

Dr. LYDIA A. BICKFORD of New York, a graduate of the New York Medical College and Hospital for women, in 1894, died in that institution on March 9, aged 69 years.

Dr. CHARLES GIMBERNAT, who retired from the practice of medicine fifteen years ago, died at his home in New York City on March 16, aged 74 years. He was a graduate of Bellevue Hospital Medical College in 1860.

Dr. WILLIAM LEE HOWARD, a graduate of the University of Vermont College of Medicine, in 1890, died at his home in Boston, on March 12, aged 57 years. Dr. Howard was a graduate of Oxford University, England, and an Arctic explorer. He was a member of the *New York Herald's* North Pole expedition which sailed from San Francisco in 1879.

Dr. HOWARD J. WILLIAMS of Macon, Ga., president of the Georgia State Board of Health, and founder of the Williams Sanatorium, died at the latter institution on March 1, aged 60 years. He was a graduate of Jefferson Medical College in 1881, a Fellow of the American College of Surgeons, a member of the Clinical Congress of Surgeons, the National Public Health Association, the American Medical Association, and a number of other medical organizations, and was prominently identified with public health work in Georgia. Dr. Williams was chief surgeon to several railroads in Georgia, and was president of the Central Georgia Surgeons' Association in 1895, and of the Georgia Railroad Surgeons' Association in 1917.

Dr. REMUS CHARLES PERSONS died suddenly from the effects of a stroke of apoplexy at the home of a relative in Columbus, Ga., on March 4, aged 68 years. He was a graduate of Annapolis and of New York University Medical College, in 1872. He served in the Spanish-American War, and was stationed at the League Island Naval Hospital at Philadelphia at the time of his retirement from the service, about five years ago.

Dr. JAMES T. HENRY, a retired physician of Bentonville, Ark., died on March 2, aged 70 years. He was a graduate of the University of Nashville Medical Department in 1873.

Dr. CLARENCE L. HOWES, a graduate of the Dartmouth Medical School, in 1878, died at his home in Hanover, N. H., on March 7, aged 70 years.

Dr. L. K. WATERHOUSE, a graduate of the Eclectic Medical College, Cincinnati, in 1855, and the first coroner of Spokane, Wash., died in that city, on February 28, aged 86 years.

Correspondence.

TENT BURNING.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Instead of considering an "A" tent as something named for the letter A, why not imagine the first alphabet maker as taking the form of his tent for the first letter of his alphabet? For if one will but trouble himself to examine ancient picture writings, he may find there portrayed a tent such as we know it to-day. Arabs and Asiatics have been tent dwellers from prehistoric and ante-alphabetical times, therefore much lore has gathered about their form of dwelling. Notwithstanding all this, the art-form of burning tents while living in them is nowhere mentioned, pictured, or advised and would seem to be an acquirement of our own day.

If this setting fire to tents is a military game the first of its unwritten rules is that when a spark or brand burns a hole in the roof of a tent, then the man over whose cot that hole makes its appearance must rise immediately, must go outside at once, and must spread his shirt over the hole with the least possible delay lest the warm air escapes from the interior of the tent. Inasmuch as the pleurisy, pneumonia, rheumatism, and nephritis that will take hold upon a bare-footed, pajama-clad man, if he is exposed to the inclemencies of a northern winter, are really no part of the game, of course nobody is responsible; consequently the victims are turned over to the consideration of the hospital staff with little or no explanation and it must be admitted that that force looks after such patients with efficiency and silence.

Once upon a time a chaplain preached an eloquent sermon. In this he likened his hearers to those men who undaunted followed Moses in the great Exodus from Egypt. The preacher swayed and thrilled his audience as a real orator can, at times, and all went well until the following passages were uttered: "Moses and those men went forth for a mighty purpose, even as you. They went to do the will of a God not made with hands, and they dwelt in tents, even as you. And when that God showed his mighty wonders upon the Red Sea and stood its tremendous waters up like walls of glass on either hand so those men crossed dry-shod, it was to commemorate that marvellous occurrence to the latest posterity that Moses established a tabernacle, a great tent for the worship of an Almighty God, and this after the manner of tents he pitched due east and west even as you do to this very day." The audience would not let the gentleman proceed, for every one of the many tents in sight were pitched north and south. This naturally set the speaker to asking questions in reply to which a lady who was present volunteered the information that: "The sparks from the wood stoves did burn holes in the tents, though of course, by way of compensation a night view was very pretty; for an inside light shining through the holes reminded one of the candles upon Christmas trees."

Again, "Once upon a time" our country knew alcoholic days. Lots of men sang drinking songs even though they might not be drinkers. Here is a specimen of one called "My Pitcher."

A soldier's a man
Who'd be lost without rain,
He's a muddy amphibersome beast.
But he's got him a tent
Well pitched and well ditched,
And it's headed straight for the east.

Her air ain't so neat,
What with saddles and feet;
A goat couldn't have it no richer.
But she's dry and she's warm,
A good girl in a storm,
With nose-paint, fixins, and pitcher.

Many quotations from books upon army hygiene and upon kindred subjects might be used to show that the choice way of pitching a tent is to place it due east and west, and facing the east. If a tent is placed northwest and southeast, with a stovepipe chimney coming out somewhere in the north-north-west, about the only wind that might carry the sparks clear would be south-southeast; which is one of our rare winds. It usually blows when a change is in progress and the wind is shifting from southeast to southwest. A glance at the obelisk in Central Park, in New York City, will make this clear, with a little observation of what that stone records of the strength and direction of our prevailing winds.

Suppose that a tent were properly pitched with its closed end to the west and with its stovepipe suspended 18 inches below the ridge pole so that the pipe ran directly out through the east wall of that tent, instead of being run directly up through the roof. Then these advantages might be expected to follow: First, more heat inside of the tent because of radiation from the pipe. Second, sparks issuing from the pipe would be blown away by prevailing or usual winds, but even when adverse winds blew them toward the tent they would not fall upon the roof, but would strike against its front wall, and would, therefore, be apt to fall to the ground.

It is here admitted that the Arabs are tent dwellers using open fires for warmth during the chilly nights on the desert; yet they do not burn tents. But the Arab tent is a large square house-like affair, its wall or fall on any of its four sides can be removed. This enables the owner to remove the wall of the sheltered or leeward side where he builds his open fire and has smoke and sparks blown away from the tent that with three sides closed keeps out the chill wind and protects both man and fire. Arabian fuel is quite different from the wood of our camps in its capacity for giving off flying sparks and brands.

An "oracle" being asked why men were not instructed in the art of pitching tents replied, "In any army are plenty of tent makers; but you see a druggist is put to work in the commissary, a blacksmith is the buyer of drugs, and a tent maker is busy building a board walk. Each man knows what a dub he is at the job he is holding down, therefore he gives all his time to that job, and has no time to volunteer any suggestions along lines with which he may be perfectly familiar."

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OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

JIU-JITSU ADOPTED BY THE BRITISH ARMY—GENERAL DR. TUFFIER AND FRONT LINE SURGERY.

PARIS, February 22, 1918.

THE advocates for the introduction of jiu-jitsu into the physical training of our troops are more insistent and persuasive than its opponents, and, as the last word, have established the fact of its adoption by the British Army, and publish a communication from its sponsor, who said that when he was liaison officer in the British Army at the beginning of the war he immediately realized the interest of the jiu-jitsu in the hand-to-hand fighting, as he was before the war the amateur champion of jiu-jitsu in France. He therefore devised a simple method which he taught to the gymnasium instructors of the British Army and which has been spread all over the British forces. This method has been embodied in a booklet issued by the General Staff of the British Army, June, 1917, called "Methods of Unarmed Attack and Defense," and including three parts: (1) Simple method of unarmed attack and defense, etc., which can be taught to all recruits; (2) more advanced methods for military soldiers, etc.; (3) special methods for military police, etc.

It has proved very successful, first of all because it increases the morale of the army and gives the men the confidence that, even when unarmed, they can beat the boches, in addition to the healthy drill it gives them. Moreover, he says that every day he receives letters from his pupils of old, thanking him for the tricks he taught them and to which they say they have owed their lives.

The recent session of the Academy of Medicine was almost wholly devoted to an exposition by my eminent master and friend, General Tuffier, of the wonderful advances made in first aid and front line surgery. Dr. Tuffier is inspector general of the front and in an especially favorable position to judge of the work done and able to state the later results.

A résumé of his communication shows that 80 per cent. of the wounded are evacuated to base line hospitals, while 20 per cent. are operated on at the poste de secours, or first line ambulance. In general, the mortality rests at 5.16 per cent. and is caused chiefly by loss of blood, shock, or multiple wounds. The complication of gaseous grangrene appears in only three cases in 1,000 and tetanus 5 cases in 10,000. Wounds of the abdomen are always the most grave and cause death in 61 per cent.; those of the thorax show a mortality of 20 per cent.; wounds of the soft tissue, despite their almost universal contamination by dirt, hair, or clothing pushed into the wound by shrapnel, have a loss of only 17 per cent. He attributes the greatly improved results during periods of offensive movement, to the later perfection of the sanitary formations extending from the poste de secours on the line of battle in continuous line back to the base and interior hospitals; to the perfected service for rescuing the wounded from the field and means and lines of transport to place them at once in the character of ambulance suited to the gravity of their wounds; to the perfection of installation and equipment in these formations for the proper handling and treatment of all cases, and last but not least

to the perfect coordination of the entire service. In the early part of the war the various units, formations, and sectors worked independently, and employed systems and means favored by their heads, but now they have a unity of organization which insures the employment of a unified standard of technique, and not the least of which is the perfecting of methods of disinfection, the employment of primary suturing, and the universal and compulsory adoption of the Carrel method for the treatment of infected wounds. In concluding his exposition Dr. Tuffier averred that military surgery was at the present moment advanced to the greatest height of perfection, and all those who have someone dear to them at the front can have the comforting assurance that their medical and surgical care is as enlightened and perfect as any other department under Government control.

146 AVENUE DES CHAMPS ELYSÉES.

OUR LETTER FROM CANADA.

(From Our Own Correspondent.)

THE CANADIAN ARMY MEDICAL CORPS—NEW YEAR'S HONORS—MEDICAL EDUCATION AND PRACTICE IN ONTARIO—GIFT TO MCGILL—VENEREAL DISEASE REPORTABLE IN SASKATCHEWAN—PUBLIC HEALTH NOTES—DEPARTMENT OF SOLDIERS' CIVIL REESTABLISHMENT.

TORONTO, March 9, 1918.

IN a report recently submitted by Surgeon-General Foster, Director of Medical Services, to the Canadian Overseas Minister of Militia, it is stated that during the year 1917 the following units were organized or reorganized: Ten general hospitals, eight special hospitals, six convalescent hospitals, one ship hospital, two laboratory units, four sanitary sections, one central medical stores, two advance medical stores, one regimental depot and training school, and two administrative units. The personnel has been thoroughly sifted for the release of men fitted for general service. The total Canadian hospital capacity is now 19,950 beds.

Among the recipients of New Year's honors were the following members of the Canadian Medical Services: *Knight Bachelor*—Major Andrew Macphail, editor of the *Canadian Medical Journal* and the *University Magazine*. *Companion of the Bath*—Colonel F. G. Finley, of Montreal. *Commander of St. Michael and St. George*—Brigadier General C. E. Ashton, of Brantford, Ontario; Colonels Kenneth Cameron, of Montreal; Wallace A. Scott, of Toronto; George S. Rennie, of Hamilton; Walter L. Watt, of Winnipeg, and Lieutenant-Colonel J. A. Amyot, Professor of Hygiene in the University of Toronto.

On the occasion of the opening of the Toronto General Hospital, in 1913, the late Sir James Whitney announced that an inquiry would be made into matters relating to medical education and practice in Ontario. Mr. Justice Hodgins was commissioned to conduct the investigation, which has been most thorough and extensive. A report was submitted to the Ontario Legislature on February 6 last. It contains a number of important recommendations, among them being the following: That the practice of medicine be properly defined; that osteopaths, chiropractors, and other drugless healers practising medicine in Ontario prior to June 30,

1913, when announcement of the appointment of the Commission of Enquiry was made, be permitted to continue to practise until July 1, 1918, but that after that date no one be permitted to practise medicine in the province without a license from the College of Physicians and Surgeons, excepting those practising osteopathy on June 30, 1913, and holding a certificate from one of the five colleges recognized by the American Osteopathic Association, having had five years' practice in osteopathy, and having obtained a certificate from the Association that they are qualified to pass an examination for license in the State with the highest standard,—these may continue in practice under a special license from the Minister of Education; that optometry be taught in courses to be arranged by the faculty of medicine of the University of Toronto, the Optometrical Association, and the Toronto Technical School; that a clause be added to the Medical Act making it clear that there is nothing in the legislation to prevent the practice of the religious tenets of any church, but that any person practising such tenets for gain shall be required to obtain a permit from the Provincial Board of Health, certifying that the holder is required to be reported under the Public Health Act. It is also recommended that a Medical Director be appointed for the province; that the Constitution of the College of Physicians and Surgeons be amended (at present the homeopaths, about thirty in number, have five representatives, whereas the 2,500 to 3,000 members of the regular profession have only sixteen); that an institute of physical therapy be established on the premises of the Toronto General Hospital, of which the staff is to be selected from those who have had special training, particularly in war work, and that the necessary medical equipment for the proper instruction of students in physical therapy be installed in the Department of Physics at Toronto University and a compulsory course there established in physical therapy with a view to preparing qualified graduates; that independent examinations continue to be conducted by the College of Physicians and Surgeons and the Universities until the latter are prepared to delegate part of the degree conferring powers to the College; that surplus students of the Royal College of Dental Surgeons go to the University; that increased facilities for training such students be provided at the University, and that provincial registration of nurses be established with local branches where nurses may be registered according to their qualifications.

The sum of one million dollars has been presented to McGill University by the Carnegie Foundation in recognition of that institution's "devoted service and sacrifice toward Canada's part in the war." The gift is made as an expression of appreciation and sympathy for the people of Canada on the part of their allies south of the border. McGill has raised and equipped two batteries of siege artillery in addition to No. 3 Canadian General Hospital, whose splendid work in France is well known. Two hundred and thirty-six McGill students have already made the supreme sacrifice, and through its Officers' Training Corps the university has contributed over 2,000 of its own men and has trained 10,000 for service overseas.

Saskatchewan is the first of the Canadian Provinces to include cases of venereal disease in the list of contagious infections. Announcement was made recently by the Commissioner of Health that all cases of syphilis, gonorrhea, and chancroid must be reported by the attending physician within three days to the Commissioner of Health. The physician is required to furnish particulars as to the age of the patient, his occupation, marital relations, and probable source of infection. The name of the patient will not be stated unless he fails to return for treatment within thirty days, when his name and address will be sent to the Commissioner, who is empowered to take steps to insure that the patient receives the necessary treatment. Reports sent to the Health Commissioner are to be considered as strictly confidential and are not to be accessible to the public. Wassermann tests will be made and treatment given to patients at the pathological laboratory which was opened in January at the Regina General Hospital, and at the chemical laboratory of the University of Saskatchewan, Saskatoon. An educational campaign in respect to venereal disease and its prevention is being conducted throughout the province.

A bill was recently passed by the Saskatchewan Legislature to amend the Medical Act of that province. It provides that in future medical examinations shall be conducted by the University of Saskatchewan instead of by the College of Physicians and Surgeons, and empowers the College to grant permits to medical men from outside the province who otherwise are not qualified to practise in the province, to practise in isolated districts where it is extremely difficult for settlers to obtain medical attention.

The Alberta Government has passed an Order-in-Council which provides for the transference of matters connected with public health from the Department of Agriculture to that of the Provincial Secretary. The new arrangement will coordinate the various branches of health work. Questions concerning the establishment of municipal hospitals have been also transferred from the Department of Municipal Affairs, so that the board of health, vital statistics, and the establishment of municipal hospitals will all be under the direction of the Hon. George P. Smith, the provincial secretary.

Arrangements have been made by the Board of Education of Alberta to commence the medical inspection of children in rural schools as well as in urban institutions. It is proposed that teachers shall also be examined. At first only a couple of doctors and nurses will be employed for this work, which, however, will be gradually extended.

At the request of the New Brunswick Government, an investigation has been made by Mr. John Hall, a graduate of the Massachusetts Institute of Technology, into health conditions in that province. A report has been submitted by him which embodies a number of recommendations, and it is expected that the question of the establishment of a Department of Public Health will be discussed during the present session of the Provincial Legislature.

A report of the year's work of the health department was submitted to the Manitoba Legislature on February 8. The report calls particular attention

to the necessity for the early detection of cases of tuberculosis. During the year 1917, 307 cases of the disease were admitted to the Ninette Sanatorium, and of these 51 were apparently hopeless, 155 were already far advanced, 61 were moderately advanced, and 40 were incipient.

The Canadian Government has created a department to administer the work in connection with the reestablishment in civil life of those who have fought for Canada and the Empire in the present war. The name of the department is the "Department of Soldiers' Civil Reestablishment," which will be presided over by Sir James Loughheed, head of the Military Hospital Commission, who has been appointed Minister of Soldiers' Civil Reestablishment. The duties and powers of the new minister will cover: (a) The provision of institutions for the care and treatment of invalided officers, non-commissioned officers and men of the Canadian Expeditionary Force who have been honorably discharged, and the administration, control and direction of all such institutions; (b) vocational and reeducational training of all such discharged men; (c) the provision of such employment and assistance as may be requisite or advisable for such men; (d) all matters relating to pensions. The Military Hospitals Commission, with its staff, is to be continued under the name of the Invalided Soldiers' Commission.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 7, 1918.

1. Some Aspects of Forensic Psychiatry. J. W. Courtney.
2. The Treatment of Anthrax with Normal (Beef) Serum. Review of the Literature with Report of a Case. Clarence H. Hyman and Timothy Leary.
3. The Diagnosis of the Conditions Causing Painful and Irritable Backs. James Warren Sever.
4. A Case of Cerebrospinal Meningitis Successfully Treated by Intraspinal and Intraventricular Administration of Anti-Meningitis Serum. Theodore A. Hoch.

2. The Treatment of Anthrax with Normal (Beef) Serum. Review of the Literature with Report of a Case.—Clarence H. Hyman and Timothy Leary review the literature of the serotherapy of anthrax, quoting Selaro, who reported a mortality of 6.09 per cent. in 164 cases treated with his serum, as compared with a mortality of 24.1 per cent. under other methods of treatment in Italy. Legge reported 12 English cases treated with Selaro's serum, with 2 deaths. Mendez of Buenos Aires claims priority in the serotherapy of this disease; he reports 1,073 cases treated with his serum, which is presumably similar to Selaro's, with a mortality of 4.19 per cent. Efforts to explain this apparently favorable action of immune serum have produced no satisfactory results. Kraus, Penna, Cuenca, and Solari, at the instance of the first named, have employed normal beef serum in place of the immune serum, with excellent results. In 146 cases of anthrax treated with injection of heated normal beef serum there was but one death, giving a mortality of 0.68 per cent. The authors report one successful case treated by themselves with normal serum. They conclude that, as before noted, no satisfactory explanation has been offered of the mechanism which produces the results obtained by immune serum other than the excitation of phagocytic activity, and this is not a specific immune response, but will follow the introduction of any foreign protein into the animal body. Whatever in the way of immune substances may be present in specific anti-anthrax serum, the amount of these materials must be very small. It is reasonable therefore to conclude that specific anti-anthrax serum owes its efficacy in small part to specific immune substances, and in large part to a non-specific protein reaction, obtainable by the use of other protein substances as well. Of these substances, the authors say, heated normal beef serum is, perhaps, the blandest and least objectionable.

New York Medical Journal.

March 9, 1918.

1. Shoes, Physiological and Therapeutic. Dexter D. Ashley.
2. Reversatory Pseudobile Canaliculi Formation in the Cirrhotic Liver of a Vulpine Phalanger. Fred D. Weidman.
3. Trichinosis. James G. Cumming.
4. Common Sense in the Prevention and Correction of Some Paralytic Deformities. Samuel A. Jahss.
5. Brain Abscess Caused by Chronic Suppurative Otitis. William C. Braislin.
6. Two Stage Prostatectomy. Everts A. Graham.
7. Eczema Due to Deficient Thyroid Secretion. M. H. Edelman.
8. A Modified Method of Bone Graft. Julius A. Miller.

3. Trichinosis.—James G. Cumming reports twelve cases of trichinosis in a family of thirteen, the nursing baby being the only one not affected. The symptoms ranged from a mild fever only in the younger children, to a temperature of 105° to 106° F. in the older members of the family, the temperature charts simulating those of typhoid fever. The family diet had been limited for the most part to dried fish, potatoes, bread, and milk, but about three weeks prior to the onset of the illness a hog had been killed. A part of the pork had been made into sausage, which was eaten in a partially cooked and in an uncooked form. The degree of illness was most severe in the older children, who had had unrestricted access to the sausage and had eaten it raw. The symptoms of muscle involvement were typical in those severely affected, and Eosinophilia was most pronounced in those in the early stages of muscle involvement. Gross specimens of the pork were suspicious of trichinosis, and microscopical examination elicited many muscle forms of trichinae. Treatment consisted in mild purgation for a couple of days, after which a liberal dose of thymol was given, followed by Epsom salts. The administration of thymol was followed in all the cases by a drop in the temperature almost to normal, with no subsequent rise. Whether or not this was due to a destruction and expulsion of the worms cannot be definitely stated. Cumming points out that if the benefit obtained from the thymol treatment resulted from a destruction of the intestinal forms of trichina, one would have to conclude that these, rather than the young migrating forms, were responsible for the elevation in temperature. No trichinae were found in stools after the thymol treatment.

Journal of the American Medical Association.

March 9, 1918.

1. Lessons from the War as to Tuberculosis: The Situation in France. George E. Bushnell.
 2. A Rolling Crutch: Preliminary Report. Robert G. Hall.
 3. Dystrophia Adiposogenitalis (Frohlich's Syndrome): Report of Case. J. J. Madigan and Thomas Verner Moore.
 4. Anthrax: A Case of B. Anthracis Septicemia with Recovery. Roscoe R. Graham and Herbert K. Detweiler.
 5. Nonrotated Ileum with Fatal Intestinal Obstruction Due to Occlusion of the Ileum by the Overriding Colon. Elmer D. Twyman.
 6. Subcutaneous Injections of Oxygen in the Treatment of Balanitis Gangraenosa. Richard L. Sutton.
 7. Artificial Pneumothorax in the Treatment of Bilateral Cases of Pulmonary Tuberculosis. Herbert F. Gammons.
 8. Chancre of the Eyelid. Philip F. Shaffner.
4. Anthrax: A Case of B. Anthracis Septicemia with Recovery.—Roscoe R. Graham and Herbert K. Detweiler report in detail a case in which an anthracemia was present and was followed by recovery. The disease exhibited the characteristic four stages of cutaneous anthrax, viz., (1) The presence of an insignificant wound with no sign or evidence of danger which may remain as such for two or three days. (2) The appearance of a small pimple with a vesicle filled with a clear or blood-stained brownish fluid containing many bacilli, accompanied by the pricking or itching of the vesicle. This stage may last for from twenty-four to thirty hours. (3) Marked induration of the tissue underlying the vesicle, which has become flattened and has a livid color, marking the beginning of necrosis, which is surrounded by an edematous ring on which are formed vesicles which may coalesce. In the central dark eschar there are many bacilli. This stage lasts from one to two days. (4) More or less rapid increase of the dark slough along with the edema. The latter may be extensive and very widely spread. Here, because of secondary infection, it is difficult to demonstrate bacilli.

The size of this area is variable, and it bears no relation to prognosis. Other points of interest in this case were: The persistent increase in symptoms, and the presence of *B. anthracis* in the circulating blood, despite local excision and subcutaneous injection of serum. The sudden response to intravenous use of chloramin and serum in large doses, resulting in negative blood culture in thirty hours, and remaining negative despite the fact that no further specific therapy was used. The persistence of the edema of the skin and the slow healing of the wound, a black leathery eschar forming over the wound which did not disappear for seven weeks and then only when digested with a papain preparation. The edema persisted even longer.

5. **Nonrotated Ileum with Fatal Intestinal Obstruction Due to Occlusion of the Ileum by the Overriding Colon.**—Elmer D. Twyman describes a condition resembling that found in mobile colon, except that the ascending colon had overridden and become secondarily adherent on a coil of the terminal ileum; other coils of the ileum lay to the right of the ascending colon and cecum. That is, whereas the terminal ileum failed to rotate and descend, the cecum did so to the usual extent. It is probable that the condition was caused by a miscarriage of the usual embryonal shiftings of the intestinal tract. The patient gave a history of chronic "indigestion" with several attacks of diarrhea following periods of constipation. These attacks were succeeded by abdominal tenderness. The ileum in its retroperitoneal course was crossed by a number of fibrous bands and it is probable that a partial obstruction existed, which became absolute by reason of the swelling of the intestinal coats from an inflammatory reaction which caused the diarrhea, and the redness and swelling of Meckel's diverticulum. From a perusal of the literature, Twyman suggests the following groups of cases of nonrotation: (a) Nonrotation complete, of both large and small bowels; (b) Nonrotation, partial or incomplete, of both bowels; (c) Overrotation, causing pelvic position of cecum and appendix; (e) Malrotation, which may be normal in extent, but abnormal in that the colon comes to overlie or underlie some of the organs or membranes in a manner differing from the normal; (f) Nonrotation of the small intestine, or a part of it (that of the colon and the remainder of the small bowel having been normal in extent), of which the case described is an isolated instance. The case tends to support two theories previously advanced—that inflammatory adhesive processes in the peritoneum may occur in utero; and that, at least in some cases, fusion of the peritoneum on the back of the ascending colon to the posterior parietal wall does not occur until after full rotation and descent have taken place. It also illustrates a new phase of intestinal nonrotation; that of the small bowel alone.

The Lancet.

February 23, 1918.

1. A Consideration of the Treatment of Foreign Bodies in the Lower Air-passages and the Oesophagus: A Plea for Endoscopy, or the Direct Method. Herbert Tilley.
2. Carriers of the Meningococcus: A Year's Record (December, 1916, to December, 1917) of 26,543 Non-contact Men Examined at Greenwich. P. W. Bassett-Smith, G. Roche Lynch, and S. Mangham.
3. On the Relative Advantages and Disadvantages of a Stiff Leg. Arbuthnot Lane.
4. A Note on Splints. P. L. Watkin Williams.
5. A Case of Gonorrheal Keratoderma. H. M. M. Woodward.
6. A Case of Oriental Sore. Cecil R. C. Lyster and W. H. McKinstry.
7. Jerusalem from the Point of View of Health and Disease. E. W. G. Masterman.
8. The Control of Venereal Diseases. The Diagnosis of Syphilis; Its Treatment by Novarsenobenzol, Mercury, and Iodide of Potassium. H. W. Abbott.
9. A Case of Ischiopagus Twins. W. Salmon.
10. The Treatment in the Field of Uncontrollable Hemorrhage in Gunshot Wounds. J. Campbell.
11. A Case of Spontaneous Cure of Cataract. C. Higgins.

2. **Carriers of the Meningococcus: A Year's Record (December, 1916, to December, 1917) of 26,543 Non-Contact Men Examined at Greenwich.**—P. W. Bassett-Smith, G. Roche Lynch, and S. Mangham reached the following conclusions from observations obtained from subjects of a large London Naval Depot during 1917: (1) For the year 1917 the carrier rate among healthy adult officers and men was about 4 per cent. (as com-

pared with 2 per cent. for the same depot, January to July, 1916). (2) The association of large bodies of men tends to favor the development of carriers, as shown by the greater number found among drafts than among new entries. (3) The importance of isolating known carriers as quickly as possible. (4) The highest incidence of carriers was in May, 1917, after which it fell, and no further cases were recorded up to the end of that period. (5) The great value of using a polyvalent agglutinating serum for the final diagnosis. (6) The relative preponderance among the naso-pharyngeal strains of Type 2 and the rarity of Type 3. (7) The occurrence of a considerable number of group agglutination reactions. The authors state their definite belief that the detection and isolation of carriers of any strain of meningococcus from large bodies of men segregated together is not only justified but necessary. An attempt was made to ascertain how far the differentiation into Gordon's four types of meningococci could be carried out with nasopharyngeal strains and it was found that the predominance of Type 2 was most marked; 132 out of 574 failed to agglutinate with any of Gordon's sera. Of 107 carriers who had more than one positive 47.66 per cent. showed a variation in the Gordon type in their subsequent swabbings, while 45.79 per cent. remained constant (6.55 per cent. were not examined). The curve showing carrier incidence for "staff" for the period October-November was practically identical for that of the "officers."

3. **On the Relative Advantages and Disadvantages of a Stiff Leg.**—Arbuthnot Lane points out that, contrary to general opinion, nonunion of the tibia to the femur is frequently an advantage and not a detriment to the individual, everything depending upon the habits of that individual. He suggests that when excision of the knee-joint is performed in civil life for disease or in war-time as the result of a projectile, the occupation, habits and wishes of the patient should be taken into consideration, and the surgeon should divest his mind of the idea that a stiff limb is the only result that he can hope for. Should the surgeon decide that a false joint is the best for his patient, enough bone should be removed to allow of the necessary range of flexion of the tibia upon the femur. The surfaces of the ends should be so shaped as to facilitate the formation of such a new joint, and extension and mobilization should be carried out by such a splint as that devised by Captain Watkin Williams. This apparatus has been in use for some time in England at Queen Alexandra's Hospital.

British Medical Journal.

February 16, 1918.

1. Pyrogenic Therapy. With Remarks on Colloidal Metals. A. G. Auld.
2. Treatment of Wounds of the Chest, with Special Reference to Infected Haemothorax. William Hutchinson.
3. The Modern Treatment of Empyema by Antiseptics. R. Atkinson Stoney.
4. Paralysis Following Arterial Injuries. Harold Burrows.
5. A Case of Rat-bite Fever Treated Successfully by Injections of Novarsenobillon. George C. Low and R. P. Cockin.
6. Home Disinfection in Pulmonary Tuberculosis. E. L. Dove.
7. Ulcerative Gingivitis: Vincent's Angina. J. F. Colyer.

3. **The Modern Treatment of Empyema by Antiseptics.**—R. Atkinson Stoney points out that most, if not all, cases of empyema can be cured without resort to such mutilating and dangerous operations as thoracoplasty and pulmonary decortication, because it is not necessary to obliterate the pleural space, but merely to render its walls sterile, and this is possible by frequent washings with hypochlorite solutions. Flushing of the pleural cavity with hypochlorite solution is not dangerous provided there is a free exit for the fluid, as by the use of a double drainage tube. The earlier this treatment is instituted the sooner and more surely will a cure be obtained, as there will be less formation of granulation and scar tissue, and the organisms will not have had time to entrench themselves deeply in the tissues, and will therefore be more exposed to the action of the antiseptic. The drainage should be free and the opening should not be valvular; if a Carrel tube is used it should be introduced as far as possible into the pleural cavity through a large drainage tube, so that its fluid, starting at the most remote part of the

septic space, passes down over its walls and escapes freely between the Carrel tube and the drainage tube. The opening is most suitably made by removing one inch of the eighth rib in the scapular line, as this is the most dependant spot for practically all positions, and there is no fear of its closure by the rising diaphragm.

Berliner klinische Wochenschrift.

December 24, 1917.

Diagnosis in Renal Pathology.—L. Lichtwitz examines several procedures for determining the functional activity of the kidney. The concentration test he finds insufficient, as the density of the urine may be considerable even in cases of functional insufficiency. In such cases the total amount of substances which pass into the urine may conceal a real impermeability for the chlorides. The chlorides are always retained in greater amount than urea, for which product renal impermeability is generally very relative. Tests which compare the blood and urinary concentrations at a given moment give no data as to the maximum functional capacity of the kidney as they are too dependent upon momentary factors. Lichtwitz replaces these experimental data by the hourly study of the elimination, in a given quantity of water, of the chlorides and urea ingested. The tracings of the results thus obtained, with that of total diuresis gives a satisfactory notion of the renal capacity. Passing to the study of the repartition of the nitrogen bodies in the organism, the writer points out that they may be retained in the tissues without being detected in excess in the blood. The supposition that uremic paroxysms are due to cerebral edema is purely hypothetical. This examination of the renal function may very well have a direct practical importance, namely, the elimination from the list of chronic nephritides of numerous young men with albuminuria and hyaline casts who are otherwise perfectly fit for work or army service.

Cases of Dysentery with the Presence of the Pathogenic Agent in the Digestive Tract.—W. Nourcki reports four cases of dysentery, three of which came to autopsy. It was found that the agglutination test was frequently positive for the pathogenic agents of the dysentery. Blood cultures revealed the bacillus of Shiga-Kruse in one of the cases. The clinical aspect of all four cases was serious and evidently indicated a generalized infection. The spleen, however, was only slightly increased in size. The writer was able to demonstrate the presence of the specific bacillus in the urine in one case, and he insists on the importance of this fact from the viewpoint of epidemiology.

Münchener medizinische Wochenschrift.

December 25, 1917.

Steinmann's Method in the Treatment of Fractures of the Arm.—L. Warsaw says that in times of peace this method has been looked upon with some scepticism, but that the circumstances of war have imposed it upon surgeons. It is resorted to as a substitute for the usual methods of extension when they cannot be properly applied. The principal indications for its use are: (1) The extent of the injury of the soft structures; (2) the distal site of the fracture. The condyle can be nailed in place in supra-condylar fractures. The nail can be passed through the apophysis of the ulna in condylar fractures or those of the joint. For the introduction of the nails, no particular skin incision is indicated. Eight pounds is sufficient for extension and from two to three pounds are generally quite enough. Consolidation is complete and no complication has been observed by the writer. The duration of treatment is from three to four weeks.

Nervous Spasm of the Intestine.—E. Lieck desires to bring about a reaction against the tendency of operating on patients with intact appendices. He has seen operations done when there was no elevation of the temperature and no acceleration of the pulse. Such cases simulating appendicitis are, in reality, due to intestinal spasm, a fact which can be demonstrated by radioscopy. Many such patients have been submitted to removal of the appendix with a diagnosis of cica-

tricial adhesions. Atropine is quite enough to cure instances of intestinal spasm.

On Bedbugs.—Klingmüller points out that this insect is often the unrecognized cause of pruritus and urticaria, but it does not appear to be capable of transmitting contagious diseases. The nests of insects should be exterminated by alcohol, benzol, and soap and water. The flame of a blowpipe may also be employed.

Deutsche medizinische Wochenschrift.

December 27, 1917.

The Required Time of Isolation in Typhus Fever.—A. Pfeiffer considers that a quarantine of seventeen days is sufficient if one has sterilizers for the destruction of lice and proper disinfectants. When convalescence has begun Pfeiffer discharges typhus cases ten days after the return of the temperature to the normal.

Unsuccessful Results of Milk Injections in Surgical Affections.—A. Steiger is opposed to this new panacea lauded by a number of the profession. The patients that the writer has treated in injections of 10 c.c. of milk have in most cases in no way benefited from the treatment. Certain local affections (anthrax, boils, enlarged lymphnodes) reacted to the injection by a chill and rise in temperature lasting from two to three days. But the evolution of the process was never shortened. The writer is under the impression that stasis by Bier's method would have been more efficacious. In general injections the result was quite as disappointing. In a diabetic patient a very large amicrobic abscess developed at the point of injection.

Bullet Wounds of the Abdomen.—L. Reichenbach regards conservative treatment as utterly insufficient. The writer has had occasion to operate on these cases under all proper surgical conditions at a distance of five miles from the firing line, so that patients could be brought to him within an hour and a quarter after receipt of the injuries, although the time elapsed was usually longer. Estimating that the mortality of conservative treatment is 90 per cent. and that of operative treatment 70 per cent., or even less (the writer obtained 52.4 per cent. recoveries), Reichenbach concludes that surgical interference in bullet wounds of the abdomen should be resorted to whenever possible.

Scorbutus in the Russian Army.—E. Hoerschelmann studies the clinical evolution, complications and treatment of scorbutus. The following arguments speak against an infectious etiology: (1) The appearance of the disease in springtime when fresh vegetables are lacking and the disappearance of the disease when these can be obtained; (2) the absence of any data showing evidence of the contagious nature of the process, even in instances of cohabitation; (3) the immunity of officers who are rarely affected by scorbutus and this only when they partake of the trooper's diet.

Correspondenz-Blatt für Schweizer Aerzte.

January 12, 1918.

Pyelitis Infantum.—Professor Wieland has treated 45 cases of this affection at the Basle Children's Hospital during the past four years, but in only 12 was the correct diagnosis made at the outset. This affection is almost a new one in literature, having until recently been confounded with cystitis. Not until 1896, at Escherich's clinic, was a supposed case of colicystitis found upon autopsy to be pyelitis. It is now known that at least 1 per cent. of all cases which come to clinics and physicians' offices suffer from this malady in a higher or lower degree, cystitis or nephritis naturally often coexisting. Although the author is writing of pyelitis in infants, only about half of the 45 cases occurred in early childhood, i. e., in the first three years of life. The remaining half of the cases, occurring between the ages of 4 and 15 years, may be regarded as a separate clinical entity. Twelve, or over a fourth, of all the cases occurred in nurslings, while in the entire series girls were attacked in the proportion of 7 to 2. It is important to note that all of the patients over 3 years old were girls, while in the first three years of life the boys outnumbered the girls 2 to 1. This fact emphasizes the dissimilarity of the two series of age groups. A survey of several cases shows how

the diagnosis is obscured. In the first two the children had lobar pneumonia, of which pyelitis was a sequela. The diagnosis was chronic pneumonia. Thus it is apparent that there is a group of postinfectious pyelites, which do not represent metastases but secondary infection with the streptococcus or *B. coli*.

Nature and Treatment of Tuberculous Ascites.—Gelpke refers to an article by Stocker on the surgical treatment of this affection, which represents a reaction against the medical management of these cases that economically is often a hardship. During two or three years required for a medical cure the patient's family becomes pauperized. In one case a man was sent to take a solar cure at a health resort, and after six months his state was so bad that he had to be sent home by automobile. The bill for the transportation alone was \$100, which loss bankrupted the family and exposed them all to a presumably contagious disease. This case could be duplicated 100-fold. The high sun exposure can be practiced at home, and has been ever since 1850. Exclusively surgical treatment is not advised. The author, who has thus far upheld Stocker, now reminds him that surgery has only a certain limited field in this affection, which does not comprise withdrawal of fresh exudate. It is a very ancient error, with which the profession has had one unfavorable experience. In 1896 the author pointed out this source of danger and has collected notes of 100 cases of this type in the practice of various surgeons in which not a single recovery resulted. Moreover, a recent exudate may be regarded as a salutary event in that the formation of antibodies protects the organism from further infection. But when these exudates have lost their protective power they should be removed.

Finska Läkarsällskapets Handlingar.

October, 1917.

Benign Tumors of the Breast and Their Relationship to Carcinoma.—Langenskiöld has carefully studied 31 cases of affections of the breast, which comprise 9 of fibroadenoma, 17 of chronic mastitis, and 5 of a combination of the two. The fibroadenomas are genuine tumors, composed chiefly of epithelium. Chronic mastitis cannot be regarded as an inflammatory affection, for the inflammatory element is purely secondary. In two cases the author noted the formation of granulation tissue. Nor can chronic mastitis be regarded as a blastomatous process, because of the great distribution of the alterations, which have their origin in apparently normally situated gland elements. The first perceptible departure consists of secretory phenomena and new formation of gland ducts which grow into the stroma. Then follow proliferation of epithelium and the appearance of a pathologic type of cell, the so-called pale epithelium, regarded by the author as quite characteristic of chronic mastitis. The epithelial proliferation leads to the formation of intracanalicular papilloma and large, solid tumors. Cyst formation through the disintegration of such is doubtless the most common manner in which cysts originate. There is much in favor of the theory that this proliferation is due to the activity of a hormone-like substance, probably a pathological secretion from the ovary. The author divides his cases of chronic mastitis into two groups, as follows: eight cases without macroscopic tumor formation and nine which show the latter (not fibroadenomata). In one of the first series a cancer developed in the same breast. In the second series there were four cases of malignant adenoma and three of carcinoma. The cancer morbidity of the 17 mastitis cases was therefore 8, or 42 per cent. The author concludes that when we see mastitis with macroscopic tumor formation we are practically dealing with cancer. What has been termed chronic mastitis, cyst-adenoma, etc., had best be regarded as a process peculiar to the mamma, like goiter in the thyroid, adenoma in the enlarged prostate, etc., etc. Cystic disease and dystrophy of the breast answer fairly well as names.

Extravesical Opening of the Ureter in a Woman.—Engström relates the case of a woman one of whose ureters opened into the vestibule. The ureter of this side was double, the other mouth opening into the bladder. The vestibular ureter was successfully implanted into the bladder by the intraperitoneal method.

La Presse Médicale.

January 31, 1918.

The Sympathetic Nasofacial Reflex in Paralysis of the VII Pair.—Miraille and Emil-Weil refer to an earlier paper on the nasocardial reflex and announce the discovery that during the exhibition of this activity the face shows a peculiar reddening which is bilateral and prominent on the eyelids, forehead, cheeks and conjunctivæ, the latter showing vascularisation. There is also a secretion of tears. The reflex is elicited by exciting the pituitary membrane, and, as already stated, consists of two quite distinct components—the cardiac, which is expressed by a disturbance of rhythm, and the nasofacial. It appears to be present in all normal subjects, but is much more intense in certain subjects than in others. Various abortive types may be encountered, as isolated lacrymation. Only very exceptionally are the ears or the entire face involved. The extreme limit possible is attended by flushing of the neck and turgescence of the jugular. This great range of variation is doubtless the expression of the individual sympathicotonus. Since this reflex appertains to the trigeminal nerve, it seems evident that it should cause some modification in the innervation in facial paralysis. It might possess value in the differentiation of central and peripheral palsies as well as prognostic value. The authors have therefore instituted a number of experiments on subjects with facial paralysis. Naturally in a unilateral affection one side provides a perfect control for the other. The authors soon learned that the cause of the paralysis and the age of the affection are without influence on the reflex. In total paralysis there is no reflex elicitable. But when the affection has shown improvement this is at once apparent through the reappearance of the reflex in some degree. The entire reflex may return while the paralysis has only begun to show involution, and this dissociation has a hopeful prognosis. In eleven cases of central facial paralysis the reflex was retained throughout, as was to have been expected. In peripheral paralysis the trifacial filaments in the pituitary membrane are known to be hypoesthetic, but this is not the case in central paralysis. Moreover, the center of the reflex arc is in the bulb. The sympathetic fibres lie in the centrifugal portion of the arc, and the fibres seem to be blended with those of the lacrymal branch of the trifacial. The centripetal path is far less complicated and comprises only the afferent fibers of the trifacial. Finally, the sympathetic fibers in the centrifugal path accompany the branching of the facials.

The Intradermic Reaction and Its Prognostic Value in Typhus Fever.—Dumitresco-Mante refers to a recent claim that the cutireaction does not occur during the febrile period of exanthematic typhus. The author has therefore investigated the matter. As is known, this reaction is elicited with tuberculin. The author used the crude substance in a 1-100 solution on a material of 109 patients. Of this number, 45 were in the full febrile period. In 34 cases the result was completely negative, in 5 others feebly positive, and in 6 positive. Worth mention is the fact that in all positive cases the disease was of a mild type. Four patients who died gave a negative reaction. Of 7 patients tested during defervescence, 3 were negative, 2 weakly, and 2 strongly positive. Of 47 convalescents, all but 4 gave positive reactions. Finally the author tested 20 cases after death, and all were found negative except 1 weakly positive. The latter result was paradoxical, as all moribund patients reacted in the negative. To sum up, a positive reaction in a febrile or defervescent or convalescent patient is a good prognostic sign. Conversely, if the reaction is negative after defervescence, the general state of the patient showing no corresponding improvement, the outlook is gloomy, and if the reaction continues negative in a convalescent who has developed a febrile complication the prognosis must include the possibility of a fatal issue.

Antityphoid Inoculation and Addisonian Syndrome.—Sabre saw one patient in whom an injection of vaccine was followed by diarrhea, collapse, vomiting—in fine the entire Bernard-Sergent syndrome. No harm was done.—*La Presse Médicale*.

Book Reviews.

NERVE WOUNDS: SYMPTOMATOLOGY OF PERIPHERAL NERVE LESIONS CAUSED BY WAR WOUNDS. By J. TINEL, Ancien Chef de Clinique et de Laboratoire de la Salpêtrière. Preface by Professor J. DEJERINE. Authorized translation by FRED ROTHWELL, B.A., Lond. Revised and edited by CECIL A. JOLL, M.B., B.Sc., Lond.; F.R.S.C., Eng. Senior Surgeon Richmond Military Hospital; Assistant Surgeon Royal Free Hospital; Late Surgeon-in-Chief Majestic Hospital, Croix Rouge Française. Large octavo of 317 pages with 323 illustrations. Price, \$4.50. New York: William Wood and Company, 1917.

WHEN the great war began the number of injuries to the peripheral nerves that reached the base hospitals was far greater than had been expected; and as there had been no extensive studies of such injuries under war conditions, opinion as to the proper handling of such cases had not crystallized and the treatment in the individual cases depended to a great extent upon the amount of experience (or the lack of it) of the chief of the particular hospital which happened to receive the patient. The chaotic state which resulted soon stimulated interest and study on the part of leading French neurologists and surgeons, as well as those of other nationalities who had to do with these cases; and gradually certain surgeons learned not only when to operate but, what is almost equally as important, when *not* to operate.

In order to put this section of war surgery on a practical basis, numerous studies, both clinical and experimental, were undertaken, and the results of these studies were reported before various societies, particularly the Société de Neurologie and the Société de Chirurgie de Paris. One of the centers of investigation was the Charcot Clinic, where, under the direction of J. Dejerine, Tinel and others studied 639 cases, and this book embodies the results of their studies as well as those of many other workers.

Tinel's book is divided into four parts. Part I is devoted to a general survey of the field and includes chapters entitled: Nerve lesions in war wounds; Clinical examination of a nerve; Electrical examination; Clinical types; and General diagnosis of peripheral nerve lesions. In these chapters histology, physiology, pathology and all essentials of diagnosis in general are thoroughly discussed. Parts II and III are devoted to the discussion of injuries of the principal individual peripheral nerves of the upper and lower extremities respectively. Part IV has the caption "Conclusions" and is divided into three chapters entitled: Prognosis and treatment of peripheral nerve lesions; Surgical treatment; and Electrical treatment.

A vast amount of material has been reviewed in the preparation of this work, and, as Dejerine says in a preface which he has contributed: "The wealth and choice of the information offered, the carefully executed photographs, the numerous clear diagrams, make this volume a fine study in symptomatology, of great educational importance, and one which completely fulfills the purpose aimed at both by the author and by the publishers." This book, therefore, presents its subject in the light of the latest researches that have been made, and forms an invaluable guide to neurologists and surgeons about to begin work in war hospitals here and abroad; in fact, there are but few who have had so much experience that the careful study of this work would not add materially to their knowledge. The editor has rendered a signal service in making Tinel's work available to English readers.

DELUSION AND DREAM. An Interpretation in the Light of Psychoanalysis of "Gradiva," a Novel. By WILHELM JENSEN, Which Is Here Translated. By Dr. SIGMUND FREUD, Author of "Wit and Its Relation to the Unconscious," "Leonardo Da Vinci," etc. Translated by HELEN M. DOWNEY, M.A. Introduction by Dr. G. STANLEY HALL, President of Clark University. Price, \$2.00 net. New York: Moffat, Yard and Co., 1917.

A TRANSLATION of Wilhelm Jensen's romance, "Gradiva" is given here first, followed by Freud's commentary on the work. In the story a young archeologist has gotten

so far away from reality as to be on the verge of a psychosis, from which he is happily rescued by a sort of natural psychotherapy applied by a childhood sweetheart who happens to find herself in the favorable though precarious situation of being the center of his delusional field. The romance, besides being a phantasy itself, contains several dreams. Freud has pointed out how closely the artist in his creative efforts has followed the psychoanalytic teachings. To those who follow Freud this book will be fresh evidence of his genius; to his opponents it will be another example of his flights of fancy, unhampered by the ballast of logic. In any event, it is something new in literary criticism, just as his "Leonardo da Vinci" was in biography; and whether we agree everywhere or not, we at least find the book interesting reading. It is gotten up in a style uniform with the publisher's other issues dealing with psychoanalysis and related subjects.

INJURIES OF THE FACE AND JAW AND THEIR REPAIR AND TREATMENT OF FRACTURED JAWS. By P. MARTINIER, Professor to the Dental School of Paris, Dentist to the Seine Asylums, Honorary Director of the Dental School of Paris; and Dr. G. LEMERLE, Professor to the Dental School of Paris, Dentist to the Hospitals. Translated by H. LAWSON WHALE, M.D., F.R.C.S., Captain R.A.M.C. (Formerly Captain I.M.S.). The Oral Department, No. 83 General Hospital, B.E.F.; Visiting Surgeon to the Throat, Nose and Ear Department, The County of London War Hospital, Epsom; Laryngologist to the London Temperance Hospital, and to the Hampstead General Hospital. Price, \$1.75. New York: William Wood and Company, 1917.

THIS work is devoted almost entirely to prosthesis, and certainly covers the field in a most thorough fashion. We may also say that the translator has written about the most interesting preface that we have ever read. In this he calls attention to the importance of orofacial surgery at the present time, remarks upon the necessity of constant collaboration with expert dental mechanics, briefly criticizes some of the authors' views, and in conclusion says: "I should like to emphasize that facial work amply repays the trouble spent on it. Many of those maimed in this war will require, on their discharge, to canvass for civil employment. Human nature always finds physical deformity repugnant, facial disfigurement especially so. And the sufferers are apt to be handicapped if their appearance is revolting. Their recognition of this fact largely accounts for their extraordinary patience in undergoing the repeated operations which are necessary. Their gratitude afterwards is good to see. It gives the surgeon real pleasure to note the pride with which, let us say, a man who had lost his original nose sneezes through a new one made out of his own flesh and bone."

W hale has found that in treating gunshot injuries of the face and jaws the importance of temporary prosthesis is paramount, and that without its aid it would be impossible to get the results that are now obtained; but in the hospital to which he is attached permanent prosthesis is used as little as possible. The patient naturally prefers that loss of substance from the face be replaced by his own tissues; and Whale states that only one patient from General Hospital No. 83 has elected to go to England for a permanent mask prosthesis rather than undergo a series of operations.

The book is divided into three parts, entitled, respectively, External Prosthesis, Internal Prosthesis, and Treatment of Fractured Jaws. Methods of immediate and remote external and internal prosthesis are discussed in great detail, the descriptions being made still more clear by the addition of numerous illustrations. In the part covering fractures of the jaws old methods which should be discarded in civil practice but which are occasionally useful as emergency treatment are briefly described and properly condemned; while the new methods are described and illustrated in the most minute detail. Those likely to be called upon to do work in orofacial surgery will find this work extremely useful if not actually indispensable.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON GYNECOLOGY AND OBSTETRICS.

Stated Meeting, Held January 22, 1918.

DR. WILBUR WARD IN THE CHAIR.

Wertheim Operations for Carcinoma of the Cervix.—Dr. IRVING S. HAYNES reported two cases of this nature.

CASE I.—This patient was a colored woman, thirty-six years of age, admitted to the Harlem Hospital on April 2, 1917. Her family and previous history, as well as her menstrual history, were negative. She had had one child, a normal puerperium, and no miscarriages. The last menstruation occurred on Feb. 1. She gave a history of irregular bleeding during the last three months, pain in the right sacral region and a whitish discharge. For two days before her admission to the hospital the bleeding had been severe. There was some pain on urination. At the time of her admission her temperature was 100.6°, pulse 128, and respiration 28. Physical examination showed the cervix occupied by a cauliflower mass as large as a lemon. Anteriorly this mass was ulcerated. There was apparently no involvement of the vaginal walls, bladder, or rectum. The uterus and adnexa were free and apparently not involved. The diagnosis was carcinoma of the cervix. On April 9, 1917, a complete abdominal extirpation of the uterus, adnexa, parametrial tissue, and the upper third of the vagina was done after the technique of Wertheim. First the cervical mass was thoroughly curetted away and full strength tincture of iodine freely applied. The anterior and posterior lips of the cervix were sutured tightly together over a packing of iodoform gauze. The vagina was swabbed with tincture of iodine. After clearing out the uterus and the rest of the tissues, the peritoneum was sutured entirely across the pelvis, completely closing the peritoneal from the vaginal region. A small iodoform wick was left in at the upper part of the vagina and reaching into the pelvic space beneath the peritoneum. The wound healed per primam and recovery was rapid and uneventful. The patient reported back for treatment several times and when last seen showed no evidence of recurrence.

CASE II.—This patient, thirty-one years of age, was admitted to the Harlem Hospital on September 27, 1917, complaining of continuous bleeding for the past four months, ever since a miscarriage, which occurred in May. She passed large clots of blood and had pain which radiated downward. The physical examination was negative except for the pelvic region. The cervix was taken up by a tumorous mass, which mushroomed like a cauliflower into the vaginal vault, involving the upper third of the vagina, and bleeding on contact. The tumor was 2½ inches in diameter and immovable. The body of the uterus and adnexa could not be made out, as the abdominal wall was rigid. By rectal examination, the tumor was felt to be close to the rectal wall, which was movable over the tumor. The parametrial and pararectal tissues were infiltrated. The diagnosis was carcinoma of the cervix involving the parametrium. At operation all the friable tissue was curetted from the cervix and the surface swabbed with tincture of iodine. Through a median laparotomy incision, a complete removal of the pelvic genital organs, with the upper third of the vagina, was done, following the Wertheim method. Care was taken to remove as much of the parametrial tissue as possible. The pelvic peritoneum was closed over a small iodoform wick left in the divided vagina. The pathologist's report showed that the growth was a carcinoma of the cervix. On January 20, 1918, the writer hunted this patient up and found that she was doing her own work without inconvenience. She had no symptoms except a slight whitish discharge.

Pseudohermaphrodite, Male Type.—Dr. ARTHUR STEIN presented this patient. He stated that the patient was thirty-one years of age, born and brought up in Finland; had never menstruated. Being aware that something was wrong with her and desiring to be married, the patient had sought advice, wishing to be

made a normal woman. He stated that he had always been attracted to men, never to women. A year ago he came to the hospital with the same request and at that time was submitted to laparotomy in order to determine the pelvic conditions. The records showed that there was no uterus, tubes, or ovaries, in fact, no female genitals whatever. At that time the appendix was taken out. The pelvis was that of a normal male. The entire physical make-up was entirely male in type. No adipose tissue was present, as one would expect in a female. All the muscles of the arms and legs were well developed. The breasts were perfectly flat, as in the male. The hair line was that of the female. Local examination showed that in the region of the left external inguinal ring there was a slight protuberance which proved to be a mass about the shape of an olive, movable to the left "labium majus." The mass was somewhat tender on pressure. The right "labium majus" was much larger than normally and contained an olive-shaped mass somewhat larger than the left tumor. The surfaces were those of a normal testicle, and the epididymis and spermatic cord could be easily felt. In the place of the clitoris there was an organ which in its entire make-up resembled a penis of the new-born type, about 1½ inches in length. The prepuce was well formed. The glans penis showed no opening. No vagina was present; in its place the perineum was found to stretch from the anus to the root of the penis, forming a firm raphe between the two "labia." The patient stated that erection and emission occurred. The urethral opening was to be found at the root of the penis on its posterior surface as a small pin-head opening. Upon rectal examination no prostate could be found. The diagnosis was rudimentary penis, hypospadias, undescended testicle on left side, descended testicle on the right side, absence of internal female genitalia, and absence of prostate. In this case it was not considered advisable to perform any operation.

Dr. ARNOLD STURMDORF said he did not think Dr. Stein intended to have this case go on record as a pseudohermaphrodite. It was very plainly one of arrested development of the male genitalia. The determination in general as to whether such cases were male or female was sometimes difficult, but in this instance one was not confronted by any confusing features. The patient had every objective physical evidence of being a male; all the organs and functions of the male were present, even to the production of the spermatozoa. The inclination toward the male sex was not necessarily evidence that the individual was a female, but an instance of perverted sex instinct.

Dr. STEIN said that he quite agreed with what Dr. Sturmdorf said and would change the title of his paper.

Prevention of Postoperative Retroflexion Following Operations for Pus Tubes, Résumé of Cases.—Dr. H. C. FALK made this presentation, in which he discussed briefly the possible causes of retroflexion following the removal of pus tubes, showing that the increased weight of the uterus, the stretching of the round and broad ligaments, with the excision of the round ligament at its origin, all tended to assist a posterior displacement of the uterus. The pus tubes when removed left a large raw area in the posterior cul-de-sac sigmoid and the posterior surface of the uterus. This raw area could rarely be covered by the peritoneum. It cicatrized and when the connective tissue contracted the uterus, being large and having very lax ligaments, tended to be drawn to a posterior position. Dr. Cherry of their service at the Harlem Hospital attempted to transplant omental fat to cover this raw surface, but found that in animals the fat was absorbed and replaced by dense connective tissue. In order to prevent these various causes bringing about retroflexion different means had been adopted. They had had in their service, in the last 200 cases, 54 cases with large pus tubes which were removed. Of this number 27 cases had been followed. A lock suture of the broad ligament was performed in 8 of the cases, with no special procedure to prevent retroflexion. Five of these uteri remained anterior and three were retrodisplaced. In three cases mass ligation of the broad ligament was performed; in all three cases the uterus remained anterior. Two cases had their broad ligaments plicated; they were equally divided, the

uterus in one instance remaining anterior and in the other becoming posterior. In one case the round ligament was brought in front of the uterus; this case showed a retroflexion. In three cases a Gillian operation was performed, in an equal number of ventral fixation, and in one a Coffey suspension. All three of these cases showed the uterus to be well placed in the anterior position. In summarizing it might be said that in 19 cases no definite procedure to prevent retroflexion was carried out; seven of these cases had a posterior displacement. In eight cases in which a definite procedure was followed only one had a posterior displacement. From their observation they therefore were led to believe that some method of suspension or fixation should be used to prevent a postoperative retroflexion.

Dr. ARNOLD STURMDORF touched briefly on one of the phases of uterine retrodisplacements which he had elaborated in a paper on "Congenital and Acquired Retroposition," read before the Section and published in the *American Journal of Obstetrics and Diseases of Women and Children*, No. 3, 1916, in which he called attention to a congenital form of retroposition normal to a certain type of skeletal contours and presenting the compensatory resultant of unstable intraabdominal dynamics. Such a retrodisplacement should not be converted into an anterior position. With normal spinal contours, the axis of the abdominal and pelvic cavities formed almost a right angle, while in the stature under consideration there was a marked flattening of the sacrovertebral angle resulting in an approximation of these axes toward the vertical, so that the thrust of intraabdominal pressure was expended in a more direct line on the pelvic viscera. This flattening of the sacrovertebral angle was regularly evidenced by a corresponding obliteration of the normal lumbar curve and the measure of its resultant approximation to the vertical constituted a pathognomonic index in differentiating congenital from acquired displacements of the uterus. A uterus congenitally retroverted before conception would invariably resume its retroverted position after delivery. It must be emphasized that congenital retroversion as such was essentially only a part of the compensatory adaptation of the pelvic contents to abnormal static conditions through unstable spinal poise; that the depth of the lumbar hollow was the relative measure of the sacrovertebral angle; that the degree of sacrovertebral angulation determined the dip of the pelvis, and that a certain degree of such pelvic dip was essential to the normal topography of its contents.

Dr. ARTHUR STEIN expressed the opinion that it was a very difficult question to determine whether a uterus was congenitally retroverted or not. When one saw a woman for the first time with a bilateral salpinx it was difficult to say that a retroversion which was present was congenital when it might just as well be due to the pathology present as a result of the pus tube. He thought it ought to be emphasized that in order to prevent a retroversion after an operation for pyosalpinx that we should suture the broad ligaments as Dr. Falk had described. They knew that if they did an operation for pyosalpinx the whole area around the uterus was swollen, inflamed, and edematous, and the ligaments were stretched, and if they took out the cause of all the swelling and edema the uterus and other parts would return to their normal size. So far as he knew there was nothing in the textbooks on this point, but he thought it a good plan to do as Dr. Falk described in all cases.

Dr. FALK, in closing the discussion, said that the chief point he was attempting to bring out was not the correction of retroflexed or posteriorly displaced uterus *per se*, but rather a method of preventing a posterior displacement of a normally placed uterus after the removal of large pus tubes.

Two Cases of Extraperitoneal Cesarean Section for Contracted Pelvis.—Dr. GEORGE L. BRODHEAD presented this report. He stated that the first patient, a negress, a primipara, eighteen years of age, was admitted to his service at the Harlem Hospital, on April 2, 1917, expecting to be confined on April 18. Her previous family and personal history were negative. Physical examination showed the uterus enlarged to the size of a full term pregnancy. Contractions were present. The

presentation was vertex; position R. O. A. The fetal heart was heard in the right lower quadrant. The measurements showed a contracted pelvis. The labor was protracted, the large head remaining above the pelvic brim making interference necessary. Operation was performed in April following the technique recommended by Dr. Cassasa, the assistant surgeon at the Harlem Hospital. This consisted in making a median incision just to the left of the navel, 2 inches above and 4 inches below the umbilicus, extending to the posterior sheath of the rectus and the peritoneum. A continuous lock stitch suture of plain gut was passed around the parietal and uterine peritoneum, so as to form an enclosed area of 6 inches in length and oblong in outline. An incision about 5 inches long was made into the uterus through this enclosed extraperitoneal layer. The membranes were ruptured, the child removed, and the placenta extracted. There was considerable oozing from the lower uterine segment. The uterine cavity was packed with iodoform gauze, the uterus was sutured with stitches of No. 2 chromic gut, and the skin with silk. The time of the operation was thirty-three minutes. The baby was born in good condition. For four days subsequent to the operation the patient had a temperature of 104.8° F. On the fourth day the wound was dressed and a small amount of seropurulent discharge was found coming from the upper and lower angles of the wound. On the sixth day after operation the patient had a temperature of 103.8° F.; she then made an uneventful recovery. Examination eight months later revealed an abdominal scar about 8 cm. long, one-third above and two-thirds below the umbilicus. The uterus was firm and suspended, or possibly fixed, to the abdominal wall. The cervix was closed, firm, and high up; the fornices of the vagina were shallow. The advantage claimed for this method was that the general peritoneal cavity was not entered at any time, the child being extracted through an area which was closed off from the general cavity by the suturing carried out in the early part of the operation. The second case was that of a primipara, twenty-five years of age, whose last menstruation occurred on March 1, 1917. She was examined by a physician on December 1, 1917, who told her she was over term and that labor would have to be induced. She was anesthetized and an unsuccessful attempt made to insert a bag. At the same time a dose of pituitrin was given hypodermically. After being in labor forty-eight hours, having had contractions every five or ten minutes, and having been examined by five different physicians, she was admitted to the obstetric service of the Harlem Hospital on December 3, 1917. She was in poor physical condition, exhausted, and emaciated. The vertex presented above the brim; the position was L. O. A. The cervix was only 1½ inches dilated. The symphysis pubis was very deep, and the space between the pubic arch and the sacrum very small. It was evident that delivery was imperative and the extraperitoneal method was chosen because of the many examinations the patient had had. The operation carried out was a modification of the technique recently published by Dr. T. H. Cherry in the *American Journal of Obstetrics and Diseases of Women and Children*, Vol. LXXVI, No. 4, 1917. A cubic centimeter of pituitrin was administered just before incising the abdominal wall. As the chorion was incised a foul smelling purulent fluid gushed out. The child was extracted by the breech, the cord clamped and cut, and the placenta and membranes removed intact. The bleeding was moderate, but was checked by pouring hot saline into the uterus and then packing it. A small opening above the uterus allowed a bit of the omentum to slip through; a plain catgut suture closed this aperture. After the uterus had been sutured by interrupted catgut sutures, a Lembert suture of the same material was used to cover over the uterine incision. The peritoneum was closed with a continuous catgut suture, the fascia by interrupted catgut sutures, and the abdominal incision by a subcuticular suture of No. 1 plain gut. The child, a male weighing over 7½ pounds, was born in good condition. After a slight postoperative disturbance and a slight superficial infection, the patient made an uneventful recovery. The scar in this instance was 3 inches long, half above and half below the umbilicus. The uterus was small and firm, the fundus at the navel

and apparently in suspension. The bacteriological examination of the amniotic fluid showed abundant staphylococcus, and blood cultures taken immediately after the operation showed the same organism and some contamination. Another blood culture taken two days later was sterile. Besides staphylococcus, a small gram negative bacillus was isolated from the amniotic fluid.

Extraperitoneal Cesarean Section for Contracted Pelvis.—Dr. E. C. LANGROCK reported this case, occurring in a primipara, twenty-five years of age, admitted to Dr. Brodhead's service. He stated that she presented a pelvis which in spite of normal external measurements had a contracted inlet. It resembled the male type and was markedly flattened on the right half. The patient had been in labor twenty-nine hours, in spite of which the head had not engaged. The membrane ruptured spontaneously at the beginning of labor and after twenty-nine hours the cervix was long and thick and dilated one finger. Because of the conditions enumerated, extraperitoneal cesarean section was decided upon. The patient had had many vaginal examinations. An incision was made in the midline, 6 inches long, one-third above and two-thirds below the umbilicus. The incision was made through the umbilicus in order to excise a small umbilical hernia. The first step of the operation was carried out as Dr. Brodhead had described in his first case. One cubic centimeter of pituitrin was given hypodermically and the uterus open in the midline. The baby and the placenta were extracted in the usual manner. The edge of the peritoneum was sutured to the anterior surface of the uterus, leaving an area of the anterior uterine wall exposed which measured $3\frac{1}{2}$ inches in width and $4\frac{1}{2}$ or 5 inches in length. The uterine incision was covered with a continuous suture of No. 2 plain gut. Except for a very superficial skin infection the patient made an uneventful recovery. The final examination of the patient showed the uterus adherent to the anterior abdominal wall over a small area of its anterior surface, while the whole of the posterior wall of the uterus, the fundus, and the anterior wall were left to enlarge in the patient's subsequent pregnancies.

Dr. GEORGE W. KOSMAK said he was interested in these case reports because of the high site of the incision, but he thought the term extraperitoneal incision was a misnomer for this, as in similar instances was a transperitoneal incision. It seemed to him that the uterus would involute more satisfactorily if there were no adhesions to the anterior abdominal wall. He had followed the method of Hirst in which the incision was made entirely below the umbilicus. He felt that with this method it was very easy to infect the peritoneum. On the whole, he felt that if he should get a similar case to those reported he would consider the facts very thoroughly before doing any more operations of this kind. At the Lying-in Hospital they had been opposed to the delivery of the uterus before emptying it, but he thought there were certain cases which had been examined frequently and handled a great deal in which cesarean section might be performed, but in which it was better to deliver the uterus before emptying it. In view of these drawbacks he thought the scope of the so-called extraperitoneal operation should be more limited and that in cases of this type there should be more hysterectomies done with the cesarean sections; there would then be no possibility of getting infection from leaving the uterus in position. Dr. Schumann of Philadelphia had recently suggested a delivery of the uterus through the abdominal incision and then closure of the abdominal incision, after which the uterus was opened and the vaginal stump, after the hysterectomy, sewed into the lower angle of the operative wound.

Dr. BRODHEAD disagreed with Dr. Kosmak. He said that if they had a patient like any of these three, who had been examined many times and when there was a strong probability that infection had taken place, he thought that if they could do the extraperitoneal operation without exposing the general peritoneal cavity to infection it was a safer operation and better than delivering the uterus before it was emptied. He could not see why one should take out the uterus in these cases, and he did not see how one could tell when a uterus was sufficiently infected to require removal. Furthermore, he did not see why the woman should not again become pregnant and carry to term. The

operation in his opinion would be performed more frequently in the future than in the past.

Dr. KOSMAK said that he had forgotten to mention that he had had the opportunity of doing two extraperitoneal sections in one patient. This patient had an infection of the wound after the first operation and a broad band of adhesions caused an anterior fixation of the uterus. The patient became pregnant again within two years and suffered a great deal of pain from the adherent uterus and from the fact that while the posterior wall expanded to accommodate the fetus the anterior wall did not. He did not think it was right to have left this woman with the anterior wall of the uterus adherent to the anterior abdominal wall and at the second operation he sterilized her.

Dr. HARRY ARANOW asked why they made the high incision. He said that, if he understood correctly, the reason for making a high incision in the classical cesarean section was to avoid adhesions. In a transperitoneal cesarean section where one deliberately attached the uterus to the parietal peritoneum there seemed to him every reason against a high incision. It was quite possible that the reason the doctors had hemorrhage in every one of these cases was because the uterus could not contract properly, being attached so high on the abdominal wall.

Dr. BRODHEAD, in reply to Dr. Aranow's question, said there was no reason why the incision should be made so high, and when he performed the next extraperitoneal section he meant to make the incision from the pubes to the umbilicus. Dr. Kosmak had spoken of the disadvantage of having the fundus adherent to the abdominal wall. With the usual cesarean section he had seen the uterus adherent and suspended from the lower part of the abdominal wound; this could not always be avoided, and if a low incision were made between the navel and the pubes the uterus would be suspended much lower than in their cases.

Post Partum Eclampsia.—Dr. F. A. KASSEBOHM reported this case which occurred in a patient 24 years of age, a IV-para, who was admitted to the Obstetrical Service on Oct. 7, 1917. He stated that the family and personal history were negative until four years ago, when the patient had pain over the region of the gallbladder, was jaundiced and had slight fever. The diagnosis made by the attending physician was appendicitis and cholecystitis. She had had three normal deliveries and three living children. Her present illness began on Oct. 7, at 6 A. M., when she was delivered of a normal vigorous female baby. Two hours later she had generalized convulsions and during the next hour she had several convulsions, and an ambulance was called. She had another convulsion on the way to the hospital. Physical examination when she reached the hospital showed the patient in a stupor from which she could be aroused only with great difficulty. The pupils were equal and reacted to light. The bulbar conjunctivæ were markedly jaundiced as was the skin of the remainder of the body. The pulse was 80 per minute; the blood pressure 122 systolic and 80 diastolic. Tenderness was present in the right upper quadrant from the costal border to three inches below the free border of the ribs. The edema of the lower extremities was marked, particularly over the dorsum of the left foot. A catheterized specimen of urine showed microscopically many fine and coarse granular casts, many red and white cells, and it boiled solid. The urea was three grams to the ounce. Bile was also present. The patient was given colonic irrigations with five gallons of 5 per cent. sodium bicarbonate solution, every four hours, alternating with a hot air bath every four hours. She was also given chloral hydrate per rectum after each irrigation. She continued to have convulsions during the night and in the morning was given veratrum viride, repeated every three hours until the pulse reached 60. The veratrum viride was given in hypodermic injections of 8 minims. She had five convulsions after this treatment was instituted. Three days after her admission the patient became rational and had had no more convulsions. Six days after her admission she developed a severe pulmonary edema during the night, became dyspneic, and respiration was shallow. The pulse was 120, temperature 100°, and blood pressure 170-110. Coarse bubbling râles were heard all over the chest, and the patient expectorated

pink, frothy sputum. A diffuse petechial rash, red in color, on a dry erythematous base and not disappearing on pressure was present over the upper extremities and over the chest anteriorly. She was then given morphine sulphate $\frac{1}{4}$ of a grain, atropine 1/150 of a grain hypodermically, and nitroglycerin 1/100 of a grain every 5 minutes for six doses; then every 15 minutes for six doses; then every hour. During the night she was given three doses of morphine, one-half the amount given above. The following day she felt better and the medication was to a large extent discontinued. That night the patient developed another attack of pulmonary edema more severe than that of the preceding night. The same medication was repeated and in addition a phlebotomy was done, 10 ounces of blood being removed. The pulmonary edema cleared up and the patient went on to an uneventful recovery, though some of the symptoms persisted for a time.

Dr. ARANOW asked how they knew that this was a case of eclampsia. Another point was that they gave veratrum viride in cases of eclampsia for the distinct purpose of lowering the blood pressure. Here they had a woman with a pulse of 80 and a blood pressure of 120 who had gone through an apparently normal labor and was giving symptoms of post-partum eclampsia. He could not see how she could have been improved by the administration of veratrum viride.

Dr. KASSEBOHM replied that the pulse was 180 when the veratrum viride was given and the next day it dropped to 150; it continued low until the patient developed the pulmonary edema when it went up to 170.

Cesarean Section for Eclampsia.—Dr. H. C. INGRAM reported these cases. He stated that the first patient, 30 years of age, a primipara, whose calculated date of confinement was Aug. 3, 1917, was admitted to the hospital on June 29, 1917, having had four convulsions prior to her admission. She was a woman weighing 200 pounds, and was markedly edematous and in a semi-comatose condition. The blood pressure was 196 systolic. Vaginal examination revealed a long, firm cervix with no dilatation, a very long, small vagina, and what was apparently a vertex presentation. The patient had five severe convulsions within an hour and a half after admission, so immediate emptying of the uterus seemed advisable. The abdominal route was chosen for the cesarean section and two male children were extracted, one weighing three pounds and twelve ounces and the other four pounds and six ounces. Both children were dead at the time of delivery. The uterus was closed by No. 2 chromic sutures and a Lembert suture No. 2 plain gut for the visceral peritoneum. The parietal peritoneum was closed by continuous No. 2 plain gut; No. 2 interrupted chromic suture was used for the fascia, and No. 2 plain subcuticular for the skin. Three silkworm gut retention sutures were also used. The patient was then put on colonic irrigations, chloral 30 grains, and a hot pack every six hours. She had no convulsions after the operation and was so improved by the fifth day that the irrigations were reduced to two daily. The patient's temperature was normal on the second day and remained so throughout. On the seventh day after the operation, when the wound was dressed, the escape of serous fluid was noticed at the lower angle of the wound. On the eighth day, after the patient had a coughing spell, the dressings became wet and the lower angle of the wound was found to be separated. This was packed with gauze. On the tenth day the patient complained of shortness of breath, suddenly became cyanotic and died. The necropsy showed partial separation of the abdominal wound and poor union in the remainder. There was a large amount of serous fluid throughout the peritoneal cavity.

The second patient was a primipara, 39 years of age, whose day of confinement was Aug. 2, 1918. She weighed 185 pounds. Her blood pressure was 160 systolic. She had a slight trace of albumen in the urine. She was put on a meat-free diet and forced fluid. On July 10, as she showed no improvement, she was sent to the hospital. Upon arrival she was very nervous and complained of headache. She was given colonic irrigations, chloral 30 grains per rectum, every six hours. On July 11 she had a convulsion lasting about six minutes. This was followed by four more severe convulsions within the next two hours. The

vaginal examination showed a long conical firm cervix with no dilatation and a vertex presentation. Abdominal cesarean section was deemed advisable. The high incision was used, one-half above and one-half below the umbilicus. A large amount of free fluid was found in the peritoneal cavity. The uterus was closed by two layers of No. 2 plain catgut continuous suture, then a Lembert of No. 2 plain gut for the visceral peritoneum. The parietes and peritoneum were closed by continuous No. 2 plain gut, the fascia by No. 2 chromic gut interrupted sutures, the skin by subcuticular No. 1 plain gut, and four silkworm retention sutures through the fascia. The patient was kept on colonic irrigations and chloral with the addition of hot packs. The following day she had two convulsions which were the last. The patient then improved, except for a slight rise in temperature on the seventh day, until the ninth day, when the dressing became wet and the wound was found to be separated. The patient was taken to the operating room and anesthetized. No signs of the former suture material were present. The edges of the wound were found separated and a sterile dressing pressed through the incision to the omentum. The edges of the wound were freshened by rubbing with a hot abdominal pad then five silkworm sutures were passed through one side of the abdominal wall, about one and one-half inches from the incision edge, through the fascia and the peritoneum and out on the other side. These ends were passed through split rubber tubing one on either side, making a lateral splint to the incision. The skin was closed by subcuticular No. 2 plain gut. After a slight temperature reaction the patient went on to recovery, being discharged on the fourteenth day in apparently good condition. One month after discharge she had a fine abdominal scar about five inches long. The uterus was free and well involuted.

Dr. STEIN raised the question as to whether a cesarean section was indicated in eclampsia, and whether a distinction should be made between the mild and the severe cases. In a mild case it might be that one could get along with the induction of labor with the Barnes bags, etc., but in the severe cases the best method was to perform an immediate cesarean section, although he felt convinced that even a cesarean section could not save all cases.

Dr. BRODHEAD expressed the opinion that the indications for cesarean section in some cases of eclampsia were very clear. In a primipara at term, with a long cervix, the induction of labor, the bougie, the bags, the lacerated perineum, and the post-partum hemorrhage, subjected the woman to greater risks than the cesarean section. The vaginal section was suitable up to seven and one-half months, but after that time it was better to use the abdominal section. Dr. Brodhead related an interesting experience with a wound that broke down several days after the operation and in which he found no trace of catgut left. In this instance he again sewed up the wound and gave a transfusion of 800 c.c. of blood. The patient then made a perfect recovery, the wound healing perfectly.

Dr. KOSMAK said that both this report and that of Dr. Kassebohm should receive most careful attention. Cesarean section for eclampsia in the first case would not have been required if the case had been treated by eliminative and sedative measures; he believed that woman would have been delivered spontaneously. Dr. Kassebohm's case proved that the presence of the fetus was not the decisive factor in the toxemia. The delivery in that case was perfectly normal and there was no evidence of toxemia at the time of delivery, yet the patient had a post-partum hemorrhage. In the second case there seemed to him no valid excuse whatever for an operative delivery in the presence of dead and premature fetuses. Such a course reflected on the operation and brought a valuable operative procedure into disrepute. He thought they ought to be very careful before they declared that most instances of eclamptic convulsions furnished an indication for immediate cesarean section. We should be very cautious about doing an operation requiring deep anesthesia and offering chances of infection and other serious complications in a woman already so dangerously ill and whose resistance was poor, when there were no contraindications to a vaginal delivery even if this were

delayed until Nature had been given an opportunity to complete the same.

Dr. ARANOW said the unqualified statement had been made that every eclamptic was best treated by cesarean section. He challenged that statement. Most of the best men in this country and abroad treated eclampsia conservatively. He believed that in the great majority of cases the woman who had one cesarean section would have to have a cesarean in all her subsequent pregnancies; he therefore felt that with rare exceptions the woman with eclamptic toxemia should be treated by eliminative measures, as Dr. Kosmak has described, until her uterus can be emptied with safety. Dr. Stein had stated that eclampsia was undoubtedly caused by the placenta. Dr. Kassebohm's case could not be said to have been caused by the placenta, as the symptoms appeared some time after the placenta was removed.

Strangulated Ovarian Cyst Complicating Pregnancy.—Dr. LANGROCK reported this case, which occurred in a patient 24 years of age, a primipara, whose last menstruation was on Feb. 28, 1917. She was first seen by the writer on March 17, 1917, for an attack of right iliac pain with vomiting. She gave a history of having had several similar attacks, which had been diagnosed as appendicitis. Vaginal examination revealed an early pregnancy and, as the woman was desirous of having the baby and the appendicitis was not particularly urgent, she was advised not to have the appendix removed at this time, but to wait until after her delivery unless she should have another attack. From this time her pregnancy was uneventful until Oct. 7, 1917, when she had another attack. There was slight tenderness in the lower quadrant but no rigidity and no mass could be felt either abdominally or vaginally. Appendicitis was diagnosed, but there seemed to be no indication for an immediate operation. Four days later the pain became very severe, the temperature rose to 101° F. and the pulse to 104. The blood count showed 19,000 white cells, 89 per cent polymorphonuclears, and 11 per cent mononuclears. Appendicitis was diagnosed and operation decided upon. The patient was removed to the Harlem Hospital and operated on by Dr. L. Friedman, who found a cystic mass the size of a large grape fruit. This mass was accidentally ruptured and a large quantity of bloody fluid escaped. The cyst was tightly pressed against the abdominal wall by the pregnant uterus and in this manner there was interference with the circulation. The pedicle extended to the right ovary. The inner surface of the cyst was hemorrhagic throughout and showed large areas of travasation and ecchymosis. The appendix was found acutely inflamed and was removed. The pathological conditions and the operation did not interfere with the normal progress of the pregnancy. The patient was delivered of an 8½-pound baby on Dec. 25, 1917, by a low forceps operation and had a perfectly normal puerperium.

Dr. BRODHEAD related the history of a patient referred to Dr. Haynes' Service at the Harlem Hospital and operated on by Dr. Falk. In this case operation revealed a large cystic mass extending to the right hypochondrium and having a pedicle going to the pelvis. The pedicle showed three distinct twists. It was trans-fixed, ligated, and cut. The pathological report showed a hemorrhagic, necrotic cyst wall. Dr. Brodhead said that occasionally in pregnancy they met with a fibroid with a twisted pedicle. He related such a case in a woman three months pregnant; in this case Dr. Grausman, who performed the operation, found a fibroid with a twisted pedicle and performed a hysterectomy.

A Rare Affection of the Lacrymal Passages.—Fava treated a young man who presented in the area of the left lacrymal sac a punched out ulcer having a greyish flow. On the adjacent cheek were three subcutaneous abscesses. A whitish, cheesy pus escaped from the sac. The preauricular glands were enlarged and there was a fistula at the left angle of the jaw. Tuberculosis and syphilis could be excluded but cultures from the pus showed the presence of the fungus known as *Nocardia*. The lesions set up by inoculation of guinea pigs closely resembled those caused by Koch's bacillus. Curettage and iodine locally effected a cure.—*La Presse Médicale*.

Miscellany.

Paris Hospitals in War Time.—Dr. Martinez Vargas, in several issues of *El Siglo Médico*, gives an account of a visit made by himself and sixteen medical colleagues to Paris last summer. The first visit after arrival in Paris was made to the sanitary service of the War Office, where the party was placed under the guidance of a medical staff officer, who first conducted them through medical Paris. The aim was to witness hospital activities, surgery, laboratory activities, the aeroplane service. The first week was spent in Paris and suburbs and the second at the front near Compiègne and Châlons-sur-Marne. The great military hospital at Val-de-Grace was the first building visited with especial reference to the new military museum, which had then (July, 1917) just completed the first year of its existence. All the archives and documents pertaining to the war are housed in this building, along with historical documents of the same character. In the museum proper all kinds of traumatism are reproduced in wax and as a counter exhibit wounds are seen in all stages of healing. Terrible mutilations are offset by representations of plastic work for their reintegration. Inanimate prosthesis vies with successful living grafts. Wax models and actual pathological specimens reinforce each other. Next to be mentioned is the x-ray department. From these exhibits which, of course, are not absolutely novel, one passes to others which are decidedly so and peculiar to the present war. Here are seen the latest types of projectiles, including explosive bombs of all kinds, gas apparatus, and masks stretchers and other apparatus designed especially for trench use, hence made collapsible apparatus for sterilizing dressings and purifying drinking water, etc. Every phase of war activity is shown in photographic or other reproduction. Trenches and communicating passages are shown by architectural drawings. The party next visited the Grand Palais. In 1900 Professor Vargas had assisted in the inauguration of this edifice at the exposition of that year. Now, there is an announcement to the effect that the work of the re-education of the mutilated is going on in this same structure. The contrast is a moving one. In one of the salons in the Palais had hung the paintings of Sorolla, the Spanish master, whose "Sad Heritages" had taken the prize of honor. Now these very halls have been divided and subdivided to form wards, operating cabinets, sterilizing rooms, etc. The great height of the ceilings made it necessary to remodel completely the interior of the edifice, so that nothing remains intact but the superb stairways. The wards for the wounded were visited, and Carrel's method of wound treatment was seen at first hand. Unfortunately for the party Carrel himself was then in the United States and they were unable to render to him the homage which was his due. In the hall of radiography they were told that 8,000 radiographs had already been taken and that the daily number was sometimes as high as 50 or 60. Dr. Mencièr's wards were next visited, where was to be seen a method which shares with that of Carrel the honors of French surgery. Mencièr, who

was fortunately present demonstrated to the Spaniards his so-called method of embalming the tissues. The liquid preparation applied to badly infected wounds, some with general sepsis, was shown to have the power of arresting and preventing decomposition and thereby of conserving the damaged tissues. In time was reached the department for physiotherapy and re-education. Mutilated men of all kinds, supplied when possible with prosthesis, were engaged in all kinds of activities. Many were learning the use of the left hand—an entire hall was devoted to these men—and blind soldiers were engaged in the massage rooms of the physiotherapeutic department. A superior type of men, former members of the liberal and artistic professions were selected for this work which extended to them the outlook for self-support. The rooms for mechanotherapy, thermotherapy, hydrotherapy, and electrotherapy were next inspected. The entire physiotherapeutic plant has had under its charge some 8,500 unfortunates in the past six months alone. The results have been splendid. Over 3,000 men have been completely rehabilitated and no less than 80 per cent. have returned to full military duty. Of the balance over half are equal to auxiliary work and only 7 per cent. are ineligible for army service in any form, although able to do clerical work. Professor Camus, who is in charge of the reeducation work estimates that from the beginning his department has restored to France the equivalent of 20,000,000 francs in income.

The visitors met Dr. Laborde, the distinguished woman who has charge of the radium department, where seeming miracles have been wrought. A cured case of sarcoma was seen in which a radium trochar had been plunged into the neoplasm; while numerous "before and after" photographs attested to other cures. Wax models, prosthetic apparatus, etc., formed the nucleus of a vast museum. The process of selecting men for the aviation corps was inspected. The electric chronometer of D'Arsonval was used for making the tests, which consisted largely of various reactions intended to bring out the exact state of the nervous centers. The dynamoergograph was used to measure the degree of fatigue after exertion. The school of instruction for aviators deals with many subjects of study calculated to atone for early defects of education when such exist.

The next visit made by the party was to the blind soldiers in the rue Reuilly. The asylum for these unfortunates is under the directorship of Dr. Emard. Much space is devoted by the author to the instruction of the blind in various occupations for self-support. The total number of the war-blinded in France is given as 3,000, which seems small in comparison with the popular belief. The annual pension for the blind soldier is 1,200 francs. Baskets were being made in great variety in one department—champagne baskets, market baskets, etc., etc. France used to buy all her basket ware from the Germans. In another department the manufacture of brushes was inspected. The labor of brushmaking is divided among a number of specialists, each of whom attends to a particular phase of the work. Such a

custom obtains in all manufacturing, but is of distinct advantage for the blind in mastering an occupation quickly. A relatively small number of men were making or mending shoes. Another industry for the blind was coopering, and still another iron work. In the latter occupation 25,000 detached parts of automobiles had been made. That nearly helpless subjects can be of such marked use in the great automobile industry greatly impressed the author. There was also press work done—not with types for the blind, but ordinary printing. Massage is barely mentioned by the author. By work along the specified lines the blind can earn 5, 6, even 8 francs daily—more, in fact, than most can earn who have their sight.

The party next visited the Val-de-Grace Hospital. The immense acreage of this institution makes it an easy matter to isolate contagious diseases of all kinds. This type of hospital apparently does not prevail in Spain and the party were impressed alike with the amount of air space, the absence of unsuitable and unhygienic architectural effects, the great shade trees, and and luxuriant flower beds. The first building visited was the typhoid pavilion. A narrow central hall gave entrance to large, light quadrangular wards, each with four to six beds well apart from one another, and a porcelain bath tub with hot and cold water faucets. The amount of space per patient, the free ventilation, the illumination, and the bathing facilities contrasted with the fact that at the time of the visit the typhoid pavilion had no patients, or rather of three patients in the six or eight wards none had frank typhoid. This lack of cases was a most eloquent tribute to the efficacy of antityphoid inoculation, which has practically suppressed the disease.

The next to be visited was the pavilion for tuberculosis. Isolation was assured here with no suggestion of quarantine. Both the family and personal history and the results of examinations were recorded with much thoroughness. If the patient had been a source of danger to his comrades word was sent to the front to disinfect his former habitation, on the supposition that "one consumptive makes a hundred others." The erysipelas pavilion was empty and it has been learned that an erysipelatos soldier always gets well of himself without treatment. Also vacant were the pavilions for measles and scarlet fever. On the other hand the mumps pavilion had been full of patients, many with complications. Professor Vincent, in charge of the manufacture of antityphoid vaccine, was found in a private pavilion, where an hour was passed. Numerous assistants of both sexes worked in silence among test tubes, flasks, and retorts.

The author next visited the Maison Blanche, now dedicated to wounded and mutilated soldiers and to those with mental disorders. The edifice proper, seated in extensive grounds, is surrounded by numerous temporary pavilions. One-half or more of the mutilated soldiers—those who have suffered amputation of the arms or legs—are or have been sheltered here until they could be fitted with artificial limbs and educated, if need be, to support themselves. One large pavilion serves as a warehouse for prosthetic apparatus. The visitor

is impressed with the lack of leather in the latter, but it has been learned that very thin sheet iron is superior for the purpose. Groups of mutilated individuals are testing the artificial limbs and the author experienced a sort of illusion of being in a large shoe store in which customers were being fitted to ordinary shoes. The men have their leg prosthesis fitted and then walk up and down to judge of its suitability. Various workshops, including a modeling room, were operated by mutilated soldiers. The enormous schoolroom was filled with men with artificial hands and arms and talented young women officiated as instructors. A husky youth was keeping a set of books in irreproachable handwriting, although it was something of a shock to see the wood and aluminum digits creep across the page while the pen was held in the proper position by spring power. Some who had lost the right hand were learning to write with the left and others even without an artificial hand were able to write beautifully with a special writing prosthesis fitted to the forearm stump. Men learn to fashion the separate parts of automobiles, or become draughtsmen, or take up other work of a sedentary character, especially when the loss of the lower limbs forbids an active existence. Lectures on various subjects helped to vary the monotony of existence.

An Arrow Poison Used by a Low Type of Brazilian Indian.—In the Pettersson's Festschrift number of the *Svenska Läkaresällskapets Handlingar* (Vol. XLIII) Santesson reports on a new arrow poison sent him by the well-known traveler Nordenskiöld, who began explorations in Brazil in 1913 and ascended the Madeira River and its affluent, the Rio Guapore, to a point close to the Bolivian frontier inhabited by the Huanyams, a very primitive Indian tribe who had but recently abandoned the stone hatchet. While not known to be cannibals they mutilated the corpses of their enemies to secure bone for arrow heads. They used in the chase both bow and arrows and blowpipe. The arrows shot by both blowpipe and bow are often poisoned with curare, but the species could not be ascertained nor the method of packing and storing. The poison is usually kept in calabashes, earthen pots, or bamboo tubes. The probability is that the *strychnos castelnea* weed grows in the Huanyam territory and supplies the poison. The arrow sent by the traveler presented an elongated head and the poison spread over it was wound over spirally with a thread. The length of the missile was 129 cm. and the poisoned head was protected with a cap of bamboo. A piece of bark which accompanied the specimen may have represented the source of the poison, for extracts of the bark, wood, and cord layer all showed a weak curare action on the frog. Microscopically these tissues appeared to belong to a member of the *Strychnos* family. Chemically the curare seemed to agree fairly with the calabash curare analyzed by Böhm. It dissolved to 77 per cent. in water, from which it was not precipitated by certain reagents and gave positive reactions with others. The toxic action on the frog and rabbit was typical of curare, the minimum fatal dose in the latter animal being 4 mgm. per kilo after subcutaneous injection.

Therapeutic Hints.

Remedy for Chilblains.—The following prescription gives relief of troublesome symptoms:

℞ Acid. sulphuric. aromat. 5 ij
Quinin. sulphat. gr. xxx
Tinct. ferri chloridi. 5 ij
Aquæ destill. q.s. ad. 5 iij

M. Sig.—To be applied two or three times daily, drying in the air before covering the parts.—*Medical Times*.

Headache.—In headache due to so-called rheumatic condition, Stevens offers this formula:

℞ Phenacetini
Salophen aa 5iiss
Ft. chartulæ No. xij.

M. Sig.—One every two or three hours.—*Manual of the Practice of Medicine*.

Bronchitis.—Stevens recommends the following in the subacute stage of this condition:

℞ Terebini
Olei santali. aa 15 ss
Strychninæ sulphatis gr. ¼
Codeinæ sulphatis gr. ij-ijj
Div. in capsulas No. xij.

M. Sig.—One every four hours.—*Manual of the Practice of Medicine*.

Cystitis.—

℞ Tinct. aconiti 5ij
Tinct. belladonnæ fol. 5i
Tinct. opii camphoratæ. 5ij
Spiritus ætheris nitrosi. 5j
Syrupi 5iv
Aquæ q.s. ad. 5vi

M. Sig.—Two teaspoonfuls in water every two hours, in acute cases with frequent micturition.

℞ Liq. potassii hydrox. 5ij
Fluidextracti uvæ ursi. 5iv
Tinct. hyoscyami 5iv
Tinct. lupulini 5iv
Tinct. opii camph. 5i
Syrupi zingiberis. q.s. ad. 5viiij

M. Sig.—Tablespoonful in water after meals and at bedtime, in chronic cystitis with acid urine.—THORNTON.

Acne.—The following is Kummerfeld's lotion:

℞ Pulveris camphoræ gr. x
Pulveris tragacanthæ gr. xx
Sulphuris præcipitati 5iv
Aquæ calcis
Aquæ rosæ. aa 5ij

M. Sig.—Apply every two or three hours.

Gout.—

℞ Magnesiæ 5ij
Magnesii sulphatis 5i
Vini colchici corni. 5i
Aquæ menthæ piperitis. q.s. ad. 5xii

M. Sig.—A tablespoonful every hour for four or five doses or until the bowels are freely opened.—SCUDAMORE.

Menorrhagia.—

℞ Fluidext. ipecac
Fluidext. digitalis. aa 5ij
Fluidext. ergotæ q.s. ad. 5j

M. Sig.—Thirty drops every two hours until relief is obtained or extreme nausea occurs.—BARTHOLOW.

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Original Articles.

THE PROBLEM OF TUBERCULOSIS IN MODERN ARMIES AT WAR, AND ITS STUDY AND SOLUTION IN THE ITALIAN ARMY.*

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AMONG the various complex and important questions that the war has created none has assumed greater prominence than that of tuberculosis. In such a war as the present the army presents vastly different aspects than those observed under peace conditions. Then it represented the best the nation possessed of healthy youth, carefully selected, rigorously examined, and adequately guarded against the possible infiltration and spread of disease. Now, however, armies are composed of men who have been enlisted after an examination which is, of necessity, less methodical and accurate than that which formerly obtained. In addition there are the hardships that are inevitably attendant upon military operations and which multiply the causes of all diseases. This is particularly true of tuberculosis.

It was the purpose of the Italian military authorities to achieve a diminution of the high percentage of tuberculous individuals, and in connection with that purpose arose two important points that demanded solution. One was the prevention of enlisting men who presented specified and active manifestations of the disease; the other was the elimination as soon as possible of the prime sources of infection—the men who developed active symptoms during the period of their service.

This problem had received considerable attention in medico-military circles for some time, and with the mobilization of the Italian troops it reached an acute stage. Indeed, as soon as mobilization had begun and soon after active hostilities were inaugurated, the problem grew to such proportions that there was recognized the immediate necessity of organizing a special service to deal with it in accordance with modern views on tuberculosis.

From every corner the War Office received warning of the danger of retaining in the military service tuberculous subjects who had been accepted as

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physically sound. Such a situation could develop with no great difficulty—probably during one of those periods of disappearance or latency of the active phenomena, for it frequently occurs that subjects who are passing through one of those periods of rest in the progress of the disease are admitted into the army. There they are exposed to conditions coincident with military life that diminish their general resistance, under which they easily lose that negative health which they had enjoyed as civilians and might have continued so to do for the rest of their life. Moreover, there was the economic side of the question to consider. When a man develops some form of tuberculosis after he has entered the army he must, of course, be discharged as soon as that condition has been discovered. This has always been done, and in almost every instance the question of the responsibility of the military authorities has arisen in connection with the inevitable issue of the liquidation of pensions to the discharged man or his dependents.

It is the opinion of the majority that the government must bear the responsibility of every case of tuberculosis that develops in the army, arguing that a recruit must be recognized as free from tuberculosis upon enlistment by the mere fact that he had been accepted at such time. This argument, of course, is not scientifically accurate, for it admits no discussion of the possibility of diagnosing the disease at the time of the medical examination of the recruit.

It is clear that by such an assumption the tuberculous patients are placed in a favored position in comparison with victims of other diseases. But then we must not forget the seriousness of awakening the tuberculous process as compared with any other disease whose activity may be stimulated by the army life; nor must we forget the more serious effect on the community of any case of tuberculosis and the more diffusive types of the disease.

The Italian medico-military authorities decided that until new methods permitted the positive discrimination between the healthy and the unhealthy recruit, the only practical way was to increase the severity of the medical examinations. At the same time it was considered necessary, practical, and humane to make provision for those subjects who had been enlisted while they had lesions or localization of foci that could or might awaken under conditions of military life.

As a result we have the "Reparti di Accertamento Diagnostico" (Diagnostic Centers) for the rapid and correct identification of tuberculous lesions, and the "Centri Sanatoriali" (Sanatorial Centers) for the cases of initial tuberculosis whose discharge from the army had been left undecided.

In this way an opportunity was given the military authorities, with their almost unlimited means, to provide for the treatment of all those cases that might possibly be considered susceptible of recovery. This meant the application of a more modern view in the diagnosis of tuberculosis.

The proper operation of these centers was regulated and controlled by the issuance of a series of Special Orders.* The first circular, No. 801, December 29, 1916, institutes, regulates, and disciplines the new service. It is integrally reproduced as follows:

"The Prophylaxis of Tuberculosis in the Army.—

In the territory of each army corps there shall be established special hospitals for diagnostic purposes for the prompt and accurate identification of tuberculous lesions or of such lesions as are under suspicion of being tuberculous in character. These hospitals shall be established in localities separated from other hospital buildings, civilian or military, and shall be placed in rural regions where possible. They shall be provided with all necessary means for an early, prompt, and positive diagnosis, including conveniences for bacteriological research.

"The personnel for these hospitals shall be selected from among those medical officers who possess special competence in the subject. They shall have the assistance of a special staff carefully instructed in the treatment of tuberculous patients. There shall be sent to these hospitals: (1) Any recruit who is found to be affected by incipient, latent, or dormant forms of tuberculous infection at the time of his physical examination. These forms include cured lesions of the bone, relics of glandular lesions, sequelæ of pleurisy, etc., with special regard for localizations of the respiratory apparatus. (2) Any enlisted man who may show signs of the lesions mentioned in paragraph 1.

"The medical officers of each organization shall cause all those men who show a general as well as a local condition (authorizing the suspicion of a latent tuberculous lesion) to be subjected to a special clinical observation. Upon the completion of the period of necessary observation for properly ascertaining the suspect's condition, those who shall have been proven affected by the active tuberculous infection shall be declared permanently unfit for military service and shall be discharged from the army. Proper notification shall be sent to the civil authorities of their place of residence. The recruits who are found affected by forms recently healed shall be declared temporarily disabled and shall be sent home to await future calls to the colors. At the time of the physical examination those men who appear affected by active tuberculosis to the extent of offering small hope of recovery (such as diffuse, cavitary, or forms of rapid evolution) shall be immediately discharged and the civilian authorities shall be promptly notified so that they may be in a position to take the necessary measures of social and individual prophylaxis.

"Those who are found affected by incipient forms of pulmonary tuberculosis or any such form that may give promise of improvement under treat-

ment (or at least arrest of progress) shall be transferred upon the advice of the executives of the Observation Hospital (from which they have been received) to the Sanatorial Centers which have been previously established. These Sanatoria are to be recognized and authorized by the Military Administration with the proper act of the Ministry of War, and will be placed under the technical control of the Local Sanitary Board of the Army Corps of the territory in which they are located. They shall also be placed under the administrative power of the Local Sanitary Committees.

"The relations between the Military Administration and the civilian authorities controlling the locality identical with that of the Sanatorial Center shall be, as a rule, governed by the following regulations: The Corporations under which the Sanatorial establishments exist will assume the following obligations: (1) To accept and maintain all of the military that are affected by pulmonary tuberculosis who may be sent there directly from the Diagnostic Centers of the Army Corps. (2) To provide at their own expense for the buildings and for their upkeep. (3) To provide bedding and all necessary hospital furniture and maintenance thereof. (4) To provide suitable subsistence and all drugs and surgical necessities for inmates. (5) To provide the medical personnel, nurses, and civilian employees, etc.

"The Principal Military Hospitals shall make provision for each Sanatorium in accordance with proper and accustomed usage as follows: (A) The daily rations and expenses for each soldier and the regulation allowances due him upon presentation of the proper voucher in accordance with the same rules which apply to the military in civilian hospitals as directed by Article No. 710-11-12, etc. (See Manual of Military Administration.) (B) The period of treatment in the Sanatorial Centers shall not be less than of four months' duration; it may be prolonged by two months more upon advice of the physicians in charge of the Sanatorium through the local military authorities, but such an extension shall apply only to such patients who have shown notable improvement.

"Upon the expiration of the four or six months' period the proper medicolegal steps shall be taken at the Diagnostic Center of the Army Corps for every individual case, and each case shall be judged on its merits. If the tuberculous infection is still observed as active (although improved) the soldier shall be discharged and the proper civilian authorities notified of the case. If a cure is effected the soldier shall be sent to his Regimental Depot for sedentary service only.

"When a recruit is rejected from the service because of tuberculosis conclamata the hospitals or the Diagnostic centers certifying the rejection shall notify the local civil authorities.

"(Signed) The Secretary of War."

Circular 1501/56 confirms the principle that the Diagnostic Centers are to be maintained only for an early diagnosis while the Sanatorial Centers are established for *treatment*. It insists that the medical personnel consist only of men particularly capable in this work, and that each institution must be provided with all necessary means for an early diagnosis and subsequent treatment.

*Special Order No. 801, Dec. 29, 1916; 1501/56, Jan. 6, 1917; 1503/56, Feb. 26, 1917; 1504/56, Mar. 13, 1917; 1563/56, April 26, 1917; 333, May 17, 1917; 300924, July 6, 1917; 302198, Aug. 27, 1917.

The other circulars discipline and regulate the movement of patients, emphasizing the necessity of excluding from the Sanatoria all cases that are in an advanced stage. The medical officers are enjoined to keep under close observation all such patients in their organization who are known to come from families where there have been or are at present open cases of pulmonary tuberculosis, and to observe those who were found to be delicate or with suspicious thoracic characteristics at the time of the initial physical examination. The final circular enjoins all officers to notify the Prefect of the different prefectures of each pertaining case discharged from the service on account of the disease, so that a proper observation may be maintained.

Now let us consider our subject in a more general way. Let us endeavor to place in their correct relationship the waging of war and the progress of tuberculosis. With the formation of our vast present-day armies this subject has been brought into greater prominence than ever before. As a result, the laity and a great many physicians have come to the conclusion that war increases the morbidity of the disease. But this is a point that requires an explanation. There is no doubt that there is more tuberculosis now than there was before the war, but it is true that the number of actual infections brought about by the war itself is infinitesimal. Practically the same thing has happened to the enlisted man that happens to the immigrant in the large American industrial centers. The changed conditions of living, the overwork, the poor sanitary conditions of the tenements and shanties of mining districts—all these elements, together with the alcoholism and dietetic errors awaken the latent disease in the European peasant by considerably lowering his powers of resistance.

The conditions incident to the war similarly diminish the powers of resistance of the enlisted man, and many individuals who, under the civilian regime, would not have developed the disease have merely anticipated the manifestations of it. Others who perhaps might never have given evidences of a tuberculous state have developed active symptoms when they might have gone through life with simply a latent infection.

One can consequently state positively that *the war has not created new tuberculous cases*, but that *it has increased the rate of the disease* by anticipating or stimulating the manifestations of the tuberculous process in individuals previously clinically healthy.

And when one considers that the army is composed of the youngest and presumably healthiest part of the adult male population, the urgency of the solution of this problem must be recognized by every enlightened State. Particularly is this the case when it is remembered that the Administration is provided with a valuable guide in its endeavors; for every rejected recruit furnishes an index or gauge for each relative family, and as such supplies the means of indicating a probable center of infection. Thus it is that from the military administration, as fruit of the war, may come the best means of visualizing the national problem of tuberculosis in all its aspects.

It may be easily understood that to carry on a work of such tremendous importance—where na-

tional safety is so closely allied with the personal, human element—the pioneer must possess a steel nerve; that he must be endowed with qualities that include the moral courage of facing the issue squarely; that he shall dismiss from his mind all prejudices—moral, economical, technical. And here it may be emphasized that the prejudices that exist in the medical mind are perhaps more numerous and more pernicious, frequently providing the greatest obstacle to the happy solution of the problem. In fact it is from his colleagues that the pioneer in this great work must expect the greatest opposition.

What is true of the world at large was found to be equally true in Italy. Any movement that is essentially the product of *modern* thought, if it is to be successful, must be strengthened not only with the individual courage of the adventurers, but by system and procedure that in itself will excite admiration. It is perhaps with a realization of that truth that the Italian War Ministry established the Diagnostic Centers—one of the admirably strong premises in its admirably strong proposition. Let us examine, then, the actual operation of this first link in the chain.

The Diagnostic Center is really an observation hospital under the direction of a staff of especially competent diagnosticians in tuberculosis. It is equipped with the most recent and modern requirements for such work. It is, as has been pointed out, the headquarters for the territory of its relative Army Corps to which must be sent all recruits having a tuberculous history or the appearance of the relics of conditions which are suspicious in this connection. The suspect is retained there only for such time as may be necessary for the completion of the requisite diagnostic observation. Thereafter he is subjected to the proper measures that his case may demand—leave of absence, sanatorial treatment, or actual discharge. If the condition of the suspected recruit justifies his discharge the Prefect of the province from which he comes is notified. This is an important point, for instead of being merely rejected from the army for reasons of physical unfitness and allowed to return to the ordinary pursuits of civil life, the man is practically invalidated home and becomes, in effect, an out-patient of a national hospital system, and is amenable to the control of the provincial authorities who will keep him under observation, taking such measures as may be deemed necessary to protect the public and place a check upon this one possible source of infection. These measures may include the improvement or removal of those conditions (social or otherwise) that may stand in the way of recovery.

The work of the Diagnostic Center may be viewed from three important angles: statistical, technical, and sociological.

As a medium for obtaining statistics in connection with the disease, the plan is unrivaled. It at once places in the category of tuberculous subjects those men who might never have been recognized as such under civilian conditions (with the attendant dangers of those circumstances) or those who might have evaded observation because of their social status. But the military service is a leveler of class, and this fact assures the sincerity of the investigation, since through the Diagnostic Center must pass the poor and wealthy, the professional

man and the laborer. The Center provides a fountain of statistical information unequaled in any civilized country and which has been approached, in quantity, by no other modern institution. It establishes a rational base for the war on tuberculosis that society must wage in the future.



FIG. 1.—General View of the Diagnostic Center.

The technical aspect is not at once susceptible of appreciation because it is comprehensible only to those of the medical profession. And even in this connection one may easily be guilty of a syllogistic fallacy. For real appreciation of the work of the Diagnostic Center will be found only among those of the profession who are profoundly interested in the movement, maintaining no prejudices, and striving to achieve a modern viewpoint of the subject.

The sociological aspect is most profound and is progressively important with every development of tuberculosis pathology. But it is chiefly notable in its ability to form a solid and practical contact with all civilian activities that protect the public from the further diffusion of the plague. The importance of it is sufficiently demonstrated by the procedure employed in the method of dealing with the cases discharged from the army; that is, advising the proper civilian authorities under whose jurisdiction the discharged case will fall. It is a remarkable fact that while some of the old Italian States, as far back as the eleventh century, provided for the registration of all cases of tuberculosis, modern public opinion in Italy had erected innumerable barriers in the way of such beneficial regulation. A strong prejudice existed against the system, on the ground that it was oppressive and inhumane. However, by means of the order which established the Diagnostic Centers, the registration (or more properly, the notification of civilian authorities) became a *fait accompli* throughout the country. It promptly terminated all manner of discussion, scientific and otherwise, which had from time immemorial suspended the actual application of the ancient provision. In other words, a moribund law was brought to life.

The benefits of this system become at once apparent, for under the operation of the present procedure the man discharged from the army is automatically placed in the hands of the proper civilian authorities, and regardless of the social stratum in which he may belong his case may be followed up by a series of investigations which will have for its finality not only a remedy for the individual

but also one for the community. When a recruit is rejected it is not unreasonable to suppose that other cases exist in his immediate family. Thus he has provided an index which can now be used in community work.

Investigations have, of course, been conducted by different local institutions—dispensaries, hospitals, sanatoriums, health boards, etc.—but they have hitherto been limited in their scope, and at their best are of a fragmentary nature; they have been insufficiently coordinated, and never used as a national unit for collective defense against the spread of the disease. Under the new dispensation, however, the government possesses the power to effect the necessary coordination by creating a working organization polarizing all findings toward one point.

And now let us observe the performance of the Diagnostic Centers, and such observation must include not only the details of the methods of handling the material (men) but also the plant and apparatus employed.

For an illustration, the Center situated in Rome will serve admirably. This is under the direction of Dr. N. Sforza, one of the best and most progressive minds in the capital. This Center occupies two pavilions adjoining the Hospital Umberto I.* Its location is a logical one, since that hospital is dedicated to the exclusive treatment of tuberculous cases in Rome. The two pavilions erected for the use of the Center are of the same general construction as that of the hospital, although they are entirely isolated therefrom, being surrounded by spacious gardens, which are in turn strongly fenced against promiscuous ingress or egress. Indeed, in so far as the pavilions themselves are concerned, they are absolutely independent of the older organization. The two buildings are connected by bridges on either floor, which are used as sun parlors, protected at will by awnings. There the patients may enjoy the air and receive eliotherapeutic treatment. There is also a completely equipped bacteriological laboratory for use in connection with any pathological findings. In addition there is a radiological laboratory provided with all the necessary apparatus for x-ray work. These two pavil-



FIG. 2.—Gateway to the grounds of the Diagnostic Center.

ions form the center of observation for the Roman territory of the Army Corps.

*See July, 1911, number of *Out of Door Life*, issued by the Nat. Ass. for the Study and Prevention of Tuberculosis.

It has been found that the average time required to reach an accurate diagnosis is ten days. The necessary investigations include a general clinical observation (temperature, functional disturbances, etc.) and a physical examination of the respiratory apparatus. There is also noted the cutireaction to



FIG. 3.—Garden between the two pavilions.

tuberculin, and also radiological, laryngoscopic, and bacteriological examinations. From the data thus obtained the clinical record is made which contains the diagnostic decision. A thoroughly adequate system of statistics is maintained in the office concerning the entrance, exit, medicolegal decisions, and destination of the patient.

A complete and exhaustive radiological archive was established where all films and prints are kept. The photograph has found preference over the radioscopic examination for the obvious reason of its greater precision in the examination, and also as a necessity of record. This archive provides rich material for further study of the disease.

The Diagnostic Center of the Army Corps of Rome has a mean daily movement of twenty patients.

One who has studied the operation of such a Diagnostic Center cannot but marvel at the diffusion of the disease—a diffusion far beyond the expectation of even the very men who have for years past been in intimate contact with the problem. Such impressive findings are hardly alleviated by the slight consolation that may be derived from the very facts themselves; that is, that the more there are of the cases of diagnosed tuberculosis, the pessimistic significance of the disease is actually diminished by the percentage value of it in relation to mortality. Death from tuberculosis is comparatively rare among the great number of diagnosed cases. But the disease is none the less insidious; indeed, may it not be said that because of its very insidiousness it is the arch foe of the medical profession?

The medical officer on duty in these Diagnostic Centers throughout Italy is chosen with great care. It must be borne in mind that he is a physician who must, from his scientific premises, come to practical conclusions, limited and therefore consequential. His diagnoses have tremendous possibilities. No theoretical comforts may relieve his mind when he is confronted with the enormous number of discharges from the army that he must continually make. He is serving the State, he is serving so-

ciety; but does it not require a mind of broad vision to behold that, when at the same time he is, perforce, depriving the State and society of men to defend it? For when a physician is convinced that an enlisted man is unquestionably tuberculous he must discharge that man from the army, notwithstanding the adverse criticism that may come from any quarter. Naturally, one would look for such criticisms in circles that are purely military, but indeed, they come even, or it might be said *particularly*, from professional quarters. One must not forget that the real obstacles in the solution of the tuberculosis question have never come from the laity but from the medical profession itself. It is there that we find the real prejudices against proper diagnosis and treatment of the disease, prejudices that are most active, almost unbelievable, almost beyond remedy.

In medical circles one will frequently hear discussion of latent or dead foci of tuberculosis, of inactive forms, of periods of quiescence of the disease, etc. But physicians are loath to recognize all that when diagnosing a particular case. The worst of it all is that these forms do truly and actually exist; that they do truly and accurately reflect actual and biological clinical forms. Any physician who intelligently maintains a contact with the disease knows this well, and knows quite as well within what reasonable limits they can be traduced into actual clinical realities, authorizing prognostic hopes—even guides to therapeutic tentatives.

It is of supreme importance that prejudices such as noted above should not be allowed to influence a work of such universal necessity as presented by the Diagnostic Centers. If these prejudices were permitted, and a man was diagnosed as free from disease when he was only passing through a period of its latency, then surely the operation of the system would be rendered useless.

In the consideration of tuberculosis we must not forget the aphorism that it is not a disease with an obligato feature. Tuberculosis is a disease that accompanies the patient to the end. He may defend himself against it more or less successfully during certain periods of his life; the disease may show

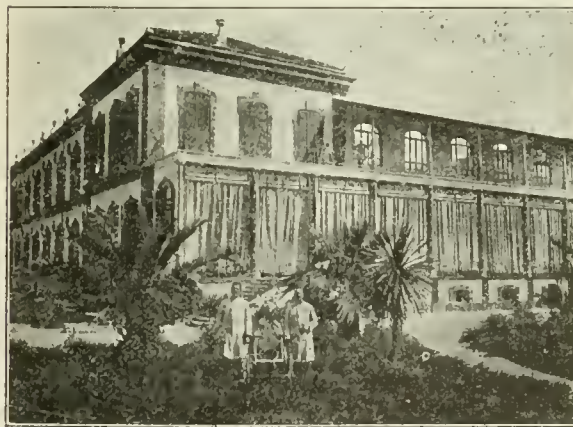


FIG. 4.—The south front of the Diagnostic Center.

itself in many aspects, but this is only a question of actions and reactions. They may or may not be susceptible of clinical observation without the potential and unsuppressible truth (the infection) having been contradicted or confirmed by appearances.

In other words, he who has once been the recipient of the infection, or has carried for some time the clinical manifestations of the disease, will never be free from the possibility of showing other signs to-morrow, even under the most favorable circumstances of living.

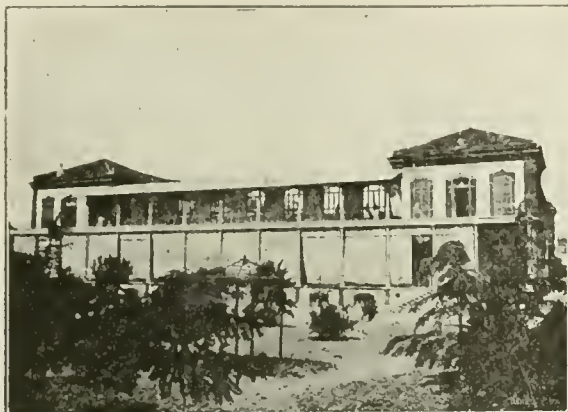


FIG. 5.—Balconies of one of the pavilions.

Consequently, it must be considered as a very serious professional error to say that a subject *has been* tuberculous once. A man *is* or *is not* tuberculous.

Owing to the strict application of this principle one of the most rigid measures introduced in the Italian army has been the absolute refusal at the initial physical examination of all men who had a history (naturally easily confirmed by other findings) of a past pleurisy. This resulted in the introduction into the list of causes for the rejection of candidates of "relics of pleurisy" when clinically ascertained. These comprehended interlobitis and sclerosis, no matter how partial or limited. *Ex ungue leonem*; where there is the sign there is the danger always. The only remedy, the only preventive measure in any such case is the rejection of the candidate, or, if discovered after his enlistment, his discharge forthwith.

It was thought at first that such individuals might be used for such light or sedentary services as there are in the army. But the error of that idea promptly manifested itself. The Military Administration derives little advantage, if any, in retaining men who can give only a minimum of service, and who are continually threatened by possible recrudescences or by new manifestations. Their mental condition is also bound to be abnormal. They inevitably become self-conscious, a state brought about by the nature of the assignment itself. And since illness does not necessarily beget virtue, a man officially pronounced invalided would be pretty sure to take advantage of such a situation. We cannot conceive of a soldier who is only partly healthy. To recognize such partial invalidism and still oblige him to serve, under circumstances that might aggravate his condition, is a plain antithesis, especially when that invalidism is caused by tuberculosis. Hence it is only under certain circumstances that a government could consent to the partial utilization of invalided men. France, for instance, provides an illustration of the stern necessity of using all of the national energies susceptible of any one military value. Fortunately, in Italy, the

material *man* is not so scarce. This question, which is still an open one among the medical journals of France—that is, as to if, how, and why invalided men may be used—may still be considered a fine point of medical ethics, and is only of academic interest in a country like Italy, where the prime material is far more abundant. Here it may be said (and very often is) that a tuberculous subject frequently experiences conditions of equally intense activity in civil life that he would find in the army, but the answer to that is that the spontaneous nature of the work imposed by military necessity is far more onerous, and is at all times compulsory. A man in the army, whatever his rank, can hardly be considered as a free agent. Moreover, the government has an administrative responsibility that demands the complete protection of the community. And as we are discussing that responsibility in relation to the campaign of prevention of a widespread disease, no matter what partial use may be made of an invalided soldier, no other diagnosis could possibly be substituted for the one pronounced at the Center for tuberculous diagnosis.

The foregoing facts argue definitely against the wisdom of retaining the services of a man invalided by tuberculosis. An accurate diagnosis once achieved, there can be but one proper course—the man *must* be discharged from the service.

Another phase which may be discussed is the



FIG. 6.—Sun gallery of one of the pavilions.

serious and delicate technical question of *suspect* cases. Herein appears the ability of the examining physician and the opportunity for exhibiting that rare sense called common, together with the courage to confront all difficulties and prejudices of public

opinion, both lay and medical. The list of customary causes for discharge from the army include, among numerous others, such conditions as oligemia and organic impoverishment. Those, of course, roughly cover tuberculous subjects. But do they provide for



FIG. 7.—Interior of one of the pavilions.

dealing with suspect cases? Hitherto it would seem not. The question of suspects may even be considered a superfluity from the medical point of view; from the medicolegal, as artificial. It is susceptible neither of limitations nor of distinctions. It oscillates between two extremely variable quantities—the patient, with all his varieties of reactions, consistent with the conditions existing when he comes under observation, and the examining physician, with his intellectual qualifications and the means of investigation at his disposal. Consequently, there is absolutely no logical basis on which to rest the arguments concerning investigation that are, unfortunately, so frequently indulged in at present.

One of the characteristics of the scientific mind is the tendency to create postulates of a static disposition out of certain conceptions which are essentially dynamic and in a continuous movement. Thus may be explained the difference of interpretation between those who have mastered the secrets of accurately interpreting radiographical plates and those who possess only an indirect and academic (or theoretical) knowledge of the subject. The mental orientation is deeply influenced by this tendency.

The problem of an early diagnosis of the elements of relativity is a complex one, and it must consequently be considered and interpreted with proper consideration of the most extreme and practical possibilities of its constituting elements. By the term *early diagnosis* and its concurrent problem it must be understood that it is considered as a clinical and not as a biological problem. Nevertheless, it is recognized that a biological reaction can be fairly well employed for the early diagnosis, such as the various tuberculin reactions, and especially the reactions of particular foci. But in so far as it is employed it presents to the observer a clinical fact on the level of a suspected or unsuspected lesion; otherwise it would be void of any practical value. The cutireaction, for instance, is void of any such value, because it detects the *infected individual* and not the *sick person* (a conception one must never forget in practical work) and it is consequently unavailable as a criterion of judgment.

Here it may be said, incidentally, that the Diagnostic Centers have not used tuberculin for diagnostic purposes, inasmuch as its use is attended by certain dangers that cannot be conveniently studied and controlled in such centers where the presence of the patient is of brief duration. Moreover, there are other *passive* means which are quite harmless. Again, it is not necessary to determine whether the foci are active or not, since, as has been said before, the discovery of a tuberculous focus in itself carries with it but one conclusion—the dismissal of the soldier from the service.

Hence, instead of tuberculin injections, the radiological examination is used at the Diagnostic Centers. The value of the conclusion that may be derived from the x-ray examination for the purpose of diagnosis in pulmonary tuberculosis is still an unknown quantity with most physicians, even among those who may be termed quasi-expert. That may not be true, perhaps, concerning their technique, but the employment of the radiological examination demands that the investigator be possessed of special and highly developed qualifications if he is to detect certain aspects of the disease which the other diagnostic means reveal much too late, if, indeed, at all. Technique, of course, is a necessity, but it is even more a matter of habit and experience of observation. Naturally, very few physicians have the opportunity to examine enough x-ray photographs and films to enable them to read them well and accurately, a difficulty of no inconsiderable importance in itself. Consequently, misinterpretation has not been uncommon, and has justified the lack of confidence of many of the profession when confronted with those who affirm that radiology can solve many clinical problems in tuberculosis; that it can discover *new* problems. Furthermore, those expert radiologists declare that it is a valuable aid in the rendering of an early diagnosis, and where accuracy is desired (and where is it not?) it is at all times indispensable. But it is only a matter of time when this relative ignorance within the profession will disappear, for it must be remembered that we are barely past the elementary stages of our research in this connection.



FIG. 8.—The radiological laboratory.

There are many physicians who believe that a simple radiological examination of the chest is sufficient for an accurate diagnosis. That is a mistaken idea for reasons both technical and essentially human. Among the former is the inability of the

radiograph to reveal certain lesions such as a fine sclerosis, peribronchitis, partial pleuritic thickening, some sort of interlobitis, etc.; in short, all those minute lesions that one may merely suspect at a clinical examination, and that only a repeated set of photographs can demonstrate definitely. In the latter, the human reason, we have the nature of the disease itself. We must always be ready to prove to-morrow (and this to-morrow may be after many years) that a certain fine lesion existed, and this even when the patient cannot be photographed anew. We must not forget those periods of rest that take place in the progress of the disease and that may *camouflage* any kind of tuberculous lesion. Nor must we forget human nature and those many human prejudices which make progress difficult. If we have the photograph, all doubt, all arguments, all waste of time caused by argumentation (which an expert may know to be useless, but which must, nevertheless, be met and answered, particularly when advanced by influential or so-called authoritative colleagues), all these fall away and the facts stand out by themselves in the photographed evidence.

There is another reason, also. Reading a film made with such fine technique that it will show the most minute differences in the pulmonary tissue is a different matter from reading one produced with that technique that shows only a certain few aspects of the tissues; just as it is not the same reading that results from the interpretation of identical microscopical preparations when examined with two different systems of lenses with two different diameters.

Furthermore, it must be remembered that the x-ray photograph is not always capable of solving the question of the diagnosis of pulmonary tuberculosis. It is only a great help in many initial cases. Other means are often necessary. Of course, we must here exclude the chemical and the bacteriological examination of the sputum as a good means of diagnosis. That belongs to a primitive age, so to speak. He who expects to make an early diagnosis based on an examination of the sputum (even though conducted with the best and finest of technique) may be considered a dangerous physician. And in regard to this point we find ourselves unfortunately confronted with a medical mentality that must be entirely renewed; the technical medical education reflects the effects of that great human law that makes our minds susceptible to that inertia which our mentality seems to possess in relation to all scientific discoveries.

Another observation that is surely of importance in achieving an early diagnosis is the thermometric. Yet its value may very easily be overemphasized, particularly when applied in connection with the Diagnostic Centers of our discussion. If thermometric observation is to be at all useful, the temperature of the patient should be taken frequently (oral or rectal only) in relation to the different periods of the day, often after proof of fatigue or muscular exertion. And here the ever-present human element appears, with the inexperienced personnel on one hand, and on the other the types of patients under observation: the rowdy, the diffident, the insincere. The experiences of the Diagnostic Centers prove that the thermometric observation

under such circumstances is at least of small value.

One of the valuable discoveries of the Centers has been the importance of the laryngological examination, revealing clinically at an early stage the existence of a process yet latent in the rest of the body. This examination has now been established as a routine procedure, and the helpful data acquired with its assistance are almost astounding. Many forms of infiltration lacking the characteristics given as peculiar to tuberculous infiltration (paresis of the vocal chords) have been discovered in individuals who presented only a slight bronchial adenopathy or some other slight and uncertain tuberculous stigmata. The assistance of such findings has been considerable since it has provided the opportunity for confirming a diagnosis of a very delicate clinical character; further, it has served as a decisive factor in making such a diagnosis. Cases have often been kept under observation where the suspicion was strong, but the mind was still doubtful, and it was due to the confirming revelations of the laryngological examination that the end in view was achieved, which in our present discussion is the discharge from the army. Subsequent clinical facts that the patient revealed plainly confirmed the diagnosis. In fact, the conclusions developed by the aid of this particular means of diagnosis have been such that we can hesitate no longer in declaring that the results obtainable from the systematic examination of the larynx are quite as important (and often more so) than the results of any other means of examination and of diagnosis. Frequently it is only with this examination that the presence of the disease may be even suspected.

We have said before that a definite diagnosis is only achieved by the proper coordination, the contrast, the interpretation, and the criticism of the various elements gathered through the different diagnostic investigations. We must remember the nature of the Diagnostic Centers and the finality of their findings; the diagnoses pronounced there have a complex and ultra-individual finality. The early diagnosis of tuberculosis, then, must be considered from this limited point of view.

As a result we have a true *military diagnosis of tuberculosis*, and this theory, first expressed by Maragliano, is neither artificial nor sensational, but really corresponds to an actual reality. The medicolegal valuation of the military surgeon involves the responsibility of the physician, the future of the patient, and the fiscal and administrative responsibility of the government. To appreciate that, and demonstrate it practically, is a very difficult thing to do, and causes many errors, either in excess or in defect. But under the present system the elements of the objective conditions are all gathered into two great categories by the experienced authorities in the Italian service.

These are (A) Criteria of Certainty and (B) Criteria of Presumption. These may be examined in detail as follows:

A. Criteria of Certainty for a Definite Diagnosis.

1. When the result of the examination reveals the presence of the tubercle bacillus.
2. When there is a positive laryngeal localization.

3. (a) When the result of the examination of the sputum is negative, *but* (b) the radiological examination is positive, beginning with the pictures of bronchopneumonia and pleurisy, and followed to their respective possible conclusions, *even when* (c) the stethoscopic examination is negative.
4. (a) When the examination of the sputum is negative, *but* (b) the radiological examination is positive (see 3 b) and (c) the stethoscopic examination is positive.

With these formulæ it would appear that all varieties of tuberculosis can be classified, including the latent forms (3) and the laryngeal (4 c). The term *negative stethoscopical examination* signifies the absence of pathological alteration of the respiration, in the same manner as the opposite is meant by the *positive* stethoscopical examination. It is clear that they should not be assumed as decisive unless confronted and confirmed by the radiological findings.

No diagnostic certainty (that is, the discharge of the soldier) is attributed to the radiological examination unless there is found (2) bronchopulmonary or pleuritic lesions, and not to adenitis or peribronchitis only.

The formulæ of Criteria of Certainty may be outlined as follows:

- I. Examination of the sputum, positive.
- II. Laryngological examination, positive.
- III. Examination of the sputum, negative.
Radiological examination, positive.
Stethoscopical examination, negative.
- IV. Examination of the sputum, negative.
Radiological examination, positive.
Stethoscopical examination, positive.

In the valuation of the Criteria of Presumption we must be even more cautious, but proceeding from the simple to the complex, from that which is easy to that which is difficult, the following conditions provide adequate expressions. It must be remembered that these criteria are made the subject of suspect cases.

B. Criteria of Presumption for a Definite Diagnosis

1. (a) When the examination of the sputum is negative *but* (b) while the stethoscopical examination is negative, (c) the radiological examination (from the type of the bronchopneumonia and of the pleurisy on to their respective possible conclusions) (as in A 3b) is positive (including adenitis and peribronchitis), and (d) the symptoms of general infection are present.
2. (a) When the examination of the sputum is negative, *but* (b) the stethoscopical examination is positive and (c) the radiological examination is positive, although (d) the general signs of infection are absent.
3. (a) When the examination of the sputum is negative, *but* (b) while the stethoscopical examination is negative (c) the radiological examination is positive, although (d) the general signs of the infection are absent.

Outlining the formulæ of Criteria of Presumption, we have the following:

- I. Examination of the sputum, negative.
Stethoscopical examination, negative.
Radiological examination, positive.
General symptoms, positive.
- II. Examination of the sputum, negative.
Stethoscopical examination, positive.
Radiological examination, positive.
General symptoms, negative.
- III. Examination of the sputum, negative.
Stethoscopical examination, negative.
Radiological examination, positive.
General symptoms, negative.

These formulæ are not artificial creations, but rather a tentative reproduction of the most common varieties of clinical conditions in which the individual cases come under the observation of the military surgeon. They must not be construed as clinical definitions of the morbid varieties of the infection, but as *orientations of the criteria* which seem justifiable, and which can well be used in practice by tuberculosis specialists.

From the military point of view the realization of criteria of certainty naturally imposes upon the examining physician the duty of discharging the patient from the army, while the realization *only* of the criteria of presumption will render him uncertain as to his course, an uncertainty that will oscillate from a maximum to a minimum. In the first instance, a leave of absence is granted. These leaves may be for four, six, nine, or twelve months, postponing definite judgment to later observation. At the end of the furlough the soldier will return—not to his regiment, but to the Diagnostic Center which has pronounced the diagnosis or judgment on the case. This provision allows the physician again to examine the patient during another period of the disease, thus making use of elements that the case did not possess at the time of the first examination. It also guarantees to the soldier the advantage of being again examined by the same physicians who have pronounced the first diagnosis, and who now have all the additional data which may have been made evident, and which may have come within the range of observation. In this way a definite decision may be achieved. The operation of this system of furloughs has encouraged its use. If it should occur that presumptive criteria are almost lacking, the soldier is detailed to sedentary service.

In the zone of military operation there have been provided local Diagnostic Centers for those men who show signs of tuberculous infection. These Centers are a part of the local base hospitals, but are thoroughly isolated therefrom. Their structural arrangement is uniform throughout the army.

Observing the system employed in the operation of such a local Diagnostic Center, we find it housed in five pavilions, four of which are each divided by a central corridor into two wards. A ward contains twenty beds. The fifth pavilion has five spacious rooms, two of which are for patients, three being reserved for the x-ray department.

The distribution of patients in the different pavilions is as follows: The first is used for the reception of new cases; the second is used for purposes of observation; the third receives the "closed," and the fourth the "open" tuberculous forms. The

left ward of the fourth pavilion is reserved for those patients whose condition is such that they are not susceptible of transportation. These are cases in which tuberculous localizations have been ascertained bacteriologically.

The patient entering the Center with the diagnosis of pulmonary tuberculosis is escorted to the reception room in the first pavilion, where he discards all his clothes. Thence he is admitted into the ward, unless the clinical record shows that his sputum has been found positive for the Koch bacillus. If that is the case, he is sent directly to the left ward of the fourth pavilion, as noted above.

The day following the patient's entrance the examination of the sputum is made in the laboratory attached to the Center. If the examination is positive the patient is transferred to the fifth pavilion. If negative, he is placed in the second pavilion, where he remains until the investigation of all data and the clinical as well as the radiological examination have permitted a diagnosis.

The examination of the patient consumes, on an average, six days. However, it must be understood that the actual examination does not require all of that time, for those who are discharged by reason of the disease, or allowed furloughs, must remain until all necessary measures coincident with military administration have been observed. In certain instances the men are detained for a longer period in order to renew all clinical, bacteriological, and radiological researches.

In any case, when the diagnosis of tuberculosis is not reached, if the patient is not found to be affected by any disease whatsoever, he is ordered to return to his regiment. This may occur directly, or after a leave of absence. However, if he is found to be in an impoverished physical state, or in a condition of marked oligemia (although not declared affected by tuberculosis), or if he is in any way affected by a condition that renders him temporarily unfit for military service in the first line, he receives some other assignment while arrangements are made to grant him a leave of absence. This leave is rarely longer than three months.

Those who are not affected by pulmonary tuberculosis, but who show signs of other diseases, such as organic heart affection, general and serious constitutional impairment, etc., are sent to the General Central Hospital, which takes care of such cases.

Those who are affected by pulmonary tuberculosis are subject to procedures which differ according to the findings of the sputum examination. The pulmonary cases which are found to be closed forms of the disease are sent to the Central Hospital, from which, if necessary, they are transferred to the Sanatoria. If a pulmonary case develops an open form the man is immediately sent home, definitely discharged from the army. In that case a medical report is prepared and all clinical, bacteriological, laryngological, and radiological records are incorporated therein, together with a chart of the patient's temperature, and the whole forwarded forthwith to the Central Sanitary Board at the War Office. There the papers are viséd and returned to the hospital whence they originated, where the discharge is made effective. If the case is that of an officer, the declaration of the disease must be made

by a special Board of Medical Officers, thereafter to be viséd by the surgeon in charge of the hospital and by the surgeon in charge of the Medical Department of the Army Corps of the relative war zone.

This procedure takes four or five days for a private and about two weeks for an officer.

Before the patient returns home he must first pass through the quarantine department of the Army Corps, which is established for the prevention of infection of the war zone with the various contagious diseases existent in civil communities, and vice versa. The civilian health board of the community wherein the patient resides is informed of his discharge, so that it may exercise proper care and supervision.

Plans are now being made for further treatment of those patients who have been discharged from the army, instead of returning them to the more or less unrestricted freedom of civil life. These plans, when developed and placed in operation, will not only protect society, but will serve for educational purposes, since it has been found that civilian authorities (local health boards) do not always provide the proper protection.

One of these local Diagnostic Centers received 1,327 patients during the first seven months of 1917, with an average of 7.3 patients per day. There was a progressive diminution of the figures of the closed forms which shows an equally progressive improvement of the technique of selection. The following table gives the movement in detail.

TABLE SHOWING THE RETURNS FROM THE DIAGNOSTIC CENTER OF THE THIRD ARMY CORPS FROM FEBRUARY TO JULY, 1917

RECOGNIZED AS AFFECTED BY PULMONARY TUBERCULOSIS.														
Month.	Suspect Cases Admitted.		With Positive Sputum.		With Negative Sputum.		Totals.		Recognized as Healthy and Returned to Organization.		Discharged but not Tuberculous.		Totals.	
			No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
February.	166	36	21.6	67	40.4	103	62	27	16.3	36	21.7	63	38	
March....	212	45	21.2	44	20.7	89	41.9	47	22.2	76	35.9	123	58.1	
April.....	225	46	20.5	34	15.1	80	35.6	57	25.3	88	39.1	145	64.4	
May.....	226	42	18.6	18	7.9	60	26.5	19	8.4	147	65.1	166	73.5	
June.....	207	45	21.7	19	9.2	64	30.9	11	5.4	132	63.7	143	69.1	
July.....	291	66	22.6	22	7.6	88	30.2	6	2.1	197	67.7	203	69.8	
Total....	1327	280	21.1	204	15.3	484	36.4	167	12.7	676	50.9	843	63.6	

From the clinical point of view it is interesting to examine the data given above. Rare indeed are the third-stage cases (*i. e.* seriously diffused and cavity forms) which reach 9.9 per cent., while the initial infiltration of the apices reach 68.7 per cent. Equally rare have been the florid rapid cases, showing only 2.6 per cent.; and the number of dormant-form cases, whether light or serious, is small indeed.

The anamnesis of each patient has proved to be of great importance, for with its aid the disease can be traced from its very beginning, hereditary faults frequently being revealed by their appearance. We must include, also, the evidences of a weak constitution, lack of resistance to the demands of military life, past history of frequent spells of

coughing which, much to the shame of the medical profession, are improperly called "colds." And we may add to the foregoing the lymphatic and scrofulous manifestations of infancy, the past pleurisy—all of which doubtless form valuable elements of presumption. Some patients date the appearance of the disease from an attack of the grippe; some to a definite attack of hemorrhage that appeared after or during exertion or some particular fatigue. In other cases it was attributed to an attack of pleurisy, or any acute disease, such as typhoid fever, etc. In still others it was traced to a trauma, a wound, to wounds of the lungs by bullets, blows on the chest, sudden displacement of the air due to explosions, or to the inhalation of poisonous gases, and in one case to antityphoid vaccination.

Thus, from the gathering of different data the modern idea as to the epidemiology of tuberculosis and its pathology has been again vindicated; that is, that the disease in the adult must be generally considered as the *awakening* of an old process or lesion, or of a latent infection. It would seem that the application of these findings to tuberculosis in the army develops a very important fact, and that is that military life itself does not initiate the disease, but it does provide conditions which diminish the resistance of the body so that it is not difficult for an old process or a latent focus to awaken to activity.

Consequently, and in all justice, all cases of tuberculosis that are discovered among the enlisted men should be considered as having been caused by the war. This conclusion seems to be the most natural one, for it is undeniable that without the hardships, the active operations in the field, the trauma, or the irritating action of poisonous gases, etc., the majority of those cases would have remained latent or inactive. So long as the men were living under civilian conditions they were apparently healthy, not only supporting themselves but their dependents. It required the rigors of military life and the hardships of the battlefield to awaken the disease and render them invalided, possibly for the rest of their lives.

And by means of this wise plan of the Italian government there has been provided a way to deal generously with those unfortunate men who have come under the shadow of the disease—who were not even so fortunate as to fall on the field of battle.

ACUTE LARYNGITIS WITH EDEMA OF THE GLOTTIS;

REPORT OF THREE CASES REQUIRING INTUBATION; RECOVERY.

By LOUIS FISCHER, M.D.,
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DURING the past winter I have been impressed with the large number of cases of laryngeal stenosis requiring intubation. In almost all of these cases there was an acute catarrhal rhinitis, with marked lassitude, cough, anorexia, and fever. The temperature averaged 102° on the first day of illness, and rarely reached higher than 103° on the second or third day. The pulse rate showed greater variation, as it ranged between 140 and 160. In some of the very toxic cases the pulse rate dropped from

100 to 90, 80, or even 70 after three days of illness. In all of the cases the pulse was irregular and intermitting.

Cultures taken from the throat showed the absence of the Klebs-Loeffler bacillus, but smears showed, in addition to the *Micrococcus catarrhalis* and the pneumococcus, the *Staphylococcus pyogenes aureus*. As more than one member of a family was affected, it was believed to be a communicable affection; hence isolation was ordered whenever possible.

CASE I.—M. R., eighteen months old, was seen by me, in consultation with Dr. S. Herrmann, on the ninth day of illness, with the following history: Present illness began with cough, rhinitis, and fever; later spasmodic cough, croup, and hoarseness. Fifteen thousand units of diphtheria antitoxin was injected within twenty-four hours. Stenosis was so severe that intubation was performed. Extubation was followed in one-half hour by severe stenosis requiring reintubation. The tube remained in the larynx two days, when a severe coughing paroxysm associated with cyanosis followed. The tube could not be palpated in the larynx and was probably swallowed. A new tube was then inserted, this being the third intubation. The temperature rose to 105° and gradually came down to 100.8°.

When first seen by me the pulse was 120, respiration 36. Owing to the strict supervision demanded by intubated cases I sent the child to the Minturn Hospital September 21, the ninth day of illness. I extubated the two-year size tube and inserted a three-year size. This was the fourth intubation. During the following week there was thorough oxygenation, no stenosis, no retraction, heart sounds clear, color good, and no cyanosis. On September 27 the patient was extubated. Forty minutes later it was necessary to reintubate. Six hours later the tube was swallowed. I then introduced a size two tube dipped in hot gelatine containing 10 per cent. ichthyol. This medicated tube was left in the larynx five days when the patient swallowed it. Reintubation was unnecessary as there was marked retraction for a few moments only. Patient was discharged cured a few days later.

CASE II.—Milton F., seven years old, was seen by me in December, 1917, in consultation with Drs. Ritter, Clinton, and Feinberg, on the second day of illness. He had received 5,000 units of diphtheria antitoxin. There was cyanosis, with marked retraction in the subclavicular region and laryngeal stridor.

From the previous history I learned that the child had had an attack of diphtheria four years ago and received antitoxin. Later had an attack of nephritis. Has been subject to recurring tonsillitis every winter. Has had chickenpox, and measles twice.

The pulse was irregular and intermitting, the skin was livid in color due to deficient oxygenation. Wheezing with coarse mucous râles was heard on both sides of the chest posteriorly. There was slight dullness on percussion at the base of both lungs, and with acute pulmonary congestion the beginning of pneumonia was suspected.

Several attempts at intubation had previously been made and it was with considerable difficulty that I introduced a five-year tube. The epiglottis was thickened and almost rigid. No force was used, but the tube was slowly guided into the chink of the glottis. The cyanosis disappeared after a large quantity of tenacious secretion was coughed up.

The child was sent to the Minturn Hospital for better supervision and nursing. Five thousand units of diphtheria antitoxin was ordered on admission. Steam vapor was used to relieve coughing paroxysms, and a hypodermic injection of codeine, $\frac{1}{4}$ grain, was given at 8.45 P.M., and repeated in two hours. The condition improved. The appetite improved until the fifth day when a severe urticaria covered the entire body. This serum rash caused considerable itching, which was relieved by bicarbonate of soda paste applied over the body, also a 5-minim hypodermic injection of adrenalin chloride, 1 to 1,000. The tube was removed on the seventh day with no recurring stenosis. Hoarseness and cough continued for a number of days. This was relieved by steam and small doses of glycerin.

CASE III.—M. M., two years old, was seen by me, in consultation with Dr. J. Littenberg, with the following history: Breast-fed infant, walking at eighteen months. Had a convulsion six months ago. The temperature when first seen was 105°, pulse 150, respiration 36. Had a convulsion in the morning lasting one hour. There was labored breathing, with marked retraction of the chest and laryngeal stenosis. Five thousand units of diphtheria antitoxin had been injected. It was decided to intubate. A two-year tube was inserted. Immediately following the intubation the child had a severe convulsion. The hands and feet were cyanotic. I removed the two-year tube and inserted a one-year tube. This seemed to relieve the labored breathing, the color returned, and the child became more comfortable. The child was seen again four hours later when it was found that the breathing was quiet; there was no retraction of the chest.

A consolidation of the lung was located and extubation was performed. Laryngeal stenosis did not recur. The pneumonia progressed favorably and the child made an uneventful recovery.

It is interesting to note that the tube remained in the larynx but a few hours, which gave sufficient time to cough up catarrhal secretions, and sufficient mechanical dilatation was evidently accomplished by the tube remaining *in situ* for four hours. The culture was negative as to the Klebs-Loeffler bacillus.

From a study of the three cases here described, we find all presented the same class of symptoms—rhinitis and catarrhal manifestations of the nasopharyngeal tract several days prior to the acute laryngeal stenosis. There was fever in all cases. The temperature ranged between 102° and 105°; it invariably rose two degrees after antitoxin was administered. The pulse rate was accelerated and rose from 110 to 140 in several cases. The respirations were labored and the frequency was double that of the normal child. These catarrhal symptoms were associated with a barking, rasping, or croupy cough, and in several cases with marked respiratory interference. The cyanosis of the lips and face was also manifest in the hands and fingers—a distinct circulatory disturbance. There were also marked retraction of the chest walls, overacting intercostal muscles, and accelerated and difficult breathing. The retraction at the ensiform cartilage and at the epigastrium was distressing at each inspiration.

Deductions from the symptoms just mentioned would indicate that a stenosis of the larynx was present. On palpation the epiglottis was found swollen, the larynx was thickened, hardened, and infiltrated, and it was with considerable difficulty that an intubation tube adapted for the age was introduced. Such tube usually remained in the larynx two or three weeks, and was then coughed up. In one case the tube remained but four hours. In another case the child coughed up and swallowed tubes twice in one week.

Several points should be remembered in the management of laryngeal edema. Be careful not to force a tube into the larynx even though the size may be suited to the child's age. In one case an attempt was made to introduce a three-year tube in a child of three years, the tube could not be inserted, and apnea followed, which immediately improved on withdrawal of the distal portion of the tube. A two-year tube was also introduced with difficulty, so a one-year tube was tried. This proved to be the proper sized tube for that particular case. The clinical picture changed within six hours, the edema subsided, and as the small tube was coughed up a two-year tube was used. This tube remained *in*

situ for two days, and was then coughed up. Twenty minutes later a three-year tube was inserted. This tube remained six days. On extubation stenosis recurred after twenty minutes. A two-year tube covered with a gelatin film containing 5 per cent. of ichthyol was then inserted. The child wore this tube for several days, finally coughed up the tube, and has remained well.

All cases should be given sufficient antitoxin. Do not expect a laryngeal stenosis to improve by giving less than 5,000 to 10,000 units of antitoxin. It is preposterous to expect specific results in membranous or even nonmembranous laryngitis when thickening due to edema causes stenosis. There is marked danger from the acute swelling unless the same is modified by intubation. But time should not be lost. When, however, intubation has accomplished its result in relieving stenosis, as in the third case reported by me, then the tube should be removed, otherwise it acts as a foreign body.

A laryngeal spray of 1-2000 adrenalin chloride, or a local application of adrenalin by means of a swab, several times a day, has a very soothing effect. One-grain doses of sodium iodide will relieve and reduce the swelling in the larynx. If the child is very anemic, 5 to 10 drop doses of syrup of iodide of iron, three times a day after meals, is a good restorative and should be tried.

The after-treatment consisted in giving one-grain doses of thyroid extract, three times a day for one week. This thyroid extract was given to stimulate the internal secretions and to supply the supposed deficiency of thyroid. This was followed by Basham's mixture, one drachm three times a day after meals. To stimulate the circulation tepid tub baths followed by cold spray or shower and massage were ordered daily. The bath and shower were given to stimulate the circulation and as a vasomotor tonic. Excellent results followed this plan of treatment both as to the circulation and as a general restorative.

Résumé of Diet for a Child of Two Years or Older.—During the febrile stage skimmed milk and sour (Bulgarian) milk were ordered. For thirst orange juice and pineapple juice were given. After the febrile period subsided farina, oatmeal, cream of wheat, steamed rice, junket, spinach, raw scraped apple, apple sauce, grapes, ice cream, toast, zwiebach, and jelly were given. Later chicken and lamb were added to the dietary.

155 WEST EIGHTY-FIFTH STREET.

DIFFERENTIAL DIAGNOSIS AND TREATMENT OF FOLLICULAR CONJUNCTIVITIS.*

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LAST year I had the honor to read before you a paper on the Diagnosis and Treatment of Trachoma.† Since follicular conjunctivitis is rather intimately associated with trachoma in the work we are

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doing at the Children's Clinics of the Bureau of Child Hygiene, it has seemed advisable to follow up my former paper with a similar one on follicular conjunctivitis. A very large proportion of the children sent to the Children's Clinics by the medical school inspectors and school nurses for chronic sore eyes do not have trachoma, but do have follicular conjunctivitis. In the early years of the eye service of the Department of Health when the trachoma crusade was being put into effect under the leadership of Dr. H. W. Wootton there was naturally some confusion in the differential diagnosis between trachoma and follicular conjunctivitis, and many cases which we would now call follicular conjunctivitis were included under a hasty diagnosis of trachoma. Much good and no harm was accomplished by the trachoma crusade despite this confusion in differential diagnosis, since our vigorous medical and surgical methods resulted in the cure of these cases of follicular conjunctivitis as well as of cases of genuine trachoma. As even now there seems to be some lack of clearness in the differential diagnosis of these two diseases, as shown by our varying diagnostic data on case histories, I am venturing to present to you my own ideas of this differential diagnosis in the hope that a discussion of my paper by my associates in the eye service may prove useful in systematizing our clinical records and in increasing the efficiency of our work in the Children's Clinics.

The clinical picture of a case of severe trachoma is perhaps distinctive enough to avoid any error in diagnosis, but it is the border line cases and the cases of moderate degree of severity complicated by mixed infection which have led in the past to differences of opinion as to what is or is not trachoma. Unfortunately these border line cases and these mixed infection cases are in the great majority so far as frequency of occurrence here in New York City is concerned, and therefore for us who are treating the children for eye disease in the Children's Clinics this question of differential diagnosis between trachoma and follicular conjunctivitis becomes most important for the success of our work in child hygiene.

In order to be clear and concise in giving the differential diagnosis between follicular conjunctivitis and trachoma, I shall be forced to appear dogmatic and perhaps unduly positive in my statements, but I shall be grateful for any differences of opinion you may express. In the first place follicular conjunctivitis is essentially an exceedingly chronic condition, and in the absence of a mixed infection presents no secretion at any time of mucus, nor any evidence of inflammatory reaction of any sort. Trachoma on the other hand, while also here in New York usually a chronic disease, does show inflammatory exacerbations at intervals and may have considerable secretion of mucus during these exacerbations. Follicular conjunctivitis never gives pannus nor involves the cornea even where the follicles are large and abundant. Trachoma, if untreated or badly treated, will sooner or later give some corneal involvement, possibly not pannus but surely a corneal haze or circumcorneal ciliary injection. Trachoma can be divided in its progressive course into three stages, ending unless cured by treatment in complete cicatrization of the

palpebral conjunctiva. This cicatrization of the conjunctiva is nature's method of cure, but before its completion vision is apt to be irretrievably damaged by corneal complications. Our aim in treatment should be therefore to get rid of the disease before corneal complications have opportunity to develop. Follicular conjunctivitis presents no distinctive stages, nor does it ever give any cicatrization of the conjunctiva. Apparently it begins in the same form in which it continues and merely extends and enlarges its follicles as first seen. Follicular conjunctivitis is largely a disease of the superficial layers of the conjunctiva and is localized therein, while trachoma always involves the deeper layers down to the tarsal cartilage. On inspection of a case of follicular conjunctivitis, for this reason, we see no marked change in the capillaries either in size or number, and the tissue between the follicles on the surface of the conjunctiva appears nearly normal both in color and lustre. In trachoma on the other hand the characteristic thickening and swelling of the whole lid structure causes the capillaries to be enlarged and the conjunctival surface to be everywhere altered both in appearance and color, while the trachoma granulations tend to coalesce into masses surrounded by a general infiltration and vascularization of the entire conjunctival tissue. In follicular conjunctivitis, as we usually first see it in New York City schools, the follicles often begin as small pinkish eminences sparsely arranged in parallel rows on the surface of the lower lid, and only later do they develop by increase in size and number to cover a good portion of the lid surface even encroaching en masse upon the fornix as sago-grain vesicles. Trachoma granules seem to involve both lids early in the disease and are particularly abundant in the upper fornix. A very early sign of trachoma, which I have never seen stated in any textbook or article, but which I have noticed time and again, is an involvement of the ocular conjunctiva in the form of a ring of gelatinous granules deep in the fornix and gradually spreading forward to a considerable distance on the eyeball. This sign can be seen early in trachoma by causing the patient to look down very strongly and then gently raising, not everting the upper lid. It never occurs in follicular conjunctivitis, and seen in very early trachoma, when the inflammatory reaction is just beginning, is often overlooked. I think it always occurs in acute trachoma, or in trachoma with a mixed infection causing an inflammatory exacerbation of vesicular infiltration. It is not the uniform ocular vascularization we see in acute catarrhal conjunctivitis, and I believe is of some value as a pathognomonic symptom of trachoma.

In our work in the Children's Clinic it is *not* the well developed cases of either trachoma or follicular conjunctivitis which form the larger part of our eye service. Due to our efficient medical school inspection cases of follicular conjunctivitis and trachoma are sent to us early in their diseased condition, and we as oculists are called upon to make this differential diagnosis often before there are typical symptoms of either disease. As these incipient and border line cases must have a correct diagnosis made in order to give proper treatment, it is up to us to do our best to avoid error. Where

we see a child come to us with the upper lid surface entirely normal and the fornices not involved, but with a few rows of follicles on the lower lid, with no secretion of any kind, and the lower lid itself not vesicular that child does not have trachoma, but does have slight follicular conjunctivitis or folliculosis at any rate. But it is where there are granular masses irregularly distributed, even if confined to the lower lid, that uncertainty develops as to whether we do or do not have an incipient trachoma. I personally depend largely upon a study of the differential points I have just previously cited, and particularly to find out whether the diseased condition is superficial or deep. If I think there is even a beginning of swelling and thickening of the lid structure, I consider it trachoma as a provisional diagnosis. It does no harm to be cautious and to treat these cases as if they might be trachoma. I do not mean by that to treat these incipient cases with any radical means, but to keep them under close observation to see if the characteristic trachoma lesion does not develop either in the fornix or on the upper lid near the commissural fissures. Most of these cases do later on turn out to be trachoma.

As to treatment, I believe follicular conjunctivitis should be treated carefully in our Children's Clinics not because it is in itself a dangerous disease, but because it keeps the eye in an abnormal state where more serious infection is practically invited. For instance, the normal, healthy eye is usually resistant to chronic trachoma infection, as I have stated elsewhere, but given an eye affected with follicular conjunctivitis a trachoma infection is quite likely to follow on contact with another child who has trachoma. This explains, I believe, some of those cases which apparently begin as a follicular conjunctivitis and then develop suspicious symptoms leading us to doubt our first diagnosis. In these cases I convinced we have trachoma succeeding an original follicular condition. Mixed infections do occur.

Both follicular conjunctivitis and trachoma are apparently much less prevalent than in 1902 when the trachoma crusade began in New York City. As sanitary conditions have improved immensely of recent years, and as medical inspection is now more rigid and efficient, it may very well be that a considerable part of this diminution of infectious eye diseases is due to the general sanitary improvement as well as to the effectiveness of our treatment of these diseases in the Children's Clinics.

We do not now urge expression for those cases we know to be follicular conjunctivitis, although if it were justifiable, which it is not, many severe cases of follicular conjunctivitis with large abundant follicles could be easily cured by expression. As to medical means, like most chronic diseases, each oculist has his favorite application for follicular conjunctivitis; so it is with much diffidence I suggest citrate of copper ointment, 5 per cent, thoroughly applied to the follicles of the conjunctival surface. Massage, either in the form of the bichloride rub or of ophthalmol solution on a cotton wrapped applicator, will often cause the speedy absorption of the follicles of this disease. The main thought I leave with you in closing is that persistent and thorough massage treatment will accomplish far more cures

of follicular conjunctivitis than any special drug intermittently applied.

There are two suggestions I wish to offer to our staff officers on this subject of the treatment of follicular conjunctivitis and trachoma. First, it has occurred to me that a table of the differential diagnosis between follicular conjunctivitis and trachoma might be useful for the guidance of medical school inspectors and field nurses. In view of the possible extension of the work of the Children's Clinics in disease of the eye to other schools it seems to me important that the medical inspectors detailed in default of a sufficient supply of experienced oculists be trained to avoid mistaken diagnosis by the use of some such diagnostic table as I have the honor to present for your consideration.

<i>Follicular Conjunctivitis</i>	<i>Trachoma.</i>
Begins as small reddish elevations, sparsely arranged in rows on the conjunctival surface of the lower lid, extends later to the fornices, where large sago-grain follicles may extrude on everting the lids. Conjunctival surface between the follicles approximately normal.	Begins as irregularly placed granulations on both lids and fornices. Each fornix involved early in the disease. A ring of ocular congestion covered with glistening granulations extends outwards from each fornix over the eyeball. Conjunctival tissue is involved over entire surface of each lid early in the course of trachoma.
Blood vessels apt to be clear and distinct to view.	Blood vessels obscured by congestive infiltration of entire palpebral surface.
Lesion more superficial than that of trachoma, the follicles projecting from the conjunctival surface and not involving the entire lid structure.	Lesion deep, involving tissue beneath the conjunctiva. If untreated or badly treated, is sure to involve the cornea sooner or later. Terminates in extensive formation of scar tissue, whose roughened surface damages the transparency of the cornea.
Pannus never occurs.	Pannus apt to occur in long-standing cases.
Never involves the cornea in uncomplicated stage.	Mucopurulent secretion in acute stage and during any exacerbation.
No secretion of muco-pus. Very slightly communicable. Need not be excluded from school at any time.	A contagious disease.
	To be excluded from school.

Secondly, I respectfully suggest that an effort be made, perhaps through the publications of the Bureau of Public Health Education, to keep the medical profession of New York City informed of the work of the Children's Clinics, which is in my estimation one of the most practical and efficient branches of our public health service. In this way it appears to me misunderstanding might be avoided and the cordial support of the medical profession secured, an object which it is highly desirable we should obtain if our work for the children in the public schools is to be as successful in the future as in the past. In this day of the child the Cinderella of the Department of Health should emerge from her retirement and gain her merited recognition in preventive medicine and public hygiene.

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Rasmussen's Aneurysms.—Letulle refers to profuse hemoptyses from lung cavities in phthisis which are due to aneurysmal dilatations of a branch of the pulmonary artery in the cavity wall. This ectasia comes about secondarily to vascular changes induced by the presence of the cavity; concerning the mechanism of the process several causal factors may coexist. However produced the aneurysmal sac tends to rupture from progressive thinning of its wall as a result of secondary degeneration.—*Archives Médicales Belges.*

THE USE OF HORMONE EQUATIONS IN ACUTE INFECTIOUS DISEASES.

BY C. R. CARPENTER, M.D.,

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ORGANOTHERAPY has made great strides in the last twenty years, but the bulk of experience has been in its application to the treatment of functional and chronic diseases. Latterly much attention has been given to the study and treatment of organic disease of the ductless glands, and so absorbing has become this interesting and important study that the possible use of hormone therapy in acute infectious diseases has been almost overlooked.

Aside from malarial infections, trypanosomiasis, and more recently poliomyelitis, I know of no acute infections that have been successfully treated by this method. The experience of Roux and Lacomme in the treatment of trypanosomiasis has not been duplicated, and the treatment of poliomyelitis with adrenalin, while undoubtedly beneficial, was not in any sense specific.

The attitude of the profession towards the subject, that is, hormone treatment in general, is curious, to say the least, and shows how little we appreciate the tremendous importance of the work that is being done along this line.

Is it not a strange phase of medical science that while we have for centuries recognized that the body contained within it forces that endow it with a distinct resistance to the attacks of disease; that while we have for an equal length of time known that these same or similar forces also endowed the body with a power to recover from disease, we have never made any definite, organized attempt to locate these forces, isolate them, and use them in an intelligent, voluntary manner?

One of the commonest facts of life is that some people are healthy and some people are not. Some people are always "taking" this or that disease. Others do not readily take any disease. It is a common observation that several children in the same family may be exposed to the same disease, say measles or scarlet fever, part of them may take it and the others escape.

Formerly we used to explain this by saying, "Yes, Jimmie has a good constitution. He doesn't take the disease. He is all right, but Willie and Mary haven't so good a constitution." This with a grave shake of the head. In these days we use the word resistance in much the same cryptic manner. The term "good constitution" is now unconstitutional and is not used so much. Times have changed and with the changing have given us a new viewpoint of the same old thing with a different name.

The same is true of our attitude toward the treatment of disease. For centuries we have been deferring to that mysterious aggregation of forces which we know as the natural recuperative power of the body. The greater the advance in medicine, the greater has been our reliance upon it.

It is not long since it was a common thing in the treatment of severe cases for the consulting physicians to say, "Well, doctor, this is a serious case. We will just have to adopt an expectant treatment, etc., etc." Then they would all look as wise as they conscientiously could, for that meant simply that they did not know what to do for the patient, but

they did know that if they would just keep their hands off old mother Nature would cure the patient, perhaps, maybe, if possible. In other words, the profession had become so clearly conscious of the inadequacy of the treatment at their command, and were imbued with so much confidence in the natural power of the body to recover from disease that they felt they were giving the patient his best chance for recovery if they took no chances on interfering with the normal action of the vital forces.

Now it is interesting to inquire just how far beyond this point of view we have gone to-day. The physician to-day examines the blood, the sputum, the secretions of the throat and nose, the urine, feces, and spinal fluid, until he finds the invading germ or germs. And then he says, perhaps, "Well, we have here a mixed infection. I think we will use a stayphylo-strepto-pneumococcus-influenza combination." And then he says for the benefit of the unlearned, "Of course the best authorities admit freely that vaccines do not directly affect the disease, but experience has shown that they do have the power of arousing the defensive mechanism of the body. And when so aroused we find that this defensive mechanism throws out into the circulation what are called antibodies, which in turn destroy the germs, and in many cases their toxins, as well as stimulate the leucocytes to do the same."

How far have we gone? We have gone so far that we have gotten a new viewpoint of the same age-old vital forces and given them a new name. They are now called the defensive mechanism, and we have developed a method of using this mechanism that in directness at least is comparable to feeding liver to the cat that killed the rat that ate the malt that lay in the house that Jack built.

The wonder of it all is that such brilliant results should have been produced at times by such a method, and we can easily understand why it has so frequently failed. But it demonstrates more clearly that anything else could the first great principle that this paper is intended to lay down: *that the one great source of immunity from disease is within the body and not outside of it.*

Were it otherwise, the human race would have been swept out of existence by its invisible enemies, ancient as the earth itself. And this would have been done before it had time to emerge from a state of barbarism. All the science that man has been able to bring to bear upon the subject has done no more than enable him to assist and blindly stimulate these great forces, hoping and praying that the effect might be good and not evil. Much as the devil worshipper in darkest Africa goes to his fetish and prays, "O, great and powerful spirit, make this man well!"

Is it not about time then that the medical profession began to ask itself seriously, "What is this defensive mechanism? And where is it, that I may take it in my hands, carry it where I please, and use it in an intelligent and voluntary manner to prevent disease during health, and restore health during disease?"

Until very recently it was the prevailing opinion among those who thought enough about it to have an opinion that the source of immunity and resistance to disease lay primarily in the leucocytes. Many possibly cling to this idea. It is not long

since so prominent an investigator as Sir Almroth Wright expressed doubt that this was the case. Such a position is entirely untenable. In the nature of things whatever powers the leucocytes have must be conferred upon them by the organs that produce them. And it is well known that the action of the blood in resisting and overcoming disease germs lies more in the plasma than the leucocytes. It is now generally admitted that the action of the plasma is due to the antibodies contained in it.

But if the presence of antibodies in the plasma determines its effectiveness in combating disease, it becomes a very important matter to determine what these antibodies are, and especially their origin. When we determine their origin, we have determined the source of the body's resistance to disease, its power to recuperate from disease, and hence the source of immunity.

It has been shown by many observers that antibodies are present in the plasma to a greater or lesser extent even in health. When a vaccine is injected under the skin, something is stimulated to throw out more antibodies; something is aroused by this physiological spur. What is it that has been so stimulated?

Now we know that the endocrine organs are constantly throwing out into the circulation their internal secretions in the shape of hormones, which powerfully influence the functions and condition of the body in health and disease. We know too that it is perfectly possible to vary the amount of hormones secreted in several ways. Physiologically these variations are taking place more or less all the time in response to the varying emotions of the individual, sometimes being increased by stimulation of the organs, and sometimes being decreased by depressing emotions.

Again we know that hundreds of competent observers in all parts of the world have shown that it is perfectly easy to increase the amount of hormones secreted at will simply by the administration of the endocrine organs in appropriate form.

If, therefore, a vaccine or antitoxin injected under the skin or into the circulation stimulates anything to throw out antibodies, what is there to be so stimulated except the endocrine organs? And if the endocrine organs are so stimulated, what can they throw out into the circulation except their own hormones?

The answer to these questions suggests the second proposition which it is desired here to formulate: *There is ground for the belief that the antibodies and the hormones are identical.*

Engineers in driving a tunnel through a mountain frequently begin at opposite ends and drive towards each other until they meet. And so we have had two bodies of scientists that have been driving a scientific tunnel through a mountain of mystery. Unconsciously they have been approaching each other. The two ends of the tunnel are right together. Shall we not join them and throw open the tunnel to the traffic of human beings, so that the mountain shall no longer be a mystery? If the antibodies and hormones are identical there is but one conclusion that can be drawn, and this is the third and most important proposition to be

stated: *The endocrine organs constitute the defensive mechanism of the body.*

But no man's opinion or theory in this day of practical things is worth the paper and ink it takes to write it down, unless it is based on the facts of actual experience. And so it is desired to present here, not a theory, but an experience, and that experience translated into facts. No facts will be given that may not be duplicated by any one who will take the trouble to do so.

If the endocrine organs constitute the defensive mechanism of the body, then it is clear that by the administration of those organs or their products we should be able to prevent disease by increasing the body resistance at will; and in cases where disease has already become established in the body we should by the same means be able to restore it to the normal.

The writer first became convinced of the feasibility of such a method in the year 1900 when using the spleen in the treatment of malarial infections. The results of this work were published in 1906 without knowing of the work of Nouveau, which was published in 1902. The next year Paucot published his record-breaking account of his use of the spleen in malarial splenomegaly. Quite as important, however, as the immediate results produced in malarial infections was the discovery of its therapeutic limitations. Spectacular as are its effects in this condition, it failed utterly to give comparable results in other specific fevers. It was at first thought that it was going to prove valuable in typhoid, but subsequent experience disproved this.

But perhaps one of the most important developments from this work was, that in the treatment of hundreds of cases it was found necessary to combine the spleen with the products of other organs to meet special conditions; first with pepsin, to overcome the effects of anemia, and second, with the sex gland to prevent mental effects. The combination with pepsin alone, however, will also prevent mental symptoms, but it is only where the hormonal output of the sex gland is lowered that this effect, that is, mental symptoms, need be feared.

These combinations to meet special conditions suggested the thought that perhaps combinations of the spleen with other organs might give better results in other infections. So a regular campaign of combinations was entered upon, in which not only was the spleen combined with other organs, but other organs were combined without the spleen.

The first thing that suggested itself in regard to such a course was, Would not a combination of extracts of all the endocrine organs meet all conditions and cure all infections? This has been tried by other observers and proved a failure. But individual infections have been found by the writer to yield to special combinations, just as each infection as a rule requires for its treatment its special autogenous vaccine.

But here we find ourselves face to face with a gigantic problem: that of constructing combinations of organs that will produce specific effects in all the many infections that flesh is heir to. The problem that confronted the translators of the Egyptian hieroglyphics was not more hopeless in appearance than this. But to all cryptograms there is a key, we are told, and the key to this mystery

is to be found in the spleen. Although many useful combinations have been made in which the spleen does not occur, all those that have produced the most beneficial effects contain the spleen. So it has come to be looked upon as the central and most important organ of the defensive system; and the most of the building of combinations, or hormone equations, has been done by grouping various organs around the spleen, or by varying the proportions of the same organs.

It is not claimed that hormone equations have been constructed for all infections. Only a very small number out of the many that have been tried have proved specific; but enough it is thought to prove the truth of the principles involved, and blaze the way for the profession, by which, if it will, it may come into its own, and make habitual scientific use of those great vital forces that have so long escaped its grasp.

The infections in which practically specific effects have been produced are pneumonia, acute pneumococcic laryngitis, erysipelas, some pus infections, puerperal sepsis, measles, scarlet fever, and dysentery, both amebic and bacillary.

Although they cannot be classified as acute infectious diseases, it is just as well to mention in this connection, carcinoma and sarcoma. Two cases of the former and one of the latter have quickly disappeared under treatment and have not returned. It is hoped at some future time to present a more detailed account of the treatment of cancer by this method. Epithelioma strangely enough has not yielded to the same hormone equation, but it is thought that a slight change in the proportions may fulfill the indications and produce a similarly happy result.

At present a sufficiently large number of cases has not been treated to demonstrate the degree to which prophylactic results may be expected from hormone equations, but it is confidently expected that only further experience is necessary to show that such results can be relied upon. In prosecuting our investigations along this line, however, we should remember what we have learned by the use of vaccines and serums; that, as in the case of typhoid fever for instance, it requires a slightly different preparation for prophylaxis from that which is effective in clinical treatment. In some conditions, however, as in diphtheria, the same preparation may be used for both prophylaxis and treatment. The same differences may be expected in the use of hormone equations.

Indeed, as the effects of the vaccines and serums may be looked upon as simply an indirect use of the hormones, we should expect that the parallel would not stop here, and it does not. There is also more or less of a reaction, both local and general, where the hormones are used hypodermically, but the reaction is not so violent. The patient in such cases is not made so ill. This is probably due to the fact that the protein content is not so foreign to the circulation.

And yet it seems likely that we must fall back on the argument that primarily it is the introduction of a foreign protein into the circulation that is responsible for the reaction, and hence for the stimulation that produces the increased secretion of hormones. Every infection involves the impair-

ment of a certain group of organs whose hormones are necessary to the maintenance of the hormone balance. Hence if we inject into the circulation, or under the skin, a solution carrying the particular combination of proteins furnished by that group of organs, we have a right to expect, in obedience to Hallion's law, the stimulation of the same group of organs in the patient. Stimulation of an organ or group of organs, from the standpoint of endocrinology, can have but one effect—an increase in the output of hormones peculiar to that group. Hence, the hormone balance is quickly restored; and no germs or toxins can long remain in the circulation when this is done. Constitutional symptoms must cease; and the patient is on the way to recovery.

On the other hand, the internal administration of hormone equations in many cases restores the hormone balance, we must suppose, since constitutional symptoms cease and the patient recovers, without any reaction whatever. The effect is slower and less marked, but none the less certain. We must, therefore, believe that stimulation of the organs of internal secretion may be produced by the mere presence in the circulation of the protein which is characteristic of the group of organs to be stimulated, and which has been converted by the process of digestion into a form which is not foreign to the circulation.

Hence in the hypodermic method it seems to be true that we have a combination of two elements of causation upon which the effect depends: First, as when used internally, there is the presence of the specific protein of the group to be stimulated; and, second, there is an added stimulation due to the fact that the protein is in a form foreign to the circulation.

It is also true that some hormone equations, while markedly specific when given subcutaneously or intramuscularly, do not give comparable effects when administered internally. The effects are either much diminished or even wanting. This we might expect from our well-known experience in the use of pituitary, but it is true of equations in which the products of that organ do not occur.

At this particular time, when large numbers of men are being brought together in army camps where they are susceptible to acute infectious diseases, it is important that the possibilities of this specific treatment be recognized and made use of. Many lives have already been sacrificed, which the writer believes might have been saved. Measles and consequent pneumonia are producing havoc among the men who would not mind dying for their country if they could die on the field of battle; but to die of disease which might have been prevented, before they have had a chance to fire a gun, is as inglorious to them as it is devoid of good to the country. Now scarlet fever is setting in and will no doubt add largely to the total of lives thus ingloriously lost.

It is to be hoped that some effort will be made to stay the inroads of these diseases upon the vital strength of the nation, over and above the stereotyped methods. The latter do little enough in times of peace, but in a world crisis like the present, they only reveal the weakness of the profession in the face of a real emergency.

CHRONIC URETHRAL DISCHARGE.*

BY P. S. PELOUZE, M.D.,

PHILADELPHIA.

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WHEN we consider that many thousands of individuals are afflicted with a chronic urethral discharge, for the cure of which many thousands of dollars are being expended yearly, to say nothing of the mental suffering entailed thereby, there can be no question as to the immense social and economic importance of the subject. That patients can, and often do, carry a urethral discharge for many years must either mean that such conditions are extremely resistant to treatment or that there is something wrong with the treatment. Therefore, to be honest with our patients and with ourselves, it is our duty to endeavor to find where the real difficulty lies. It is neither just, nor to the best interests of medicine, for us to refuse to admit our failures if by so doing we can advance our understanding of disease and its treatment.

demonstration purposes before an audience, and would only serve to bring out the same points. A study of these case histories, as charted, shows some rather surprising facts well worthy of thought. The first three columns are very interesting, the next two are very illuminating, and seem to offer a possible solution to a large part of the trouble.

Twelve cases had been, without any close study, discharged by physicians as positively cured, and one was told that he should forget the shreds, as they meant nothing. Of the thirty cases only four had ever had any studies other than inspection of the urine, made to determine the true cause of their chronic discharge. Of these four, two had had a prostatic palpation and two had had a study of their prostatic secretions, but none of them had had any change of treatment thereafter that would hint that the examining doctor had discovered trouble. As a matter of fact, these secretions were 100 per cent. pus.

The columns giving the demonstrable underlying pathology are not without interest. The last column, showing the effect of treatment of this underlying pathology upon the urethral discharge, gives ample support for some of the thoughts to be brought out later. Of the two patients in whom the discharge was uninfluenced, one had a resilient structure for which he refused operation, and as his stricture would close down from neglect the discharge would reappear; the other had a tuberculous posterior urethra and lung.

As stated, a study of a large number of cases would serve to bring out the same points, and might change slightly the number who had had some form of examination, but the general result would be about the same. Such being the case, it is obvious that there must be rather general misunderstanding as to the reasons for such discharges, as well as to the treatment appropriate for their cure.

There are apparently many factors entering into this rather deplorable state of affairs, and it will be of distinct value to briefly discuss them.

For so many years the presence of a chronic discharge has been all that seemed necessary for a diagnosis of chronic urethritis that there is apparently no distinction made between the two in the minds of a vast majority of physicians. In other words, the so-called chronic urethritis has grown to be considered almost invariably a disease, whereas it is, beyond a question, almost invariably a symptom of some deeper-lying pathology. It has been deemed only necessary to establish the presence of a discharge to prove the presence of the urethritis, and a "diagnosis" so easily made has been simplicity itself for the busy doctor. Rarely does he think it necessary to carry his study further, but proceeds to use for an indefinite period those things which are said to be good for chronic urethritis. In very slight extenuation of this attitude might be mentioned the fact that the majority of general practitioners have a decided feeling against manually examining these cases, born of an exaggerated fear of transferring a gonorrheal infection to other patients. Cleanliness and rubber gloves remove such a possibility.

A close study of this symptom in a very large number of patients will show that a chronic discharge due solely to some pathology intrinsic to the

PAST HISTORY.						CAUSE OF CHRONICITY.					
Case Number	Previous Gonorrhea	Duration of Discharge.	Duration of Treatment.	Discharged as Cured.	Past Regional Examination?	Prostatitis.	Seminal Vesiculitis.	Cowperitis.	Stricture.	Tuberculosis.	Result of Treatment. ³
1	15	15	15	—	—	+	..	..	+	..	+
2	4	4	4	—	—	+	..	..	..	..	+
3	10	10	10	—	—	+	..	..	..	..	+
4	15	15	15	—	—	+	..	..	..	..	+
5	5	5	5	—	—	+	+	..	..	..	+
6	7	2	2	+	—	+	..	..	..	..	+
7	—	5	5	—	—	+	..	..	..	+	—
8	6	7	6	+	—	+	..	..	+	..	+
9	5	7	7	+	—	+	..	..	..	+	+
10	2	2	2	+	—	+	..	..	+	..	—
11	7	2	2	+	—	+	..	..	+	..	—
12	2	2	2	—	—	+	..	..	..	..	—
13	5	7	7	—	—	+	..	..	..	..	—
14	—	9	9	—	—	+	+	..	?	?	+
15	4	2	2	+	—	+	..	..	..	..	+
16	2	7	2	+	—	+	..	..	..	..	+
17	3	2	8	+	—	+	..	..	..	..	+
18	20	8	8	+	—	+	..	..	..	..	+
19	5	5	5	—	—	+	..	..	..	..	+
20	2½	2½	2½	—	—	+	+	..	..	..	+
21	2	2	2	—	—	+	..	..	+	..	+
22	5	3	3	+	—	+	..	..	..	..	+
23	4	3	7	+	—	+	..	..	..	..	+
24	7	7	7	—	—	+	..	..	..	..	+
25	2	2	2	—	—	+	..	..	..	..	+
26	7	7	7	—	—	+	..	..	..	..	+
27	5	5	5	—	—	+	..	+	..	..	+
28	18	7	8	+	—	+	..	..	..	..	+
29	12	12	12	—	—	+	..	..	..	..	+
30	12	12	12	+	+	+	..	..	..	..	+

*Black-faced figures signify years; light figures months.

± signifies that, though some form of physical or laboratory examination was carried out, no change was made in treatment to suggest that anything was learned by such study.

³Refers to disappearance of discharge and not to cure of the underlying pathology. Case 1 had a stricture which upon neglect would bring about a recurrence of his discharge.

In an effort to arrive at the answer as to the most potent factors in the lack of success of the present-day treatment of these patients I have taken from my case records thirty histories, and tabulated what seemed to me to be the most important points. The records were taken as they came, without any selection whatever except that they had had a urethral discharge for four months or more. There is no special reason for limiting the number to thirty except that a larger number is unwieldy for

*Read before the Philadelphia Genito-Urinary Society, Oct. 29, 1917.

urethra is very much the rarity instead of the rule. In fact, if we exclude stricture, urethral growths, tuberculosis, and a very occasional case of multiple folliculitis of the anterior urethra, which together account for possibly 5 per cent. of all such discharges, it will be found that approximately 95 per cent. are kept up by some condition extrinsic to the urethra. If this is the case, it is very easy to see why the usual treatment of injections, irrigations, instillations, and dilatations exert about as much permanent benefit as should be expected of them. It is really hard to see how such forms of treatment could have any decidedly beneficial effect upon an infection deep down in the prostatic follicles, the seminal vesicles, or in Cowper's glands. Considering that the vast majority of these patients are receiving the forms of treatment appropriate and curative to only about 5 per cent. of them, it would be immeasurably better from the patient's standpoint, though far from ideal, if this anomalous condition were reversed and every one was treated for probable extrinsic lesions. Surely, under such a reversal of prevailing customs failures would be less frequent.

In the absence of the above-mentioned intrinsic lesions, and the frequent pseudotherapeutic attacks to which it is subjected, I am very strongly of the opinion that the urethral mucosa, with its unusually rich blood supply, will very seldom, if ever, hold a chronic inflammation unless subjected to the constant influence of some extrinsic irritating factor.

As acute specific urethritis is the chief etiologic factor in chronic discharges, the question that naturally arises is: In just what particulars does the usual treatment of this acute stage of the disease fall short that it predisposes these patients to a condition of chronicity?

Primarily, the anxiety of the patient to get rid of an acute discharge has made the physician feel, perhaps, that his reputation in such diseases depends upon speed. With the laity this is unfortunately true, and when a discharge does not speedily clear up it is often very hard to hold the patient's confidence long enough to complete the cure. It has become so much a habit to inspect the urine before the patient, that he follows his apparent progress even more closely than does the physician. The sole aim seems to be clear urine, and when this is obtained both assume the cure to have been accomplished. If, on the other hand, the shreds persist, the patient is far too often coaxed into a condition of mental quietude by being told that "they are of no importance whatever, and will probably never disappear."

The term "clinically cured" is far too frequently interpreted as a real cure, and yet an overwhelming number of patients who have a discharge of long standing have been "clinically cured." This term should be dropped, or else generally understood to mean nothing but an entire disappearance of discharge at the meatus and a perfectly clear urine. I have on dozens of occasions seen a persistently clear urine in the presence of countless numbers of pus cells in the prostatic secretions. I have seen patients who, so far as could be told, were clinically and microscopically cured as to all obtainable secretions, and who, two months later, had hundreds of pus cells in their prostatic secretions.

The question naturally arises: "When does one know a gonorrheal patient is cured?" and the answer, that we seldom really know, contains much truth. Surely, a clear urine is no proof that there does not exist a condition that sooner or later spells "chronic urethral discharge."

From a number of observations I am convinced that if we placed just one-tenth as much importance upon a thorough examination of our gonorrheal patients two or four months after an apparent cure that we do upon serological watching of our syphilitic patients, we would meet with many very illuminating surprises.

It is conceded by all authorities upon gonorrhea that from 60 per cent. to 95 per cent. of all cases of acute specific urethritis have a posterior involvement. The gonorrheal inflammation in these patients spreads over the entire urethral mucosa, and it appears to be rather generally assumed that by some wise provision of Providence it almost invariably leaves untouched the hundreds of mucous nooks and crannies in that anatomical sponge, the prostate, whose only outlets enter the urethral lumen at such a point that they must, from sheer gravity, be more or less continuously bathed in gonorrheal pus for days at a time. And treatment is applied to the urethra, where the drainage is fairly good; and the prostate, where the drainage must, from the nature of things, be wretched, is forgotten. I personally question whether an acute posterior gonorrheal urethritis ever leaves the prostatic follicles untouched.

There is another matter in this connection that seems to have received little, if any, attention, and which is, I feel, a potent factor in the spread of gonorrheal conditions to the seminal vesicles and epididymi. Belfield, in describing his operation of vasostomy, states that when the bladder becomes overfilled a few drops of urine will often exude from the opening in the vas deferens. It has been shown by injections of collargol through the vas that before any of it reaches the urethra it distends the seminal vesicle. I have upon several occasions demonstrated on fresh specimens from the cadaver that the reverse is true; *i.e.* that solutions injected into the ejaculatory duct distend almost to the bursting point the seminal vesicle before they find their way into the vas deferens. From these points I think we can draw two valuable conclusions: (1) An overfilled bladder is an element of danger in acute posterior urethritis, whether it be from urine or our irrigating solutions, and this possibly explains those cases of epididymitis following irrigation. (2) In cases presenting a history of epididymitis one should never forget that an inflammatory condition is more than likely to be present in the seminal vesicle of the same side.

Infections of Cowper's glands are, fortunately, rare, probably owing to the length and size of their ducts and their entrance into the urethra at a point rarely subjected to any great back pressure. When such infection does occur it usually eventuates in abscess formation. These glands, however, occasionally are the seat of chronic inflammation, and are then a factor in the continuation of urethral discharge.

Whether or not the startlingly large number of cases of tuberculosis of the genitourinary tract,

or elsewhere, that we find being treated as chronic urethritis, bear a direct relation to a previous gonorrhea that we so often find in their histories is hard to answer. However, the fact remains that he who entirely forgets tuberculosis as a factor underlying such discharges courts some sad surprises.

That there can be, and occasionally is, a chronic follicular prostatitis associated with a chronic urethral discharge in patients who have never been the victims of gonorrhea, and have not tuberculosis, stands without question, and it should not be forgotten in the natural tendency to question the veracity of such patients. Its care is in no way different from that following gonococcal infection, for it is usually due to the same bacteria that are secondary invaders in the specific cases after the gonococcus has died out, as it apparently does in the vast majority of the cases.

If the foregoing statements be true, and there is, I feel, no great difficulty in proving them to be so, we are brought to the realization that our efforts here, as in all other branches of medicine, should be directed at removing the cause rather than treating the symptom. Here, as elsewhere, it becomes a diagnostic question, and fortunately the diagnosis presents little difficulty to one who will spend a very short time in fitting himself to make it.

Beyond question, existing conditions in regard to chronic urethritis are largely due to the survival of many ideas that present-day clinical and laboratory methods have proved fallacious, and there need be no apology offered for concluding this somewhat rambling paper with a few rather dogmatic statements aimed at the ideas at fault.

He who treats genitourinary diseases from symptoms and the two-glass test will record few cures and many failures in this class of cases, for there are few examples in medicine where so-called cardinal symptoms more often mislead.

The microscope and cysto-urethroscope are inseparable from good work, and will correct many a faulty diagnosis.

The finger in the rectum can detect great prostatic pathology, but nothing but the microscope can give the prostate a clear bill of health.

A palpable seminal vesicle is not always a diseased one, and a diseased one is not always palpable. The microscope can rule out pathology here if the secretion is obtainable, and probably nothing but operation if it is not.

Burning on urination that has no direct reference to treatment is seldom a symptom of chronic urethral discharge in the absence of tuberculosis; always suspect and study it.

A urethral discharge will almost invariably disappear early when the underlying cause is receiving proper attention. If it persists, suspect your diagnosis; it is probably wrong.

1831-33 CHESTNUT STREET.

Aerated Water in Severe Angina.—The use of siphons of seltzer in severe anginas, including diphtheria, was apparently first introduced long ago by Labrube. Comby has recently revived its use and speaks highly of it in all severe types of sore throat. It is chiefly indicated in very young children, but may be used with profit at any age.—*La Presse Médicale*.

AUTOSENSITIZED FOREIGN PROTEIN;

CLAIM OF SUPERIORITY FOR IT AS A SUBCUTANEOUS OR INTRAVENOUS INJECTION.

BY WILLIAM LEE SECOR, A.M., M.D., F.A.C.S.,

KERRVILLE-ON-THE-GUADALUPE, TEXAS.

THE use of subcutaneous or intravenous injections of a foreign protein is becoming a very popular therapeutic procedure in the management of various diseases.

In the medical literature of the past few years we may find many excellent articles dealing with every phase of foreign protein therapy as worked out in laboratory and clinic. Many of our laboratory men and some of our leading clinicians are of the opinion that the benefit derived from the use of mixed stock vaccines is simply the benefit that would be obtained from the use of any other properly prepared foreign protein.

The conditions which have probably received the most careful study in regard to the therapeutic effect of the subcutaneous or intravenous injection of foreign proteins are arthritis, pellagra, psoriasis, and pneumonia. Some are very enthusiastic and make rather extravagant claims, while others are probably too conservative. I think, however, that clinicians who have made careful trials of this therapeutic procedure in these conditions are pretty well agreed in the opinion that at least as an adjunct to other forms of treatment, it is of considerable value. My personal experience with foreign protein therapy has been more largely in connection with the treatment of pellagra than with that of the other diseases mentioned.

In the *Journal of the American Medical Association*, of May 8, 1915, I published, in collaboration with Dr. E. E. Palmer, a report of the treatment of seven cases of pellagra by the injection of the serum obtained from a blister produced on the body of the patient by the use of cantharides plaster. Since that report, we have ourselves treated and received reports of treatment of hundreds of cases of pellagra with the most gratifying results. The technique of the procedure as we carry it out was described in the *MEDICAL RECORD* of July 17, 1915.

Probably the most recent work published on foreign protein therapy is that of Dr. Frank J. Scully, Research Fellow at Cook County Hospital. Dr. Scully's work was done on psoriasis. He used typhoid vaccine as the foreign protein and administered it intravenously. He records favorable results and considers it a valuable adjunct to other forms of treatment. He refers to the use of auto-serum by Gottheil, Satenstein, Fox and Hilario and says: "The use of intravenous vaccines has the advantage of easy administration, but has the disadvantage of a more or less marked reaction following the injection, necessitating that the patient remain in bed for from eight to ten hours. The auto-serum injections, on the other hand, can be given in the office or the dispensary, but their preparation requires time and care, with a consequent danger of infection."

In our research work at the Kerrville Hospital we have used single vaccines, mixed vaccines, phylacogen and auto-serum. We find that the great objection to the use of phylacogen and vaccines is the

marked reaction obtained. Autoserum, however, produces very little or no apparent reaction.

Dr. J. B. Murphy, in an attempt to lessen the reaction and increase the therapeutic value of the autogenous vaccines that he used, employed what he called "autosensitized vaccines." He said: "In order to obtain the best results from vaccines, not only should the microorganisms come from the patient himself, but this autogenous strain should be cultivated upon the patient's own blood-serum, thus giving an automedium. We believe the autosensitized vaccine is a decided advance in the vaccine treatment of disease." He found that a much larger dose of autosensitized vaccine could be given without apparent reaction. He could not explain it, but simply noted it as a clinical fact.

I think that all of those who have made a clinical comparison of the action of injected foreign protein of the vaccine type with that of autoserum will agree, that in therapeutic effect the autoserum is fully equal, if not superior, to the vaccine, that very much less apparent reaction follows either the intravenous or subcutaneous use of autoserum than follows the same use of vaccine, and that the only real drawback to the use of autoserum is the difficulty of preparing and storing it as it is now generally prepared and handled.

The purpose of this paper is to acquaint those who are interested in this department of therapeutics with the fact that in my hands, during an experience of over four years with autoserum therapy, I have found that the blister serum, before noted, has all of the advantages and none of the disadvantages of serum obtained from defibrinated blood, to wit:

1. It is just as potent therapeutically as any other foreign protein. (Much more so in pellagra).
2. It produces little or no reaction.
3. It is easy to obtain—patients do not object.
4. After hundreds of injections, I know of not one harmful result,—not even a local abscess.
5. The technique of obtaining and using the serum is so simple that any physician can use it, no matter how isolated he may be.

This blister serum I am in the habit of thinking of, in the light of the teachings of Murphy, as an autosensitized foreign protein. Some hold that autoserum obtained from whole blood should not be regarded as a foreign protein. However that may be, there is no question but that the blister serum is foreign for the very process of the serum formation makes it so.

To obtain the blister serum we wash a small area of the chest with alcohol, place on it a piece of cantharides plaster smeared with oil, one and one-half inches square, and cover it with a perforated aluminum eye shield, such as is used after cataract operations, held in place by adhesive strips.

We place this plaster on in the evening, and by the next morning from one to three cubic centimeters of serum will usually be formed. There is quite a difference in different cases as to the time and amount of serum formed. In several cases forty-eight hours were required to produce one cubic centimeter of serum.

The shield is removed, an upper corner of the plaster is raised, and the serum withdrawn by a sterile hypodermic syringe. The desired amount is

then immediately injected into a vein or the subcutaneous tissues of the arm.

The plaster is then carefully removed and the skin area dressed with a sterile gauze pad smeared with sterile petrolatum. If done properly there is no pain and very slight discomfort. No patient under my observation has objected to repeated treatments.

While we have seen pellagrins get well during the administration of the autoserum treatment alone, without change of diet and after arsenic, quinine, etc., had failed to cure, yet we find that in this disease at least, much more rapid results are obtained if arsenic and a generous diet are administered during the treatment.

Medicolegal Notes.

Provision of Harrison Anti-Narcotic Act Held Unconstitutional.—Harrison Anti-Narcotic Act, Dec. 17, 1914, c. 1, 38 Stat. 785 (Comp. St. 1916 §§ 6287g-6287q) provides for registration of and the imposition of a special tax upon, all persons who produce, import, manufacture, compound, deal in, sell, distribute, or give away opium or coca leaves. Section 2 (section 6287h) provides that it shall be unlawful for any person to sell, barter, exchange, or give away such drugs except in pursuance of a written order of the person to whom such article is sold, on a form issued in blank for that purpose by the commissioner of internal revenue, and that every person who shall accept any such order shall preserve it for a period of two years in such a way as to be readily accessible to inspection by any officer, agent, or employee of the Treasury Department, but that nothing contained in the section shall apply to the dispensing or distribution of such drugs to a patient by a physician, dentist, or veterinary surgeon, provided that such physician, etc., shall keep a record of all drugs dispensed or distributed, showing the amounts dispensed or distributed, etc., or to the sale, dispensing, or distribution of any such drugs on a prescription issued by the physician, provided that such prescription shall be dated as of the date on which it is signed, and shall be signed by the physician, etc., and preserved by the dealer. An indictment in the words of the statute alleged that the defendant, a Texas physician, who had duly registered and paid the special tax of one dollar, did unlawfully and knowingly sell and give away a quantity of heroin tablets, which sale was not made in pursuance of a written order on a form issued in blank by the commissioner of internal revenue. A second count of the indictment was identical with the first, except that it charged that the defendant did unlawfully, knowingly, and willfully sell, dispense, and distribute heroin tablets not in the regular course of his professional practice, and not in the treatment of any disease, but to a person who was then addicted to the drug habit.

The federal district court for the Western District of Texas held that the two counts in the indictment did not state offenses against the laws of the United States. The acts charged to have been omitted and committed were violations of police regulations incidental to the taxing purpose of the act, and did not tend to render effectual its prime object, revenue. To that extent the act was held to be in violation of article 10 of the amendments to the Constitution of the United States, providing that the powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people. Nine years before the passage of the Harrison Act the State of Texas, in the exercise of its reserved power of domestic regulation, passed certain laws, penal in character, which restricted and limited the sale and disposition of opium and its derivatives. The provisions of that regulatory act are in many particulars substantially the same as in the federal revenue bearing and taxation act.—United States vs. Doremus, 246 Fed. 958.

Military Medicine.

Minor Maladies in Flying Men.—Surgeon A. E. Panter, writing in the *Journal of the Royal Naval Medical Service* for January, 1918, says that during the past eighteen months his duties have led him into the hitherto somewhat unstudied, or perhaps more correctly unpublished, sphere of sickness associated with flying. While many inexplicable symptoms attributed to lack of oxygen and other abstruse causes do undoubtedly occur, he has time and again been much impressed by the simple explanation of various ailments complained of by pilots as "coming on" whilst in the air, and frequently on questioning has obtained a history of "feeling out of sorts" before going up. Although there is nowadays an explanation for most of the fatal accidents occurring in the air services, there is always a percentage in which the cause remains a mystery. He is convinced that in a large proportion of these mysterious crashes the cause is loss of consciousness by the pilot. He has had at least four cases of pilots completely losing consciousness in the air. Two of these "crashed" on trying to land, which apparently they did subconsciously, without severe injury to themselves, the other two both lost consciousness at a height, subsequently regaining it, and were able to recover control of the machine and make safe landings, both feeling extremely ill. He has often noticed how greatly any alimentary disturbance becomes exaggerated in the air, and several cases of vomiting while flying have occurred apart from vestibular vomiting experienced by some pilots on extremely "bumpy" days. In these cases also the pilot, on questioning, has admitted having had slight indigestion before going up. A common cold when accompanied by much nasal catarrh will often give rise to great trouble at a height, and especially during rapid diving, and several times pilots with this condition have come for advice wishing to ascribe their symptoms to a "lack of oxygen," but with the curing of the cold the trouble ceases. In one case epistaxis accompanied the difficulty in breathing in a pilot flying with severe nasal catarrh. This pilot had never experienced any signs of distress, though he had done regular patrols of one or two hours' duration at 17,000 to 18,000 feet during the past three months.

It is extraordinary, considering the number of high patrols, 17,000 to 20,00 feet, carried out daily by the wing to which Surgeon Panter was attached how rare it was to find any pilot with symptoms attributable to lack of oxygen. The writer is convinced that there must be certain factors which tend to compensate for the decrease in atmospheric pressure. Intrapulmonary pressure is probably augmented, with increased ventilation of the air cells, so that what is lost in quality of inspired air is to a certain extent made good in quantity. For efficiency in the air, robust health is essential. Any minor disability becomes greatly accentuated when the general nervous system is at high tension, as during flight, and there is not the slightest doubt that many "crashes" and "nervous breakdowns" could be averted if all minor maladies were taken in time and brought under treatment.

Phosgene Poisoning.—In a paper read before the College of Physicians of Philadelphia, Dr. C. F. Hoover of Cleveland, Ohio, said that during the summer of 1917, in the Ypres region, a large number of men suffering from phosgene poisoning were brought into the casualty clearing stations of the British Service. To estimate properly the relative importance of each source for symptoms in these men it is necessary to make a clear differential analysis of the rôle each factor of distress is playing. Strictly speaking, inhalation of phosgene does not primarily cause poisoning, but inflicts a trauma on the respiratory path to which can be traced all the baneful results which follow. All the symptoms can be traced directly to impairment of external respiration by lesions of the respiratory membrane and its blood vessels and also to lesions of the tracheobronchial mucosa. If air laden with phosgene is inhaled, no phosgene can be found in the circulating blood; for directly phosgene comes in contact with moisture, hydrochloric acid is evolved. At the end of an inspiratory effort the respiratory air path is filled with air, but only in that part which lies beyond the bronchioles, viz., in the respiratory units, will there be sufficient moisture in the air to cause the evolution of hydrochloric acid. Should phosgene be inhaled a sufficiently long time, the moisture lying on the mucosa of the tracheobronchial tract will capture a sufficient amount of hydrochloric acid to produce an escharotic effect on its entire mucosa. The first effect from inhalation of phosgene is pulmonary edema. From this many patients die and at autopsy nothing can be detected, even by microscopic examination, beyond the filling of the alveolar cells with plasma. Pulmonary edema from this source differs from that which we ordinarily see in clinical practice, being equally distributed throughout the lung and independent of any diminution in the minute volume of blood passing through the lung; it is not preceded by air hunger, and the impairment of external respiration may result in death without the patient complaining of air hunger. Gray cyanosis without air hunger is due to anoxemia, i. e. diminished oxygen content of the blood unattended by an increase in the CO₂ content of the blood. Inhalation of oxygen will compensate for anoxemia, but the air hunger will be abrogated in these patients only by some method which will dispose of pulmonary edema. Superventilation and peribronchiolitis and endobronchiolitis are sources of pulmonary emphysema in phosgene poisoning. These cannot be regarded as a cause of air hunger. A third source of emphysema is general bronchiolar spasm. When bronchiolar spasm is added to the other causes of air hunger we see inspiratory narrowing of the subcostal angle and the entire costal margins of both sides are drawn toward the median line during inspiration. Adrenaline given hypodermically in doses of 20 minims of a 1:1000 solution will promptly relieve bronchiolar spasm and within one and a half minutes the entire costal margin on both sides will resume normal outward movements during inspiration. Unless the movements of the costal margins are observed, bronchiolar spasm will be overlooked because the great pulmonary edema

and air hunger will obscure any sign of respiratory distress due to the spasm.

A small number of patients developed symptoms dysenteric in character. Recovery from all systems, however, was very rapid. Hemorrhage in the central nervous system apparently occurred in only very severe cases. The only factor to which hemorrhages in the alimentary tract and central nervous system can be ascribed is anoxemia. Inhalation of oxygen will relieve the anoxemia and may thus prevent hemorrhagic lesions in the central nervous system. It is very important that medical officers understand the pathological physiology of phosgene poisoning; also to have information on a patient's field card, giving base hospital physicians a definite idea of the severity of symptoms developed immediately after inhalation of phosgene.

For the adequate study of the sequelæ of phosgene poisoning there must be evolved a method by which can be accurately estimated the partial pressure of CO_2 in both the effluent blood of the pulmonary circulation. Dr. Pearce of the Medical Service of Lakeside Hospital has thus far been partially successful in determining both these points, but the partial pressure of CO_2 in the effluent blood has not yet been satisfactorily estimated. There is now a patient at Lakeside Hospital who was "gassed" at Loos 18 months ago. He has a respiratory function which is very inadequate for exercise, but is quite sufficient when he is at rest. The heart and lungs are perfectly normal to all methods of physical examination, but when he exercises very moderately the partial pressure of CO_2 in his venous blood rapidly mounts.

The only other gas encountered in the Ypres region in the summer of 1917 was the blister gas, a name given through ignorance of its chemical formula. Like phosgene, it came over in shells and apparently caused only blisters on the skin and severe edema of the eyelids and the conjunctivæ. In many patients cardiorespiratory symptoms like those of phosgene poisoning were also present, but it is probable that they were suffering from both gases. Many of the men with the severest symptoms of blister gas were free of pulmonary symptoms. The blister gas penetrated the clothing and caused large bullæ over the body which were filled with firmly coagulated plasma. Delicate cutaneous structures like the prepuce and eyelids were enormously swollen from edema. Dr. Hoover saw no lesions of the cornea, and so far as he knew there were no visceral lesions from blister gas. Treatment consisted in the evacuation of the plasma and application of a dry aseptic dressing such as boracic acid powder; picric acid 1:1000 was also used. The eyes were treated by dropping into them adrenaline in 1:1000 solution and 10 per cent. argyrol. After the cutaneous lesions were healed the sites of the bullæ became brown pigmented areas. So far as the speaker was able to learn from medical officers there were no fatalities from blister gas.

eral Medical Board of the Council of National Defense held its regular meeting, which is usually held in Washington, at Camp Greenleaf, Chickamauga Park, Ga., on March 10, in connection with the dedication of the Warden McLean Auditorium, the main building of the military medical school at Camp Greenleaf. Beside the main assembly room this building contains a number of smaller rooms, including an orthopedic museum, a library and reference room, lecture rooms, study rooms, and office. Since the opening of the camp 4,000 officers and 20,000 enlisted men have been trained and sent to duty abroad or as instructors at other camps. Among those who made addresses at the dedication exercises were Dr. John C. Clark of Philadelphia, who made the speech of formal presentation of the \$10,000 auditorium; Surgeon General Gorgas, Brigadier-General J. B. Erwin, Lieutenant-Colonel Victor C. Vaughan, and Dr. Edward P. Davis of Philadelphia. Dr. Gorgas argued for the military training of medical officers. He stated that notwithstanding the handicaps, the present American Army had established a sanitary world's record, for it had cared for 1,000,000 men and the death rate was 10 men per thousand, whereas, Japan during the Russo-Japanese War, was deemed to have accomplished a marvel when she kept her death rate down to 20 per thousand. Camp Greenleaf will probably be the focus of the military medical activities of the country, as it is the geographic center of 450,000 troops in training.

At this meeting Dr. William H. Welch read a statement showing the statistical status of the Army and Navy in respect to the medical service. The men enrolled in the Medical Officers' Reserve Corps and recommended to the Adjutant-General's office totaled 21,824, of whom 17,313 have accepted their commissions. In the Dental Reserve Corps 5,086 have accepted commissions; in the Sanitary Corps, 865 have accepted. There are 844 officers in the Naval Medical Corps and 103 in the Naval Dental Corps. The total of officers available for active naval service is 2,257. In February there was an exceedingly satisfactory decline in the admission rates for communicable diseases in the camps and cantonments in this country. In the force afloat the situation as to pneumonia and cerebrospinal meningitis is very satisfactory. Scarlet fever has been more prevalent than usual but in no sense epidemic. There has been a very satisfactory decrease in measles, while mumps continues as heretofore. Surgeon-General Blue, who was unable to be present at the meeting, sent a communication urging that publicity be given to the fact that the Public Health Service is greatly in need of the services of competent sanitarians, particularly medical officers, sanitary engineers, and scientific assistants. The salaries of these positions range from \$1,800 to \$2,500 per annum. Applicants should address the Surgeon General of the United States Public Health Service, Washington, D. C. Surgeon Knight's report summarized the work done under his direction since September, 1917, in the five-mile zone around Chickamauga Park, a zone having 100,000 inhabitants. This work included a wide variety of sanitary and public health activities and may well serve as a

Dedication of the New Warden McLean Auditorium at Camp Greenleaf, Georgia.—The Gen-

model of the work that should be done in camp zones. Dr. William D. Haggard of Vanderbilt University presented a statement showing that there are 20 base hospitals on active duty abroad, 14 others mobilized, and 19 certified as ready for immediate service. Authority for Red Cross work within camps has been conferred by an official order signed by the Secretary of War. Twenty-seven units have cooperated with Federal and State authorities in February in 17 different States. Four laboratory cars have been turned over to the Army Medical Corps. Venereal clinics are now in operation in 17 camp cities. Major William F. Snow described the work that was being done by the Committee for Civilian Cooperation in Combating Venereal Diseases. Major Edward Martin, reporting for the Committee on State Activities, mentioned six manuals on medical military practice, all of which have been approved by the Surgeon General's Office. Dr. Charles H. Mayo, reporting for the Committee on Surgery, told how data on 21,000 physicians had been gathered and placed on cards convenient for ready selection of individuals and groups suited for any given task. He emphasized the need of reconstructing the wounded not only for field service, but also for labor after the war. He cited the many Government activities in which medicine entered and expressed the opinion that these could be coordinated in no way except by having a medical man as a cabinet officer. He also made a plea for adequate recognition and rank for medical men in the Government services. The report of the Nursing Committee indicates that the quota of nurses that are needed by June 1 will be provided. Dr. John D. McLean told of the progress of the plans for the Volunteer Medical Service Corps, which would be open to reputable physicians ineligible to the Medical Reserve Corps because they were over the age of 55, on account of physical disability, or because of necessity for home service. Emphasis was given the fact that this organization "will not protect slackers at home."

Casualties Among American Expeditionary Forces.—The casualties among the American Expeditionary Forces, as announced by the War Department, on March 22, number 2,066. Of this number 163 were killed in action, 149 by accident, 715 by disease, 237 were lost at sea, 11 committed suicide, 40 died of wounds, 14 of unknown causes, 6 were gassed, and 1 was executed. There have been 660 men wounded, 21 captured, and 39 missing.

Red Cross Aids in Rescue of Air Raid Victims.—Air-raid rescue service has become a part of the regular activities of the American Red Cross in Paris. Ambulances and rescue parties are on duty nightly and through cooperation with the police respond to all calls. The workers are equipped with gas masks and helmets. Not only do the Red Cross workers assist in transporting dead and wounded, but they assist the police and firemen in digging into the ruins and removing victims trapped in the buildings. It is reported that in one raid recently the Red Cross received five calls within an hour from as many widely separated points.

Convalescent Home for Government Service.—The convalescent home of the Burke Foundation has been offered to the Government for the period of the war, and arrangements are about completed for using this institution as a home for convalescent soldiers and sailors. The home will furnish accommodations for several hundred men.

Major Grayson M. P. Murphy has been awarded the first Liberty Service Medal, recently created by the American Social Science Association in recognition of notable humanitarian and patriotic services for national welfare.

Lieutenant H. R. Davies of the United States Medical Reserve Corps has received the Distinguished Service Cross, one of the four new American decorations for bravery. He remained in a dugout under continuous shell fire attending to the occupants after it had been blown in. He is the first American serving with the British forces upon whom this medal has been conferred.

Dr. Edward Wallace Lee, M. R. C., of New York, has been ordered to Porto Rico, to report to the commanding officer for assignment to duty.

Activities of the American Red Cross in France.—Totals of the American Red Cross in France in helping soldiers during the month of February, exclusive of civil affairs, show the following: Canteens in the metropolitan district supplied food and drink to 400,000 men. Fourteen traveling canteens at the front supplied 439,000 drinks, while seven canteens on the French lines of communication supplied 475,000 meals. The hospital supply service furnished 1,465 hospitals with 4,096 cases containing 257,863 articles. Distribution by the military supply company included in addition many thousands of articles of clothing for soldiers in the hospitals, among which were 199,000 pairs of flannel pajamas, 146,000 pairs of muslin pajamas, 130,000 pairs of socks, 51,000 shirts, and 1,040 cases, each containing 124 cartons of tobacco and cigarettes.

Hospital for Serbia.—The American Women's Hospitals, which is the official clearing house through which women doctors are sent abroad for Red Cross service, and which now has about fifty workers in the war zone, has acceded to an official request to furnish a base hospital for Serbian volunteers. It will also establish a chain of clinics and dispensaries throughout France and Italy. One-third of the funds of this organization are to be devoted to saving children in the devastated region.

New York Preparing Hospital Accommodations for Soldiers.—On March 26 an important hearing was held by the Committee on Hospital and Medical Facilities of the Mayor's Committee on National Defense for the purpose of planning coordination of medical facilities in the city to care for the tide of sick and wounded men returning to this port. The State Board of Charities will be requested to order at once a complete survey of hospital facilities of both city and State with a view to ascertaining their availability for military use. In this connection it is the intention in all cases where expansion of public or private hospitals is found necessary to make the extension permanent. It was brought out that there are now some 1,200 navy patients scattered among the various public and private institutions here.

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A Weekly Journal of Medicine and Surgery.

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PATHOLOGY WITHOUT INFECTION.

IT WAS Pasteur who prophesied that infectious maladies would eventually be banished from the earth. The first impression is that with infections banished there would be little left to engage the activities of medical men, as a result of which the profession, greatly cut down in numbers, would sink to a low level of influence. But an analysis of the subject shows that with the immediate and remote effects of infection abolished the activities of the profession would only be more or less modified and shifted about, while its influence would be enhanced. The pediatricist of the future would be able to devote most of his attention to problems of growth and development. Child psychology, pedagogics, the care of the defective and crippled, athletic training, the choice of a vocation, and other subjects now in the hands of special workers would all be centralized in the training of one body of men, and no pediatricist could afford to remain in ignorance of any branch of knowledge which affects the welfare of the child and young adolescent.

Curiously enough, obstetrics would go on with relatively slight changes. The great problems of dystocia would still remain, and the whole of operative midwifery would therefore continue to demand the attention of the highly-trained man. So far as can be foreseen, this conservatism would also inhere in the toxicoses of pregnancy and in most of the morbidity of the newly born, which is of developmental nature. On the other hand, gynecology would shrink enormously in the absence of infections, and might come to be a mere appanage of obstetrics; for most of the work to be done would consist of repairing the ravages of dystocic labors. In all likelihood, however, major gynecology would class with general abdominal and pelvic surgery, which is the trend at the present time.

Abdominal surgery, greatly narrowed as a result of the abolition of infection, would retain some of its present character in the direction of intestinal obstruction, including hernia. There would still be sterile adhesions to deal with. Traumatisms would also demand highly trained men for laparotomy. Operations for various ptoses, especially float-

ing kidney, would go on as before. The elimination of infection would enlarge the scope of laparotomy, and it is possible that many a case of dysmenorrhea and sterility would come to be relieved by simple interventions. In all probability, operations for myomatous uteri would be performed with the old frequency. Surgery of the other body cavities and extremities would be overwhelmingly traumatic, although many decompression operations would be required for non-traumatic affections, and much plastic and orthopedic work would have to be done for developmental and other anomalies. The great problems of shock, hemorrhage, and anesthesia would persist in undiminished importance, and this fact alone teaches that the surgeon must remain a leading figure among superior men, and would not degenerate into a glorified mechanic.

In a non-infectious world the internist would find his activities modified in much the same way as those of the pediatricist. He would become a toxicologist in the widest sense of the term, and have much greater knowledge than at present of the effects of occupation and habits on the health. As the problems of childhood have to do with growth and development in their widest ramifications, so in adult life the diseases of occupation spring into prominence along with the evils due to bad habits. The general physician would need much more than a smattering of dietetics and the specialty of gastroenterology might disappear along with some of the others of its kind. The separation between the internist and neurologist would perhaps no longer exist. The internist would be the diagnostician *par excellence*, and would always be in demand for insurance and other examinations, and for forensic work. The internist would also turn his attention to the ailments of the aging and aged man, and would have a great field in life extension work.

The moral of this sort of forecast is that it does not bear on the remote future alone, but on the near future, and even on present-day conditions. It shows us certain trends in the evolution of medicine which can be realized during the lifetime of men now living, and which, since they point out shortcomings in medical practice to-day, should be hastened at once.

SOUND APPRECIATION IN MEDICAL DIAGNOSIS.

SENSORY acuity and patency of the senses generally are the factors that connect the organism, specifically the brain centers, with stimuli from the outside. It is by reason of these constant stimuli, from the inception of life to death, that the brain develops. The rapidity and completeness of development, so to say, as well as the efficiency of the individual, depend upon the acuity of the senses which transmit these stimuli from the outside. Indeed, we appreciate extrinsic conditions only in accordance with the acuity of our senses, governed always, of course, by the ability of the nervous centers to

receive them and to co-ordinate them with sense stimuli transmitted by other senses. No sense really acts by itself. A defect in one sense affects the others, unless there is either the much doubted natural compensation, or a compensation from greater attention to other senses. Granted the inherent patency of the senses, they can operate to their full capacity only after training. Poor senses, well trained, may be better than good senses receiving no training. There may also be a natural hypertrophy of some senses, as in musicians, painters, mechanics, etc. Aside from the manual ability of a musician to play musical instruments, a good musician is an individual in whom the sense of hearing—that is, the internal appreciation of sound, the tone sense—is highly developed in the hearing centers of the brain. Every one has some of this tone sense, which can be developed within limits.

In medical diagnoses the part that sounds play is very important. Not only do the sounds heard on auscultation or percussion betray the diagnosis, but the fine differences between diseases of the same types are diagnosed by appreciating sound differences. Often appreciation of the sounds in cardiac diseases gives a clue to prognosis. The appreciation of the presence of adventitious sounds merely is not sufficient to make a diagnosis. Many adventitious sounds have no pathological significance of themselves unless they assume certain tone characteristics. The diagnosis of heart conditions, as well as pulmonary diseases, often requires the most acute appreciation of sound differences. Intensity, pitch, rhythm, and duration are qualities of sound that are always before the diagnostician almost as much as before the musician. It does not follow, of course, that a good musician would make a good diagnostician, because the diagnostician must have other senses developed to a high degree, and possess other qualities just as indispensable as the tone sense. While the musician is a tone specialist, the physician must be more versatile in his sense development. Yet the necessity of a general musical education cannot be overestimated, for many reasons, but particularly because of the development of the tone sense, which otherwise is too often neglected. For those contemplating a medical education this necessity is particularly trenchant. One whose sense of sound appreciation is dull or undeveloped, or who is tone deaf, cannot make a competent diagnostician. The more refined auscultatory diagnoses can be made only by one with a refined tone sense. Gross sounds are appreciated by every one; the finer tones must have a special ear, so to say.

It is not implied that one who has not a refined acoustic sense cannot do medical work, but one does better and more specialized work with it. An appreciation by the physician of the condition of this or other senses will help him determine what specialty in medicine he can do best. No one who is not motor-minded should undertake surgical technique, nor should one who has poor vision under-

take refraction or other eye work. Not only is there an acute necessity for understanding every individual's vocational adaptabilities, but where a vocation allows of specialization, physical or sensory adaptations must be understood before a decision is made; otherwise, many incompetents will be created.

THE DIGESTIVE DISTURBANCES OF AZOTEMIA.

It is difficult enough to teach beginners in medicine how to recognize the presence of interstitial nephritis in its earlier stages, and Dr. Alfred Loomis, perhaps because it was necessary to say something definite to students, used to lay great stress on the presence of unmotivated digestive disturbances. Laufer, a French army physician, writing in the *Bulletin Général de Thérapeutique* for January, 1918, states that one-fourth of all patients referred to him for gastroenteric disturbances were found to have renal insufficiency. The chief of these disturbances were clinical diarrheas, gastroenteritides, and acute indigestion, and in a lesser degree "dyspepsia" without further qualification. Despite the real nature of these disturbances, they are curable, but only through regulation of diet to antagonize the azotemia. The purest alimentary expression of the latter is a bland abundant serous diarrhea—apparently an effort of nature to eliminate the excess of urea. With this diarrhea there may or may not be nausea or vomiting, also unmotivated, and of the same serous type. The vomiting may be incessant and the vomitus, like the stools, contain a definite percentage of urea. But phenomena of this character indicate major uremia and are accompanied by other evidences of the latter.

Of a different character are the enteritis and colitis associated with a low degree of azotemia. Of 108 cases of these conditions, 28 were found to have this motivation. Such patients complain of the so-called minor uremic or preuremic symptoms, and the entire picture may benefit by cutting down the nitrogen in the diet. Of great interest are the so-called dyspeptic cases, because no evidences of renal insufficiency may be at hand. There is a host of symptoms which come under the head of indigestion, and the patients are usually pale and emaciated. If the urine is examined albumin will be absent in over one-half of the cases. The diagnosis may be carcinoma or nervous indigestion; and only a blood examination will reveal the true cause—increased urea. Naturally such cases yield to diet. In epidemic affections in which the patients have some renal insufficiency—dysentery in one of its forms, for example,—the azotemia will modify the symptoms. A form of biliousness, so called, may be traceable to azotemia. Conditions are quite possible in which the renal lesion may be secondary to, or may have the same causation as, an infectious enteritis.

NEPHRITIS ACUTA BELLI.

UNDER this caption Ceconi considers (*Riforma medica*, January 26) the somewhat trite subject of war nephritis. He gives first an historical outline in which he states the arguments in favor of the infectious nature of the malady. This is followed by a consideration of the clinical phenomena and nosology. The factors of cold, tonsillar infection, and acute articular rheumatism are especially considered. Finally, the part played in causation by the spirochete and the rickettsia is discussed, along with the possibility of louse transmission and of the possible relationship between war nephritis, on the one hand, and typhus, febris recurrens, and Volhynia fever, on the other. Ceconi finds that the explanation as to the nature of these nephritides, as they are found in current literature, is not warranted. He is inclined to think that we have here in part a malady which is specific and *sui generis*—in other words, a new or hitherto undescribed disease. That is to say, it is new in Italy and the other European countries with the possible exception of Russia. There is some reason to believe that in the latter it occurred before the war—in other words, among a civilian population, and, as sometimes happens, the war has brought to light the existence of an old but unrecognized malady. Naturally the existence of this masked malady does not exhaust the subject of war nephritis. There is even some reason for the belief that epidemic nephritis has occurred in previous wars.

The Teutonic literature of this affection is much larger than that of the other countries, and one of the most original and convincing writers on the subject is Toepfer, who has seen in German troops on the Eastern front and in Russian prisoners epidemics of nephritis and edema which are assuredly of infectious nature. He accumulated evidence to show that in both affections the louse was active in transmitting the disease; further, he succeeded in isolating a microorganism from the stomach contents of the louse; and finally a vigorous antilouse campaign appeared to check the incidence of the two diseases. The same parasite, in other words, was accused of causing epidemic edema and war nephritis. Morphologically, the accused bacillus is not new, for it appears to answer to an organism which at various times has been accused of causing both typhus and Volhynia fever. At present the question must be left at this stage of development until Toepfer's finds can be corroborated or disproved.

THE HISTORY OF THE X-RAY.

SINCE the beginning of the war the statement has been made frequently that while the German scientific men rightly hold a high place in the world of science they do not reach that altitude which they are accustomed to arrogate to themselves. They appear to be decidedly sterile of original ideas, but excel in painstaking research. They develop

discoveries rather than initiate them. In short, what they lack in brilliancy they make up in persistency. An example of this want of originality, but instinct for making use of the discoveries of others is excellently illustrated in a paper published in the *Western Medical Times*, March, 1918, contributed by Dr. Douglas H. Stewart of New York, who shows that, contrary to common belief, Roentgen did not discover the x-ray. Dr. J. Belot of Paris wrote a work upon Radiotherapy in Dermatology, which contained an historical review of Roentgen's discovery. According to this work, the Abbé Nollet, in the eighteenth century, was the first to devise an apparatus which in principle was the same as that employed at the present day for the production of x-rays. The Crookes tube is a further development of the same principle, but it was Lenard, in 1893, who first observed the x-rays which Roentgen utilized for photographic purposes. Thus Lenard was the discoverer, Roentgen the utilizer for photographic purposes, and Schiff and Freund the employers for therapeutic purposes. Dr. Stewart also points out that Americans seem to be unaware of the enormous amount of experimentation and writing upon Roentgenology that Paris and its publications afford. Unfortunately, the French scientists write only for those who read French, and it is but rarely that a translation is made into English; whereas translations into German abound, and many Germans read French. The consequence of this is that Americans often refer to scientific matters as being of German origin when they have but reached us through German sources.

VENTILATION AND CEREBROSPINAL FEVER.

CEREBROSPINAL meningitis is by no means easy to diagnose correctly in its early stages because it simulates in many of its symptoms other diseases, and especially grippe. As Capt. J. C. McWalter says in the *Medical Press and Circular* for February 6, 1918, no practitioner is so stupid as to be unable to spot a case when well developed and when the disorder is known to be rife, and no man is so competent as not to be deceived in the earlier days of the disorder, more particularly if influenza, with myalgia of the spinal muscles, is prevalent. Cerebrospinal meningitis is a disease which deserves special consideration at the present time, because it seems to be connected with overcrowding and moist heat. It has occurred in camps in this country and unless great care is exercised is apt to break out at any time. McWalter points out that the ordinary form of temporary wooden hut adopted in most of the British camps is by no means free from suspicion. These huts are not only overcrowded, but insufficiently and inadequately ventilated. In addition, for the sake of warmth, the stove pipe is carried right up to the roof inside the hut. The hut is warm, and a certain amount of carbon monoxide is given off; towels, socks, and handkerchiefs are hung up to dry in the heated air. If any of the inmates have catarrh, influenza, pharyngitis, or cerebrospinal organisms, ideal conditions are furnished for the development, intensification, or propagation of the disease. Similar conditions have prevailed in some of our cantonments in this country. In huts and barracks of

this description, of which the ventilation is inadequate, conditions are most favorable for the development and spread of cerebrospinal fever. Our army medical authorities should insist that in the camps in France and here the huts should not be overcrowded, or, at any rate, should be well ventilated and kept as clean as possible. But unfortunately the medical officers have little influence so long as their recommendations must be made to their superior officers, who may or may not suppress them according as they do or do not have faith in modern sanitary methods. Many of them have not, just as the many ignorant persons in civil life have not.

News of the Week.

Vaccination and Tetanus.—The *Monthly Bulletin* of the New York State Department of Health for March is a "Smallpox Number." It shows the extent to which smallpox has been prevalent in the State and emphasizes the value of vaccination as a protection against smallpox. In refutation of the statement frequently made that vaccination produces tetanus, a list of the deaths caused by tetanus in New York State, in 1917, is given. This shows that of 49 deaths in the State due to tetanus during 1917, 10 resulted from the infection of lacerations and abrasions, 9 from incised wounds, 8 from infection at childbirth, 5 from compound fractures and dislocations, 6 through infected surfaces and from various other conditions, but one from vaccination. In this case death occurred 40 days after the child was vaccinated and all the evidence goes to show that the vaccine itself was not the cause of death. During the year 1917 reports of nearly 50,000 vaccinations have been filed with the State Department of Health and in only one case out of this entire number did a death occur that had the slightest connection with vaccination. Dr. John F. Anderson, in 1915, reported that out of 31,000,000 doses of vaccine virus used in the United States there were only 41 authenticated cases of tetanus subsequent to vaccination. Out of about 585,000 vaccinations done in the United States army and navy there was not a single instance of tetanus following the operation.

Grip Epidemic in New York.—Though influenza is not a reportable disease and there are no figures to show the extent of the present epidemic, it is said that not since 1889-90 has this disease cut so heavily into the working forces of large employers of labor, both in office and shop, as it is doing at present. The Health Department has given out a list of precautions with a warning that grip is the most easily transmitted of all the highly contagious respiratory diseases, and that it is advisable to avoid crowds and badly ventilated apartments. The prevalence of grip in Sing Sing prison has caused the suspension of all business and amusements to prevent the spread of the disease. On March 23 there were 30 patients suffering from grip in the prison hospital and 70 more ill in the dormitory and cell block.

Illiteracy in New York.—There are two bills before the Legislature of New York aimed to enforce

compulsory education on the foreign born. One of these bills requires attendance at either day or night school of every non-English-speaking and illiterate minor in the State and provides a penalty. The second bill makes it compulsory for boards of education to provide night schools in any school district where there are twenty or more illiterate minors. The necessity for these bills is shown by the fact that there are in New York State 2,729,272 foreign born 597,012 non-English-speaking, and 362,025 illiterates, the percentage of illiteracy being 13.7.

Public Nurses for Rural Districts.—A bill has been introduced into the Legislature of New York which provides for public nurses in rural districts. This measure would authorize one graduate nurse for every 15,000 of population in each county exclusive of the inhabitants of cities. The nurses would receive salaries of \$1,200 a year, and the boards of supervisors would be expected to furnish the funds.

Germany Plans Policy for Repopulation.—Although Germany's vital statistics are not being published broadcast during the period of the war a recent communication has reached this country giving fairly accurate estimates of the birth rates of cities and towns of more than 15,000 inhabitants. These go to show that the birth rate of Germany has been cut nearly in half since the beginning of the war. At the same time a report from Washington states that statistics recently read in the Hungarian Chamber of Deputies shows the same rate of decline in the birth rate of Austro-Hungary. This report further states that in peace time the infant mortality rate of that country was about 34 per cent. and that in 1916 it had risen to 50 per cent. In Germany the population problem is to be attacked by the State aiding the two general lines of "increasing production" and "conservation." The policy is to include, according to this report, legislation against aiding and abetting voluntary race suicide; economic favoritism to large families; improvement in the housing condition of the poor; extensive colonization of the city population in the agricultural provinces; premiums on children to small salaried State officials; a campaign against infant mortality; extension of social welfare work; the reform of the midwife profession; compulsory courses of instruction in infant rearing for all girls in the public schools; the training of a large army of municipal child nurses, and improving the condition of illegitimate children.

Gifts and Bequests.—Under the will of Ludwig Dreyfus gifts amounting to more than \$1,000,000 are made to Jewish Charities. Among these bequests are the following: Mount Sinai Hospital, New York, \$37,500; Montefiore Home, \$37,000; Hebrew Benevolent and Orphan Asylum, \$27,500; Home for Aged and Infirm Hebrews, \$17,000; Beth Israel Hospital, \$12,500; German Hospital, \$5,500; the Hebrew Infant Asylum, \$5,000; the National Jewish Hospital in Denver, \$3,500. The Hospital for Deformities and Joint Diseases, Tuberculosis Prevention for Children, and the New York Eye and Ear Infirmary, each \$2,500; the Jewish Hospital, Brooklyn, \$1,000.

By the will of the late Sarah A. Rulens of Philadelphia, bequests are made as follows: Pennsylvania State Hospital for the Insane at Norristown, Pa., \$500; St. Christopher's Hospital for Children, \$400; Home of the Merciful Saviour for Crippled Children and Kensington Hospital for Women, each \$100.

By the will of the late Aaron L. Lowenstein of Philadelphia bequests are made as follows: Jewish Hospital, Mt. Sinai Hospital, each \$2,500; Jewish Maternity, Wills Eye Hospital, each \$1,000.

The Neurological Bulletin is the name of a new monthly journal published under the auspices of Columbia University by Paul B. Hoeber in New York City. The editor is Dr. Frederick Tilney, Professor of Nervous Diseases in the Medical Department of Columbia University, and the associate editor is Dr. Louis Casamajor. The first two numbers, for January and February, have appeared and contain much valuable material gathered from the weekly clinical conferences of the Neurological Department of the College of Physicians and Surgeons. There is a great wealth of material in this department which is worthy of permanent record and neurologists generally will welcome this journal which, while the most recently established, promises soon to be among the leaders in neurological literature.

New Aid for Child Welfare Work.—The Child Welfare Board of the General Medical Board of the Council of National Defense, of which Dr. Samuel McC. Hamill is chairman, has begun a movement to provide infant welfare stations in all parts of the country. The committee is going to cooperate with state, municipal, and county departments of health in order to increase the efficiency of their work. The attention of communities will be called to the effect of war in reducing the population and to the importance of preserving the lives of infants and children. Provision will be made for giving instruction in antenatal care as well as in the care of infants and of children of pre-school age. The plan includes propaganda urging that financial provision be made to enable a mother to stay at home and give proper care to her children.

The Death Rate of New York State in 1917.—The preliminary report of the State Health Commissioner, Dr. Herman M. Biggs, shows that the general death rate of the State for 1917 was 14.6 per thousand population, as against a rate of 14.7 for 1916, and an average for the previous five years of 14.9. It is only slightly higher than the 1915 rate, 14.5, which was the lowest rate recorded in the history of the State. The report calls attention to increasing mortalities from a number of causes. In certain localities the death rates were higher in 1917 than for several years. There was a total of 12,000 deaths from pneumonia, the highest recorded in the State since 1917. There was also an increased mortality from organic diseases of the heart and kidneys and from cancer. There were during the year 8,600 deaths from accidents. Automobile accidents were responsible for more deaths than typhoid fever, scarlet fever, and polimyelitis combined.

War Time Economies.—A meeting will be held in the New York Academy of Medicine under the

auspices of the Health and Hospital Committee of the National War Savings Committee, on Wednesday, April 3, 1918. Prof. Edwin R. A. Seligman will read a paper on "Common Economic Fallacies of the Average Man"; Dr. S. S. Goldwater on "Economy from the Hospital Standpoint," and Mr. George W. Wickersham on the "Financing of the War and War Savings Societies."

Obituary Notes.—Dr. DAVID PENFIELD AUSTIN, who had practised medicine in New York City for fifty-five years, died of injuries received as the result of a fall downstairs in his home, on March 21, aged 83 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1866.

Dr. JOHN GEORGE BLAKE, one of the oldest physicians of Boston, a friend of Oliver Wendell Holmes, and a surgeon in the Civil War, died at his home, on March 5, aged 81 years. He was a graduate of the Harvard Medical School, in 1861, and was attached to the staff of the Boston City and the Massachusetts General Hospitals. He served on the Boston School Board for sixteen consecutive years, and as a member of the water board for a time.

Dr. A. HAMILTON LEVINGS, a graduate of the Medical Department of the Northwestern University, in 1872, died at his home in Milwaukee, after a lingering illness, on March 4, aged 70 years. Dr. Levings spent considerable time in study abroad, organized the Wisconsin College of Physicians and Surgeons, and served for twenty years as its president; he served for a like period as professor of the principles and practice of surgery. In 1914 Dr. Levings organized the Wisconsin Surgical Association, and was the first president of this society. He was the author of two books, one an exhaustive work on "Tumors," and the other "Every-Day Surgery."

Dr. PETER BAKKA, formerly of Minneapolis, and more recently of Grantsburg, Wis., died at St. Luke's Hospital, in the latter town, on February 28, aged 53 years. He was a graduate of the University of Minnesota in 1892.

Dr. WILLIAM J. NICKERSON died of apoplexy at his home in New Bedford, Mass., on March 6, aged 73 years. He was a graduate of the Medical Department of Bowdoin College, in 1870, and a Civil War veteran, having been one of Gibbon's men who withstood Pickett's famous charge at Gettysburg.

Dr. JOHN ROBINSON GILDERSLEEVE, a graduate of the Medical Department of the University of Virginia, in 1862, and a surgeon in the Confederate Army, died suddenly of heart disease, in Richmond, Va., on March 5, aged 75 years.

Dr. JONATHAN M. CHENEY, a graduate of the University of Vermont Medical College, in 1887, died at his home in Ashland, N. H., on March 4, aged 55 years. At the time of his death he was a member of the Grafton County Medical Advisory Board.

Dr. GEORGE A. WHITE of Sacramento, Cal., died in a local hospital on March 2, aged 70 years. He was a graduate of Jefferson Medical College in 1870.

Dr. SEABURY W. BOWEN, a graduate of Bellevue Hospital Medical College, in 1867, and a member of the staff of the Fall River Hospital since its origin, died at his home in Fall River on March 3, aged 78 years.

Dr. JAMES EMMETT CONN, a graduate of the State

University of Iowa, and a founder of the Conn Hospital of Ida Grove, Iowa, died suddenly at his home in that town, on March 2, aged 51 years.

Dr. E. VALENTINE BUCK, a graduate of New York University Medical Department, in 1872, died at his home in New York City on March 16, aged 75 years.

Dr. JOHN A. RONAYNE of Astoria, L. I., a graduate of the College of Physicians and Surgeons, in 1896, died of pneumonia in the Polyclinic Hospital, New York, on March 18, aged 44 years.

Dr. WILLIAM LEE HOWARD of Westboro, Mass., a graduate of the University of Vermont, in 1890, died in the Waltham Hospital, on March 10, aged 57 years. Dr. Howard was a newspaper man in his earlier life, and was sent by the New York *Herald* on the relief party which went to rescue the Jeanette, which sailed from San Francisco in 1879 to find the North Pole. He was also well known on account of his writings on sex problems.

Dr. WILLIAM T. GLEASON of Ely, Nev., a first lieutenant in the Forty-third Infantry, assigned to Fort Douglas, died suddenly while on a furlough at Salt Lake City, on March 7, aged 39 years. He was a graduate of Rush Medical College, Chicago, in 1902.

Dr. JOHN W. COSTOLO, a graduate of the Physio-Medical College, Cincinnati, died at his home in Lima, Ohio, on March 7, aged 66 years.

Dr. GEORGE W. CURFMAN of Denver, Col., died in St. Luke's Hospital of a complication of diseases, on March 8, aged 41 years. He was a graduate of the Northwestern Medical College in 1905, and medical examiner of the Burlington Railroad.

Dr. AZUBA DOTY KING, a graduate of the State University of Iowa Medical College in 1876, died at her home in Des Moines, Iowa, on March 4, aged 82 years.

Dr. JOSE L. HIRSH, a well-known children's specialist of Baltimore, died suddenly of heart disease at his home, on March 17, aged 46 years. He was a graduate of the University of Maryland Medical College in 1895.

Dr. WILLIAM E. WAGNER of Philadelphia died, after a brief illness, in a New York Hospital, on March 17, aged 40 years. He was a graduate of Jefferson Medical College in 1906.

Dr. SARAH R. MEAD of Newark, N. J., a graduate of the Women's Medical College of the New York Infirmary, in 1883, died of injuries sustained in an automobile accident, in the Mountainside Hospital, Glen Ridge, N. J., on March 17.

Dr. READ JENNINGS MCKAY died at Wilmington, Del., on February 28, at the age of 75 years. He was graduated from Bellevue Hospital Medical College in the class of 1867.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND—RATIONING OF LONDON.

LONDON, March 2, 1918.

THE Belgian Doctors' and Pharmacists' Relief fund made its first appeal to the doctors and pharmacists of the British Empire on November 21,

1914. The response was instantaneous and generous. By April, 1915, the Executive Committee received over £10,000—a total which steadily increased until at the end of 1917 the donations amounted to just £20,000. Towards this large sum of money the Colonies helped largely, Canada subscribing £2,248, Australasia £2,423, New Zealand £1,638, South Africa £96, and in addition to these sums India sent £250, Denmark £290, and Italy £56. Certain subscriptions were received from two sources in the United States, but it was well understood that the enormous amount of aid in money and kind, poured into Belgium from the United States, had a great part in relieving the stress on doctors and pharmacists. The money received was discreetly invested, the fund earning during distribution over £1,000. Only £90 have been spent by the committee in administering the fund.

In the early days of the fund the expenditure consisted chiefly of small amounts given to relieve necessity among the refugee doctors and pharmacists in England, and of registration fees for those Belgian doctors who were anxious to obtain work in England or the British colonies, and who subsequently did so. But the amount spent in England has been relatively small, only £610. In March, 1915, £800 was sent to Belgium through the Commission for Relief in Belgium then magnificently administered by Mr. Herbert Hoover, whose work in the United States is now of world importance. Distribution in Belgium is for the present in the hands of Spanish and Dutch representatives.

In June, 1915, another £800 was sent and in July £400, but in April, 1916, powerful representations were made to the fund that regular assistance should be given as the need in Belgium had become so acute. The committee thereupon decided to send £800 every month to Belgium so long as the urgency lasted. The Commission for Relief in Belgium have forwarded this money every month to a trustworthy Belgian committee in Brussels and have vouched for the care of administration and the inestimable comfort which it has brought. For twenty months, from April, 1916, to November, 1917, the monthly check was sent, or a total of £16,000, but in December, 1917, the fund being by this time almost exhausted, the committee decided with the greatest possible regret that they could only send £700, whilst in February and March it was practicable to send only £400. Realizing that unless prompt and generous help was forthcoming the support given in the past to colleagues in Belgium must cease, the fund has issued a stirring appeal to which responses are coming in fairly well. The Belgian doctors and pharmacists are in many ways more in need of help now than they were at the beginning of the war; life does not become easier or German hearts softer, and in most cases the money sent only saves those who receive it from the direst want. In support of that second appeal a powerful letter has been circulated from Mr. W. B. Poland, the present director in Europe of the Commission for Relief in Belgium in succession to Mr. Hoover, in which it is shown that the money sent by the fund reaches its destination and effects wonderful good.

Subscriptions to the fund should be sent to the treasurer of the fund, Dr. H. A. Des Voeux, 14,

Buckingham Gate, London, S.W. In response to the suggestion of subscribers a system of monthly subscription has been inaugurated, and if well supported this would prove a solution of immediate and pressing difficulties.

The officers of the fund are: Sir Rickman J. Godlee, chairman; Dr. H. A. Des Voeux, honorary treasurer; Dr. S. Squire Sprigge, editor of *The Lancet*, and Mr. W. J. Uglow Woolcock, secretary of the Pharmaceutical Society of Great Britain, honorary secretaries. It is sincerely hoped by the officials of the fund that its work will be maintained, while they consider that the raising of so large a sum of money entirely among doctors and pharmacists forms a high tribute to professional generosity.

The rationing scheme which came into force for London and the adjoining counties in the last week in February is in the nature of an experiment. Admittedly the restrictions in several directions are more drastic than circumstances necessitated, but Lord Rhondda, the Minister of Food, has proved himself before now to be a tactful manager of men, and it is clear that relaxations are easy enough to make, while additional severity might be received with great disappointment if the circumstances could not be explained. And for yet another reason the rationing scheme for London and the Home Counties was devised on a Spartan plan; the scheme will certainly be used as a pattern to be followed by other counties or groups of counties, if and when necessity arises, and it might be that local factors called for temporary privations of a sharper sort in some places than in others, while it is clear that regulations should be uniform. All medical men and those acquainted with the real physiological value of food know that the ration contains everything that is necessary for the complete health of the working or sedentary man and woman. And this fact has been more widely recognized by the public than could have been anticipated by the medical profession, well used to the pathological conditions of patients a large mass of whom regularly eat and drink more than their physiological needs. The scheme, moreover, takes full note of the difficulties which might be brought about in the care of children and the sick, in which directions considerable flexibility is permitted. Not only is it decreed that expectant and nursing mothers and infants under 18 months of age shall have a prior claim upon the milk supply and shall obtain a definite amount, but all children under five years of age enjoy a similar privilege, while children of ten and upwards are counted as adults in the matter of meat supply. Attention has, however, been called by medical men to the gap that occurs in the diet of children between five and ten. Before the lower age they receive an adequate amount of milk and after the higher age a good quantity of meat is allowed to them out of regard for the special needs of growth. But between 5 and 10 the protein income of children runs a risk of being inadequate, and yet around the age of eight there is reason to suppose that children have a particular liability to nutritional disturbances. Evidence in their direction is supplied by the Elementary Educational Committee of the London County Council whose numerical responsibility towards the child life of

London is immense, having regard to the population of the county, about four and one-half millions. This committee has analyzed the results of the medical inspection of the children in the county schools up to 1917, and the information given by the report is in the highest degree satisfactory from the medical point of view. The war has not in any way affected the physique of the child population of London. On the contrary, it would seem that the steady employment at high wages of the majority of parents, by conducing to the better clothing and feeding of their offspring, has brought in material form benefits to the children. It may be said that this occurred before the rationing scheme came into force and that the value of the information is by this much discounted. This is not the case. Throughout the whole of 1917 a fairly drastic scheme of voluntary rationing was followed by many conscientious persons, while the bad distribution of food, as well as the shortage in certain commodities, produced all round a standard of diet not only lower than that before the war or during the first two years of the war, but not very far above the standard now dictated by legal rationing. The affect of privation or disease consequent upon the war, as seen among growing children, does not therefore in the case of London children seem to be at all marked, but the report does suggest that the eight-year-old children are especially prone to defaults in nutrition and that the gap which I have indicated above in the legal rationing of these children ought to be filled at an early date. There will, it is believed, be no difficulty in accomplishing this, as a surplus of meat may now be foretold.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

RED CROSS TO CARE FOR PRISONERS—PRESENT WORK FOR REFUGEES, AND OTHER ACTIVITIES—PHYSICAL TRAINING IN THE ARMY—JIU-JITSU IMPRACTICABLE—ACTIVITY OF THE Y. M. C. A.

PARIS, February 25, 1918.

THE American Red Cross has been designated in an army order as a distributing agent of supplies to "American soldiers and others who may be prisoners in the hands of any power with which the United States may at any time be at war." The American Red Cross Central Bureau for American Prisoners is the name of the service which has this work in hand. It has an office in Berne, and has established an excellent warehouse. Parcels are made up by a system adopted by the British, and supplies are shipped direct from America to the Red Cross warehouse.

At the present time there are only a few prisoners held in Germany, but the Red Cross warehouse staff has made arrangements for the future, and as prisoners increase in numbers they will be provided for. Each prisoner receives a request to acknowledge his parcel, and by using the methods found effective by our British allies the Red Cross is able to insure the safe arrival of goods sent to prisoners. The importance of sending parcels to prisoner camps need not to be insisted upon. Indeed, through this bureau the American fighter taken prisoner will receive supplies of food and clothing making the prison camp bearable.

The Bureau of Refugees and Relief of the American Red Cross has completed arrangements to work in the care and relief of refugees and repatriated French arriving from Germany in conjunction with the French Red Cross. One thousand refugees are evacuated daily into France by the Germans. Either because they are too old, too young, or their infirmities render them useless, the Germans regard them as just so many mouths to feed, and so, when they cannot work, they are sent back to the French.

Dr. Edward T. Devine is in charge of the Bureau for the Relief of Refugees, and he has established his headquarters at Toulon, the great furniture center of France. He has thirty delegates, who work through the prefect or the mayor, scattered through the south of France, where the refugees are sent. Sometimes money is given to the refugees if they really need it, but it is not usual, and the American Red Cross prefers to help them in other ways. The French Government grants refugees a certain sum of money, sufficient to meet their daily needs, and the American Red Cross furnishes their temporary homes for them. Contracts for several tens of thousands sets of furniture have been placed by the American Red Cross with furniture makers at Toulon. When the refugees have a little money of their own they are expected to pay the American Red Cross on the installment plan. When, however, they are not in a position to pay the furniture is given to them for nothing.

The American Red Cross also helps the refugees by establishing dispensaries and hospitals where they are given special treatment. It must be remembered that all the people lucky enough to be sent back are human wrecks, and many of them have reached the advanced stages of tuberculosis. The French refugees have learned to appreciate the work that the American Red Cross has done for them. In many cases it was the American Red Cross that helped them when they were captives, and then when they are free it is the American Red Cross again that attends to them. The French Red Cross and the American Red Cross are working together in perfect harmony, and in many cases the Bureau of Refugees works directly through the French Red Cross.

Five of the Red Cross recreation huts are now in operation at base hospitals. While all of the equipment has not been installed in some of the huts the programs and activities planned for these places are going forward. While waiting for the completion of construction work on huts at other hospitals rooms have been found that enable the Red Cross and Y. M. C. A. to carry on their recreational activities in temporary quarters.

At one of the base hospitals the American Red Cross representative is acting as chairman of a committee to organize and operate a civilian hospital for the benefit of the people in the village. An old school building, adaptable for the purpose, has been leased. It is designed to supply ten or twelve beds, which will suffice for local needs. The Red Cross will contribute 1,000 francs a month toward the support of the hospital. A personal gift of \$500 has been made toward the hospital fund by a friend of the officer in charge of the base hospital.

The transportation department of the American

Red Cross now has more than 500 automobile vehicles of all kinds in operation. During the past month they moved more than 3,600 tons of materials. The total amount of Red Cross rail shipments during January was approximately 8,400 tons.

Considerable discussion has sprung up respecting the physical training of our troops in France, and a persistent effort is being made to secure the introduction of jiu-jitsu into the training exercises. At first it might seem rather puerile to indulge in so much discussion over this particular exercise, but when the facts are disclosed they throw a light that changes the point of view.

The personal hatred of the Hun for the English is much talked of in print, but is only known in its full significance to those close to the scene of action. The rushing and taking of trenches is hardly ever without its incidents of personal encounter where the closeness of contact precludes the employment of arms and locked in each other's death grip, fingers, nails, and teeth form the weapons of offense. We are well aware of the fact that next to the deadly hatred for the English the Americans come second and there is an undoubted advantage attached to the German side whose troops have been seasoned and hardened by three years of warfare. There is, therefore, a feeling of insistence that anything that promises any new tricks that can give us advantage over the adversary should not be neglected and that is the sentiment that is behind the discussion of jiu-jitsu.

Dr. Luther H. Gulick, who was the first organizing secretary of the Y. M. C. A. in the United States and Canada and had 100,000 of our boys organized into the first Army Athletic League, expressed considerable scepticism regarding the value of this procedure. He said that in the United States they had tried their best to find some representative jiu-jitsu man who would meet their best man on fair conditions to each side, but had met with little success. He had never seen a jiu-jitsu man come out against a trained American in American clothes and without any obligation to the restrictions of Japanese rules.

Mr. G. R. Mills, when interviewed upon the subject, said that the introduction of jiu-jitsu into the American Army as a method of training men probably would fall far short of success as measured by present standards. Its beneficial effects upon the participants, whose daily exercise of its principles becomes a fixed habit, cannot be overestimated, but the method of training for jiu-jitsu cannot be successfully applied to a body of men whose number runs into the millions. Science is not to be poured into a conglomerate mass of humanity. Its absorption must be a matter of individual effort. To expend the time necessary thoroughly to instruct the whole American Army would certainly be a gigantic task and its successful accomplishment inconceivable.

Mr. Mills added that large sums are now being expended to entertain the men and to supply them with apparatus for physical training and development. We are firmly convinced of the moral effect and the ultimate building and sustaining of the army morale. It is our belief that by giving

comforts, conveniences, entertainments, and provisions for physical culture to our men, in a word, ministering to their minds, bodies, and spirits, we shall accomplish something never before attempted in our armies. We expect the results to be commensurate with the great sacrifices involved. Thousands of business men have practically abandoned large interests, with more than ordinary incomes, and in many cases have left behind wives and children, volunteering to serve in this manner, realizing that because of physical or age limitations they could not be accepted in the regular army.

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Progress of Medical Science.

The Boston Medical and Surgical Journal.

March 14, 1918.

1. Unnecessary Operations. George C. Wilkins.
2. Artificial Pneumothorax and Pulmonary Tuberculosis. Cleveland Floyd.
3. Transfusion. Experiences in Over Two Hundred Cases. A. R. Kimpton.
4. The Surgical Treatment of Empyema. Wyman Whittemore.
5. Climate in Tuberculosis. H. F. Gammons.

3. Transfusion. Experiences in Over Two Hundred Cases.—A. R. Kimpton has reached the following conclusions in regard to the value of transfusion. It is of the greatest use (1) In acute secondary anemia; that is, severe hemorrhage. For so-called "shock," uncomplicated by hemorrhage, it may be of great value, but too much has been claimed for it here. For hemorrhage of new-born babies, transfusion is specific and the use of the longitudinal sinus, as advised by Helmholz, is one of the most valuable advances of surgical technic; the tube is filled through the needle and emptied into the longitudinal sinus through the needle. For hemophilia transfusion is specific for the attack. (2) In chronic secondary anemia, when it is frequently of great value. It is of no value in acute sepsis. In acute primary anemia, such as acute leukemia, it is of no value. In chronic primary anemia, such as pernicious anemia, it is of value, but only temporarily and for variable length of time. For pernicious anemia it is the most efficient method of treatment known. Transfusion alone offers as much for pernicious anemia as splenectomy with or without transfusion, and carries none of the dangers of splenectomy. It usually brings about a remission by crisis, whereas other remissions come about usually by lysis; that is, slowly. Kimpton has found that reaction rarely follows transfusion of whole undiluted blood. Reactions are very common after transfusion of citrated blood. Massive transfusions of citrated blood may be dangerous, for whereas the percentage may be low the total quantity of citrate in massive transfusions may be considerable. Wassermanns, especially of donor's blood, should be done when time allows. Iso-agglutination tests should always be done, preferably in laboratory, between fresh bloods, as stock sera may deteriorate. Blood tests, in the author's opinion, are not necessary for new-born babies, as bloods are not usually grouped until the child is about two years old. Reactions are more likely to follow repeated transfusions, especially after four or five have been done, whether with the same or different donor. Kimpton believes that in cases where it is impossible to make blood tests—for instance, at the front—transfusion should be done without these tests.

New York Medical Journal.

March 16, 1918.

1. The Treatment of Pneumonia. Robert Franklin Ives.
2. Operative Procedure for the Relief of Contracted Sockets. Frank Allport.
3. Fortifying the Child against Mental Disorders. Everett S. Elwood.
4. The Wassermann Complement Fixation Test for Syphilis. J. Wheeler Smith.

5. The Differential Blood Count. The Arneth Formula and Doehle's Inclusion Bodies in Pulmonary Tuberculosis (With One Chart). Rowland W. Bachman and B. H. Lucke.
6. The Present Status of the Local Application of Radium and X-Rays. Walter A. Weed.
7. Shoes. Physiological and Therapeutic (With Four Illustrations; Concluded). Dexter D. Ashley.
8. Calculi in the Urinary Bladder (With One Illustration) Arnold Peskind.
9. Status of the Abortionist in the Modern Social Order Robert H. MacNair.
10. Drug Addiction. Recommendations of the Public Health Committee of the New York Academy of Medicine and of the New York Psychiatric Society.
11. The Clinical Types of Localized or Partial Tetanus Charles Greene Cumston.
12. Methods of Prevention and Control of Diseases in War Industries. Joseph W. Schereschewsky.
13. Medical College Training for Navy Hospital Corpsmen (With Three Illustrations). Willard Connelly.

5. The Differential Blood Count. The Arneth Formula and Doehle's Inclusion Bodies in Pulmonary Tuberculosis (With One Chart).—Rowland W. Bachman and B. H. Lucke made a study of fifty cases of pulmonary tuberculosis in order (1) to study the differential white blood count in the various stages of tuberculous patients of varying ages; (2) to study the Arneth formula of these patients; (3) to ascertain whether Doehle's leucocytic inclusion bodies are present; (4) to compare the results obtained and to give, if possible, any relation between these results and the clinical picture. The average age of the patients was 32.5 years, the majority being between 30 and 50 years of age. The authors reached the following conclusions: (1) In pulmonary tuberculosis decided alteration in the differential blood picture is found. (2) The more advanced the disease the higher is the percentage of polymorphonuclear neutrophils, and the lower the percentage of lymphocytes. (3) In cases tending to recovery the percentage of lymphocytes increases. (4) The Arneth formula shows that in pulmonary tuberculosis a large number of immature leucocytes occur in the bloodstream. (5) The more advanced the disease the higher is the Arneth's index. (6) Arneth's index shows in a general way the progress of the disease. (7) Doehle's inclusion bodies are present in pulmonary tuberculosis, especially in advanced cases.

The Journal of the American Medical Association.

March 16, 1918

1. Observations on Medical Conditions in Roumania. H. Gideon Wells and Roger G. Perkins.
2. Aqueous Solutions of Potassium and Sodium Iodids as Opaque Mediums in Roentgenography: Preliminary Report. Donald F. Cameron.
3. Sacral Tabes with the Clinical Picture of a Lesion of the Conus Medullaris: Report of Case. G. B. Hassin and E. P. Carroll.
4. The Diagnosis of Stones in the Bile Ducts by Means of the Wax Tip. Golder Lewis McWhorter.
5. Median Bar Excisor. W. F. Braasch.
6. Partially Autolyzed Pneumococci in the Treatment of Lobar Pneumonia: Results in Two Hundred Cases. E. C. Rosenow.
7. The Civil Administrative Code of Illinois, and Medical Licensure. Francis W. Shepardson.
8. The Military, Industrial and Public Health Features of Narcotic Addiction. Charles F. Stokes.

8. The Military, Industrial and Public Health Features of Narcotic Addiction.—Charles F. Stokes points out the importance of considering from every angle all possible sources of man power at this time. Throughout the country are hordes of drug users of military age, of whom in certain sections 90 per cent. are heroin addicts. A careful study of this type of drug addict has shown that a large proportion are capable of complete mental and physical rehabilitation, provided effective measures are employed, and could be enrolled in the military services or the war industries. In the opinion of the author the problem of drug addiction is one that unattached physicians might study and thus render a patriotic service. In any organized effort to meet this situation it must be remembered that in cases of prolonged use of opium and its narcotic derivatives we are dealing with chronic depression of nervous functions, and that this depression involves the ductless glands and other organs that have to do with depression, with consequent disturbance of nutrition and possibly subsidiary intoxications. The sharp withdrawal of the drug brings about a back-sway, or counterfeet stimulation, and results in an intense crisis in the

vegetative nervous system. If this emotional outburst can be avoided, convalescence is hastened and the patient saved much intense suffering. No scheme of procedure can be satisfactorily carried out until we have federal control of the distribution of narcotics, hospital facilities for the care of women addicts, licensing of physicians qualified to treat addiction, supervision over sanatoriums, and above all the abolition of heroin. A collecting station should be established in or near each great center where addicts might be referred by the draft boards, go voluntarily, or be sent by court procedure. Here they could be classified and studied and when ready for transfer pass to the zone of disposition, prepared for assignment, each case on its merits. Stokes concludes with a note on the work done in New York City, where it was clearly demonstrated that drug addicts could be controlled by enlightened methods of discipline and administration, on an open farm without guards, and with the employment of few punitive measures. It was found that the longer the patients remained in the colony the closer they approached the normal. He points out that it is of the greatest importance that such cases should be kept away from former pals and old surroundings; and this is particularly true of adolescent heroinists.

The Lancet.

February 16, 1918.

1. Hunterian Lecture on the Diagnosis and Treatment of Syphilis of the Central Nervous System: With Special Reference to the Use of Novarsenobillon. Hildred Carlill.
2. Hunterian Lecture on Wolff's Law of Bone Transformation. Arthur Keith.
3. A Case of Rat-bite Fever. S. R. Douglas, L. Colebrook, and A. Fleming.
4. The Preservation of Typhoid and Paratyphoid Bacilli in Stools by Emulsifying in Glycerine. T. H. C. Benians.
5. Observations on the Action of Acriflavine and Proflavine. W. Harry Morgan.
6. The Control of Venereal Diseases. The Diagnosis of Syphilis: Its Treatment by Novarsenobenzol, Mercury, and Iodide of Potassium. H. W. Abbott.
7. A Case of Diphtheria Presenting Unusual Multiple Paralysis with Recovery. James Law Brownlie.
8. A Case of Puerperal Septicaemia Successfully Treated with Intravenous Injections of Colloidal Argentum. T. H. Sanderson-Weils.

2. Hunterian Lecture on Wolff's Law of Bone Transformation.—Arthur Keith points out that though Julius Wolff, in his great Atlas-Monograph entitled "The Law of Bone Transformation," first gave definite expression to the idea that bone in its external form and internal structure changes with every alteration of function—in brief, that a bone has the power of adapting itself to the burden it has to bear—the substance of this law is to be found in Charles Bell's "Illustrations of Paley's Natural Theology," written in 1834. Nor was Wolff's realization of living bone as a plastic tissue altogether new, a similar conception having been held by Flourens and by Hunter, but he was the first to devote years of constant work and observation to prove that the shape and structure of growing bone and adult bones depend on the strains and stresses to which they are subjected. In 1867 Cullmann, upon examining von Meyer's drawing of the femoral neck, made the discovery that its architecture was a perfect mathematical design for the transference of weight. Wolff continued his researches and, in 1870, commenced to formulate his law of bone transformation, to which he added item upon item until 1885, when it reached its final form: "Every change in the form and the function of a bone or of their function alone, is followed by certain definite changes in their internal architecture, and equally definite secondary alterations in their external conformation, in accordance with mathematical laws," or, in the simple words of the late John B. Murphy, "The amount of growth in a bone depends upon the need for it." Wolff believed that knock-knee or genu valgum was the result of faulty posture, the lines of pressure thereby being deflected from the normal. Keith, however, takes the view that in all static deformities the transformation of bone is the direct result of defective or unbalanced muscular action. The form of treatment advocated by Wolff—Macewens osteotomy of the femur, or, preferably, the exertion of pressure through the application of splints or bandages—had previously been in use. He, how-

ever, was the first to point out the extensive changes which take place in the internal architecture of the femur, tibia, and fibula after rectification. Keith shows the importance of the osteoblasts in building up the structure of bone, a fact which Wolff failed to realize. In 1852 Goodsir's investigations on a Spitzberg sponge led to the discovery of the cells or scleroblasts, which form its skeleton of spicules. The study of the scleroblasts was taken up by Minchin, and has been continued by one of his pupils, W. Woodland, who has worked on the *Sycon coronata*, a sponge that grows in shallow tidal waters, or is planted on rocks and exposed to the action of falling waves. It is studded with calcareous spicules, and is of a cylindrical shape, tapering to its attached base, and also to its oscular extremity. The required support and protection to the sponge wall are supplied by a skeleton of separate calcareous spicules. The spicule builders—the scleroblasts—are endowed with the same properties as osteoblasts, namely, the powers of fashioning and depositing the elements of the skeleton so that the sponge can best resist the forces to which it is habitually exposed. Woodland found that the scleroblast which was to give rise to the needle-shaped or monaxon type of spicule moved inwards from the dermal layer of cells to a position in the sponge wall. It then divided, and a calcareous spicule commenced to form—to be secreted—within the cell substance. As the spicule grew in length the daughter scleroblasts separated, each moving towards opposite ends of the spicule. The scleroblasts were applied to only one side of the spicule, which kept growing in length until its outer end projected into the dermal layer. The outer scleroblast then forsook the spicule and moved within the sponge wall, and shortly afterwards, accompanied by its companion, disappeared. These spicules were evidently intended as much for protection as support. Woodland also observed that triradiate and quadriradiate spicules were formed by groups of scleroblasts which arranged themselves, as Goodsir had observed, at points of a geometrical scheme, and that if the position of the sponge were altered the scleroblasts reacted in such a way as to straighten the side on which the chief stresses then fell. It is to be supposed that these cells are sensitive to certain forces—the pressures and tensions caused by moving waters and also to the force of gravity. From Dendy's work it is evident that these scleroblasts are so sensitive to vibration that they are able to discover the points of least vibration on any given spicule. Since they change their mode of building as stresses change, it is apparent that the inherited powers of the scleroblasts can be changed by the circumstances under which they work. These observations on spicule building are of the greatest importance in the interpretation of Wolff's law, which is simply this: "Osteoblasts at all times build and unbuild, according to the stresses to which they are subjected." Every orthopedic surgeon should cultivate a close observance of the behavior of osteoblasts, which by the manipulation of forces brought to bear upon them can be made to build as we will. Acute inflammation increases their activity and destroys their sensitiveness to pressures. The study of diseased conditions brings out other qualities and throws sidelights on the complex nature of osteoblasts.

British Medical Journal.

February 23, 1918.

1. Notes on Penetrating Wounds of the Brain. Harvey Cushing.
2. Note on the Extraction of a Foreign Body from the Brain. H. H. Rayner and A. E. Barelay.
3. On the Influence of Muscular Exercise on Longevity. Sir Herman Weber.
4. Thigh Stump Extension Splint. Welby E. Fisher.
5. Long Life After Excision of Rectal Cancer. W. Harrison Cripps.
6. The Guillotine Amputation. R. W. Murray.
7. Spontaneous Hemorrhage Into the Peritoneal Cavity in Arterio-Sclerosis. J. W. Hilliard.
8. Resuscitation of Wounded. Robert B. Johnston.
9. Barcoo Rot (Veldt Sore). H. S. Stannus.

3. On the Influence of Muscular Exercise on Longevity.—Sir Herman Weber points out the power of muscular exercise to increase the length of life. Walking is the most natural of all muscular exercises, as shown

by Hippocrates, and is particularly beneficial when accompanied by deep breathing and exercise of the arms. Weber sums up the effects of such exercise as follows: (1) Increased afflux of blood to the muscle with each contraction. (2) Increased nutrition of the muscle, combined with improved metabolism and production of body heat. (3) Increase of exchange of fluid between blood and tissues. (4) Facilitation of the removal of waste products. (5) Preservation of the elasticity of the thorax and lungs. (6) Abundant supply of oxygen for the blood and the metabolism. (7) Maintenance of a healthy condition of the organs of circulation, from the heart to the smallest arteries, capillaries, and lymphatics. (8) Massage of the bones, keeping up the healthy condition of the bone substance and the bone marrow, and through this the formation of a sufficiency of blood efficient for the fight with hostile bacteria entering the blood. (9) Increase of the resisting power of the body against disease. (10) Persistence of the working capacity of the brain centers, which initiate the action of the different sets of muscles. The author concludes with a reference to his own life. He attributes the satisfactory condition of health and strength which he retains in his ninety-fifth year to the exercise of the muscular system and attention to hygienic conditions, the digestive functions, mental work and the tenor of the mind, as explained in his book on "On the Means for the Prolongation of Life." He points out that both his parents died in the sixtieth year of their age.

Berliner klinische Wochenschrift.

December 31, 1917.

A Contribution to the Etiology, Clinical Aspects, and Hematology of Pernicious Anemia.—J. Zadek relates cases of saturnism, syphilis and cancer in which the hematological picture was in perfect accord with that of cryptogenetic pernicious anemia. Besides this, the writer insists upon the clinical and necropsic similarity of cases of various types of anemia. The diagnosis of pernicious anemia should be based entirely upon the hematological findings as well as upon the clinical picture, and never upon either one of these alone. Pernicious anemia following on cancer of the stomach can be attributed to an acute gastrointestinal auto-intoxication. "Essential" pernicious anemia, which for the time being is classified apart from the symptomatic anemias, examples of which are related by the writer, should draw one's attention to the possibility of a latent gastric cancer as well as to the possible presence of intestinal parasites.

The Late Effects of Absorbed Light.—Buttersack refers to three cases of solar dermatitis which did not remain localized to the exposed parts, but progressed upwards along the arms. In one instance it even extended to the calves and feet. The writer relates these facts to certain theoretical considerations in which the skin is regarded as a transformer of ray energy and to the possible part played by the internal secretions in the photodynamia of the body.

Münchener medizinische Wochenschrift.

January 1, 1918.

The Cure of Trigeminal Neuralgia with Radiotherapy.—Wilms believes that, just as in the case of sciatic, lumbar, or occipital neuralgias, that of the facial can be cured by Roentgen rays. The technique consists in applying over both temples and cheeks a penetrating dose of from 30 to 40 X, filtered through a 3 m.m. aluminum plate. The nerve is thus reached at its exit from the cranium. In neuralgias occurring in the areas of the ophthalmic and superior maxillary nerves the forehead and cheeks may be irradiated from in front. One should avoid the hair areas as much as possible, in order to avoid the destructive action of the secondary radiations on the hair. This treatment should be resorted to before intraneural injections or neurectomy have been done. The treatment is also favored by a general radiotherapeutic treatment and the exhibition of radioactive water.

The Life-Saving Effect of Blood Transfusion, Based on Eleven Cases.—H. Coenen has obtained splendid

results in eight cases of serious anemia resulting from hemorrhage by blood transfusion. The three negative cases cause the writer to offer the following conditions in order to obtain the desired results: (1) To be perfectly familiar with the technique of blood transfusion; (2) to have a proper donor; (3) the patient's wounds must not be hemorrhagic or the site of a suppurative process; and (4) to have the necessary time for carrying out the technique properly. The technique followed by Coenen consists in division of the radial artery of the donor and its suture to the median vein of the receptor. The duration of the transfusion varies to from one to two hours. The effect of the intervention, which is sometimes tardy in manifesting itself, on account of spasm of the anastomosed artery and vein, soon shows its good effects in the receptor. The color returns and the coma vanishes, and from this time on attention should be given entirely to the donor who should give the signal for ceasing the operation. This is indicated when the donor's pulse rises to 120 beats, when he becomes pale, when his respiration becomes deep and blowing, when he complains of tinnitus aurium, a feeling of weight in the limbs, and general weakness. Sudation or vomiting must not be waited for in the donor. Coenen estimates at about one litre the mean quantity of blood to be removed from the donor without causing any untoward effects.

Deutsche medizinische Wochenschrift.

January 3, 1918.

The Value of Radiotherapy in Myomata and Metrorrhagia.—A. Lorey publishes this article in reply to that of Nagel (reviewed in THE MEDICAL RECORD) in which the latter doubted that this new method was superior to the ordinary operative treatments. Lorey maintains that it is quite exact to suppose that the effect of the rays takes place through the intermediary of the ovaries, and also that a direct action on the myoma is likewise certain. It is permissible to hope that we shall soon be in possession of a sufficiently precise technique in order to obtain a hemostatic effect without suppression of the menses in young women. The technique employed by the writer is as follows: A series of irradiations at intervals of three weeks. Each series may be given in from one to four days' duration and comprises the application of from 40 to 60 X (for each area) over two abdominal and two gluteal areas, at a distance of 30 c.m. through a 5 m.m. aluminum plate, slight compression being used. The time of exposure for each area varies from eight to twelve minutes. Lorey's results lead him to consider this procedure as far superior to operative treatment, which still has a mortality of 5 per cent. under the best circumstances.

The Sources of Contamination in Venereal Disease Among Soldiers During the War.—O. Gans gives the statistics of 1000 venereal cases. Of these there are 740 cases of gonorrhea and 260 of syphilis, figures which show a serious increase of the latter affection. Ulcers molle has been rarely encountered. The place of contamination was found to be the native town of the soldier in 38.1 per cent., the garrison town in 38.1 per cent., during leave in 12.8 per cent., the remainder having been contracted in campaigning. Disease was really contracted at the front in only 14 per cent. of the cases. The writer concludes that measures consisting in removing all suspected women from the front are insufficient, and he finally concludes that the only practical method of prophylaxis is the prophylaxis of each man in particular.

Wiener medizinische Wochenschrift.

Special Ophthalmological Number, January, 1918.

On Ocular Lesions from Air Compression Resulting from Exploding Shell.—V. Hanke estimates at 5 to 8 per cent. the percentage of ocular lesions in relation to the total number of wounds in warfare. These figures are about double those given in the statistics of former wars (1870-1904). This increase, which loses all relationship with the effective portion of the body surface represented by the eyes, viz 1/750, is due to the conditions of modern warfare and to the more general

use of explosives. Hanke reports three cases of blindness due to bursting projectiles. The lesions consisted in laceration of the posterior ciliary vessels, combined in one case with a proliferating retinitis and in another case with laceration of the choroid. The mechanism of these lesions is a sudden compression of the globe from air pressure, which in the three reported cases was sufficiently powerful to throw the men to the ground.

Ocular Wounds from Mine Explosion.—Beykovski has had twenty-one cases of ocular lesions resulting from the explosion of a mine. Among them he refers to two instances in which serious damage was produced by atmospheric pressure alone. These were cases of deep subconjunctival hemorrhage with detachment of the retina. The latter lesion might be attributed as much to the rarefaction of the atmosphere following the explosion as to the primary high pressure itself.

Wiener medizinische Wochenschrift.

January 5, 1918.

The Relationship of Tuberculosis to Typhoid and Dysentery.—R. von Chiari found, out of a total of 82 patients dying from tuberculosis, 15 subjects in which evidences of a former typhoid infection existed. In three cases the writer was able to detect changes of a tuberculous nature at the borders of the typhoid ulcerations. The pathogenesis of this phenomenon is clear. It simply shows that tubercle bacilli swallowed with the food became colonized on the typhoid ulcerations. The writer rejects any signification derived from Widal's reaction in such cases; it may even reach the high point of 1/100 in purely tuberculous cases and in any type of febrile state. As to dysentery, von Chiari has observed that in numerous instances it brought about death, not by itself, but from a super-added tuberculous infection. Dysentery creates an adynamic state which favors the lighting up of quiescent tuberculous processes.

Military Ophthalmia in the Austro-Hungarian Army.—A. Pichler offers a study, particularly from the historical viewpoint, on epidemics of trachoma which have developed in European armies since the days of Napoleon. The contagiousness of this affection has been greatly exaggerated. The Koch-Weeks bacillus became pathogenic only on conjunctivæ already irritated by the sun's rays, dust, etc. At present the Board of Sanitation places affected soldiers in special camps. Thus they are not withdrawn from service at the front, and can receive the necessary specialized care. Pichler has noted extraordinarily satisfactory results obtained by this means. At the end of six months a serious amelioration can already be observed in many men, and even a relative recovery may often take place.

Brazil-Medico.

January 12, 1918.

Case of Leishmaniosis Mutilans.—Machado and Aleixo of Bello Horizonte describe and illustrate the following case: The testimony of the patient was to the effect that he had first noted the presence of a pimple behind the left nostril. The lesion ulcerated and the process extended downward. No treatment was of any avail, including mercurial injections. When first seen the process had destroyed the middle portion of the upper lip, which was elsewhere markedly and symmetrically hypertrophied. The area of ulceration had involved the septum narium, although the osseous tissue was respected. The tip and alae of the nose, according to the illustrations, were also spared. The upper jaw was left exposed by the defect in the lip. The buccal cavity was extensively involved by the disease, the various tissues showing a certain degree of nodular hypertrophy. The process extending backward involved the palate, uvula, fauces, and tonsils, and the tongue was hypertrophic. The structures in the floor of the mouth are not mentioned. The process had extended to the larynx, and the epiglottis was greatly swollen, while involvement of the larynx proper was shown by the difficulty in phonation. The diagnosis was readily made by the microscope. The patient was at once placed on antimony—daily intravenous injections. Tolerance be-

ing excellent, the dose was increased until at last a violent reaction was set up. By this time the disease had been completely overcome and some plastic work was done with success. It was necessary to create a new upper lip and nostrils.

Cholelithiasis, Cancer of the Liver, Total Polyserositis, and Mitral Insufficiency.—Amaral reports this complication of diseases in a white boy of 14 years. There was a history of ankylostomiasis and ascites and of many symptoms which pointed to cholelithiasis. The liver was found to be greatly enlarged and was held to account for the ascites and perhaps for the biliary obstruction. Cancer of that organ which was the provisional diagnosis was confirmed by laparotomy. The child succumbed a few days after the intervention. Autopsy revealed the presence of double pleurisy, pericarditis, and peritonitis—which was present in addition to the mechanical element of ascites. The cancer had in all likelihood originated in the gall ducts.

Le Progrès Médical.

February 2, 1918.

Action of Adrenaline Upon the Heart as Studied by Radioscopy.—Loeper, Dubois, and Wagner examined upon the screen the cardiac area before and one hour after the injection of 1 m.gm. of adrenaline. In all, a round 100 subjects were thus examined, including both normal and pathological material. In the majority of the normal subjects the two shadows were exactly superposed, although in certain ones there was a transitory reduction. In initial cases the enlargement of the heart was constant, while in aortic cases (aortitis, aneurysm) dilatation was also constant. Dilatation occurs soon after exhibition of the drug and will have disappeared in an average of one and a half hours. This phenomenon of dilatation is apparently passive and due to peripheral vasoconstriction. We therefore have here a good resource for determining the reserve force of the heart in organic disease. On the other hand, this dilatation need not mean organic disease, for it is also encountered in a certain number of tired, irritable, and tachycardic hearts.

Researches Into the Semeiology of Aortic Lesions as Determined by the Sphygmomanometer.—Mougeot, in charge of an army heart station, began his studies on young subjects with sound arteries as controls for three types of aortic disease—viz, auscultatory insufficiency, aortic sclerosis not involving the abdominal aorta, and finally abdominal aortitis. Several types of blowpressure apparatus were used for reciprocal control. Both the forearm and leg were used for measurements. It was learned that young, sound subjects may exhibit a relative hypertension in the lower extremities—i.e., the tension is greater than that in the upper extremities. According to the apparatus used, this may amount to from 1 to 2.5 m.m. difference. In 21 cases of aortic insufficiency the maximum pressure was much greater in the lower extremities, but varied much with the apparatus used. In 11 cases of aortic sclerosis, uncomplicated in any way, the difference in maximum pressure between the upper and lower extremities was slight. In 7 cases with abdominal aortitis the ratio between the leg and arm pressures was marked—much larger than in aortic insufficiency. In all three groups of pathological cases the minimum pressures were practically the same for upper and lower extremities. By means of these tests it was learned that certain seemingly sound soldiers had slight aortic insufficiency. Nevertheless, some excess of tension in the lower extremities must be regarded as physiological.

Another French Case of Sodoku.—Ramond and Lévi-Bruhl report the case of a French soldier who after having been bitten by a rat developed the characteristic local and general reaction of sodoku. Of interest was a certain resemblance to trench fever which led to a discussion of the possible identity between the two diseases. That is to say, "Could trench fever be sodoku conveyed otherwise than by a bite?" The trench rat, once attacked with the supposed spirillo, might in turn infect the trenches and thus indirectly convey its disease to man.—*La Presse Médicale.*

Book Reviews.

TRAINING AND REWARDS OF THE PHYSICIAN. By R. C. CABOT, M.D. Lippincott's Training Series. Price, \$1.25. Philadelphia and London: J. B. Lippincott Company, 1918.

A work of this scope is hardly subject to review in the usual sense of the term. Every beginner in medicine and every young man contemplating the adoption of this as a career should possess a copy of it. It is packed with information and contains little of a purely dogmatic character. The book has three sections: the preparation of the physician, his helps and hindrances of development, and his rewards; the latter being set down as psychic rather than material.

THE THYROID GLAND IN HEALTH AND DISEASE. By ROBERT MCCARRISON, M.D. (R. U. I.), D.Sc. (Belf.), F.R.C.P. (Lond.); *Lauréat de l'Académie de Médecine*, Paris; Major, Indian Medical Service. Price, \$4.00. New York: William Wood & Company, 1917.

MCCARRISON'S classical work on the thyroid is undoubtedly well known to most medical men, particularly those interested in the function and diseases of this gland. In the present publication the author has collated his papers of the past fourteen years into one volume, and, as he states in the preface, has drawn from the work of others to fill in where his own observations have failed to provide. The book is divided into three parts. The first deals with the Thyroid and Parathyroid glands in health; the second with the factors which cause them to depart from health; and the third with the morbid states—including goiter, cretinism, tetany, myxedema, and Graves' disease—which result from this departure. Part I is devoted to anatomy, histology, physiology, chemical physiology, functions, and life history of the thyroid and parathyroids. The function of the colloid material has long been a question of dispute and in this connection McCarrison says: "I look upon the colloid as a substance designed to contain an emergency reserve of iodine, a reserve which is not primarily called upon in the daily routine of the body demands. . . . The 'emergency ration' of iodine-containing colloid is, however, called upon when the supply of iodine in the food runs short, under the demands of excessive sympathetic excitation such as occurs in rage or fright (Cannon) at certain periods of life—dentition, puberty, menstruation, pregnancy, or lactation—as a result of residence at certain high altitudes, at certain seasons of the year, and when the body is invaded by microorganisms or subjected to certain intoxications."

Part II treats of various deleterious agencies that may affect the thyroid and parathyroids, such as malnutrition, residence in insanitary surroundings, bacterial and other toxins, infections, intestinal toxemia, the influence of consanguinity and heredity, psychic disturbances, etc. The author lays considerable stress on the influence of intestinal toxemia as a cause of thyroid abnormality, and in support of this hypothesis gives many experiments carried out on animals, and points out their application in the human subject.

Part III, which comprises fully two-thirds of the text, is concerned with diseases of the thyro-parathyroid apparatus and their treatment. It is in this part that the author is able to utilize his enormous clinical and experimental experience to the greatest advantage. Seriatim, the sections are titled as follows: Endemic goiter; congenital manifestations of goiter with experimental considerations; congenital goiter; endemic cretinism; treatment of congenital hypothyroidism and cretinism; parathyroid disease and the origin of tetany; tetany; inflammations and simple toxic goiter; myxedema; Graves' disease. A large fund of valuable information is contained in this part; no point is neglected. In the first section on endemic goiter, of which the writer saw so much in India, mention is made of treatment by intestinal antiseptics and vaccines. The author claims very gratifying results from the use of autogenous vaccines made from organisms belonging to the colon group, and also from staphylococcus vaccines. The section on Graves' disease is, in our opinion, one of the best presentations of this much discussed malady which has appeared recently. McCarrison leans strongly to the theory of gastrointestinal toxemia as the

etiological agent. He considers the question of thyroidectomy and emphasizes its limitations.

Three appendices are added. The first contains a list of the author's publications on goiter and allied subjects from 1906-1916. The second contains tables showing the influence of intestinal antiseptics on simple goiter. The third appendix gives a schedule of the more important epidemiological and experimental researches carried out by the author, and serves to show the large amount of work he has done on the subject.

The volume is printed on high-grade paper in clear, easy type, making it a delightful book to read. The illustrations are numerous and well executed; most of them are original. Taken altogether, the work forms one of the most valuable contributions to a very difficult field of medicine, and is one that will well repay reading by the specialist or general practitioner alike.

DISEASES OF WOMEN. By HARRY STURGEON CROSSEN, M.D., R.A.C.S. Associate in Gynecology, Washington University Medical School, and Associate Gynecologist to the Barnes Hospital; Gynecologist to St. Luke's Hospital, Missouri Baptist Sanitarium, and St. Louis Mullanphy Hospital; Fellow of the American Gynecological Society, and of the American Association of Obstetricians and Gynecologists. Fourth Edition, Revised and Enlarged. With 800 engravings. Price, \$7.50. St. Louis: C. V. Mosby Company, 1917.

THIS work has been reviewed already more than once, but as its scheme is based upon somewhat novel ideas, it will not be out of place to recapitulate these. It is devoted exclusively to the diagnosis and treatment of diseases of women as those diseases are met with in the office and at the bedside by the general practitioner. Other considerations are passed over, except such as are necessary to bring the work to its highest usefulness as a practical guide in the lines indicated. Since the issue of the first edition no alteration in the general scheme has been made, but a great deal of material has been added. With regard to this, the fourth edition, the two principal additions are: first, numerous drawings and photomicrographs illustrating gynecologic pathology; and, second, a chapter on the ductless glands in their relation to gynecology. The chapter on the ductless gland system was written by Dr. Hugo Ehrenfest. It may be said that owing to the fact that Dr. Harry Sturgeon Crossen has been called to active war duty as a member of the Medical Officers Reserve Corps the manuscript was completed and prepared for press by Dr. Hugo Ehrenfest, Professor of Obstetrics and Gynecology, St. Louis University. The work has been brought up to date and, in particular, the problem of the relation of the endocrine gland system to gynecology is discussed at greater length and more systematically than ever before attempted in any textbook of gynecology.

The engravings are a feature of the book. Their excellence renders the elucidation of the text an easy matter. As a book of reference for practitioners this last edition will prove as valuable as the former editions.

A COMPEND ON BACTERIOLOGY, INCLUDING PATHOGENIC PROTOZOA. By ROBERT L. PITFIELD, M.D., Pathologist to the Germantown Hospital, Late Demonstrator of Bacteriology at the Medico-Chirurgical College, Philadelphia; Visiting Physician to St. Timothy's Hospital and Chestnut Hill Hospital, Philadelphia. Third Edition. With 4 Plates and 82 Other Illustrations. Price, \$1.25. Philadelphia: P. Blakiston's Sons & Co.

WRITTEN primarily for the use of medical students, this third edition of this Compend has been brought up to date and all unnecessary old matter removed. An entire chapter has been devoted to the subject of immunity, and for so small a book an exceedingly comprehensive piece of work is offered. The illustrations in the main have been drawn from the works of well-known authors in the field of scientific medicine, and are many and wisely chosen. The chapter on filterable viruses has been the contribution of Dr. Herbert Fox of the University of Pennsylvania (Pepper Laboratory). This little work meets the requirements of the high standard always found in this set of quiz-compend.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting Held February 21, 1918.

VICE-PRESIDENT, DR. GEORGE D. STEWART, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Pediatrics.

Internationalism and Public Health.—Dr. GEORGE E. VINCENT, of the Rockefeller Foundation, made this address. He said that he was not a pediatrician, but he might, as a layman, speak on a subject of profound interest in connection with the war, namely, child welfare, not only as it related to young infants but as it affected children of school age. The war situation had not as yet made much impression on the children of America. In order that we might avoid such injury to our children as had befallen those of Belgium and other European countries we should begin now to combat anything that threatened their welfare, for whatever impaired the vigor and vitality of the nation's children struck at the basis of the nation itself. Dr. Vincent said he wished to speak more particularly of Internationalism and Public Health. Thus far we knew so little about the war in this country that we might be justified in speculating as to what might happen after the war was over. After the war was over the world would probably be patched together again just as it had been after wars in the past. At the time of the Franco-Prussian war Louis Pasteur said that after that war was over no Frenchman would ever again associate with a German, and no self-regarding German would ever again come to France. Yet before 1914 something of the kind that Pasteur said never could happen had come to pass. A German diplomat at the same time said that it was a source of great regret that it would be twenty years before he could go to Paris, thirty before he could go to London, and forty before he could again go to Vienna. However, something like amicable social relations between these countries were resumed before the lapse of many years after that war was over, so it seemed altogether probable that something like international relationships would again be established between the warring nations of the present time. It was also possible to conceive of a situation in which the relations of the allied nations would not be as harmonious as they were to-day. There would probably be a perfect orgy of explanations and justification of motives after the war was over. The most useful international gatherings when that time came would not be those dealing with politics, morals, or religion. It would be on the basis of scientific interest that the world would begin to be patched together again. After having conquered the Philippine Islands with machine guns some doctor suggested that a dispensary be established. This was done and the doctors by selecting the diseases that were amenable to treatment soon impressed the inhabitants of the island with the value of a dispensary. The doctor then brought with him his friend the school master. After a time the dispensary developed into a floating hospital, which covered a circuit of some fifteen stations in the Sulu Archipelago. It was equipped with a thoroughly modern operating room. There was also a base hospital to which this ship might carry patients when this seemed desirable. Such a plan of subduing and protecting a backward people might be found useful elsewhere, and it might prove a more rational method of subduing such a people than machine guns. If one went into the Southern States he would find that there were some 600 people engaged in the problem of controlling hookworm disease. This was a perfectly understood disease and therefore something worth while clinging to as an illustration of what public health work meant and what it could accomplish. In this disease one got perfectly definite and demonstrable results so that it was effective in teaching the value of public health work. The Government gave its support until the value of the work had been demonstrated and then it withdrew and left the local health organizations to carry on the work. During the past year model sanitary codes drawn up by the International Health Board of the Rockefeller Foundation had been adopted

by Ceylon and Guatemala. Dr. Vincent said that he referred to these things in order that his hearers might see that public health activities played a definite part in the progress of civilization. It meant a great deal to have 600 men go out from this country to establish sanitary organizations, men who went as ambassadors of friendliness and beneficence to mankind. While this was not a spectacular method of advancing civilization there was no doubt that it played an important part in building up the structure of internationalism, and it might be depended upon to help in bringing the world together again.

A few years ago several professors in Chicago thought it would be a good idea to see what could be done toward introducing occidentalism into the Orient. They decided that the most practical way of attacking the problem was to send a couple of professors into the East to study conditions on the ground. For this purpose a professor of geology, with his planetary theories, and a professor of theology, not a modern theologian from an eastern center of learning, but a plain Middle West theologian, were chosen and sent to China. Difficult as it was to get a unanimous report on any subject from any group of men, it was even more unusual that a geologist and a theologian should agree, yet those men after their investigation sent in a unanimous report stating that if occidentalism and orientalisms were to meet and fuse it would not be on a basis of politics, philosophy, or religion, but that a basis for such a union might be found in modern science. This did not make an appeal as being a warm, human, and throbbing plane upon which to effect a union, so a committee was appointed to go to China and make a further investigation. The report which this committee submitted recommended the establishment of scientific relations with the East, and especially scientific relations as applied to human welfare. As a result two medical colleges were planned for China. The cornerstone of the first was laid in Peking last September by Dr. Frank Billings of Chicago. The building was now under process of construction and represented all that was modern in equipment for scientific work, but the architecture of the buildings was Chinese. Instead of an arrogant, intrusive, occidental structure, the exterior would be perfectly merged into the beauty of the Chinese city and would represent nothing aggressive or interpolating from without. Inside, however, it represented all that was signified by modern medical science. The medical college planned for Shanghai was not to be built until after the war. Arrangements were made whereby the pre-medical course would be provided by the College of China in Peking. In the central part of China existing educational institutions had been subsidized and grants given them to enable them to provide the standard pre-medical education. These schools would form the tributaries of the new medical colleges. The hospitals in China would be so standardized that internships would be provided for the graduates of the medical schools. One might suppose this system extended. Great Britain might deem it wise to establish a medical school in Calcutta such as the United States had established in China. She might establish another medical center in Cairo, and possibly events might so shape themselves that such a medical center might be planted in Constantinople. A world system would thus be developed. If one medical center had a professor with a message for the medical world he might be detached from his institution and sent to Shanghai, Calcutta, Cairo, or Constantinople, and medical men all over the world coming to these centers would come into contact with him. In this way new medical knowledge could quickly be placed at the service of the entire world. Arrangements could also be made for an exchange of medical students. There were at the present time 57 medical students from foreign countries studying in this country. Medical missionaries were now given but one year in seven in which they could come home to study, but with the completion of such a system of medical centers it would be possible for them to study for a time each year.

There was at the present time a Franco-American Committee which planned for the exchange of scholarships so that there was at least a beginning of an international system of student migration as well as

a beginning of the exchange of professors. Under a well developed exchange system a cablegram sent to a medical center, say for a pathologist, would be met by an immediate response. The pathologist would be sent where he was needed and at the same time some one would be sent to the center from which the pathologist had gone to be trained to take his place later on and to release him. There was no question that the operation of such a system would have a direct bearing on international relationships. There was nothing more creditable in modern times than the fact that the initiative in preventive medicine had been taken by the members of the medical profession. There were some people who denied this altruism on the part of the medical profession because they could not comprehend it; they could not conceive of men doing a thing whereby they were endangering their own means of livelihood. It was not to be expected that the work done in preventive medicine would meet with full appreciation. They would have to derive their satisfaction from a consciousness of rectitude and of duty well performed.

Thus far there was really no successful system of devoting full time to public health work. In only a few places had solid achievement been attained in the training of public health officers. Such courses in public health work as were offered by some of our medical colleges left much to be desired. However, a school had been established in connection with Johns Hopkins University which would be opened next September. This school would afford a complete training for public health work. Dr. William H. Welch had severed his connection with Johns Hopkins University and had become the director of this new institution. The work done in this institution would be done not only in the laboratory and the lecture room, but in the field. Actual health surveys were to be made in a section of Baltimore set apart for this purpose. This school was to have its own corps of instructors, its own curriculum, and its own professional spirit. It would not be difficult to gain admission to this institution, but it would be difficult to win a diploma. That this work would have an influence on internationalism there could be no doubt.

In speaking of the tuberculosis work in France, Dr. Vincent recalled that in 1915-1916 it was found that the tuberculosis situation in France was serious, and Dr. Hermann M. Biggs was sent to study the conditions and to suggest means of dealing with the situation. He recommended the training of doctors and nurses to carry on a campaign in France similar to that which had been successful in the United States. Dr. Livingston Farrand, with a staff of assistants, went to France to assist in solving the problem. He did not herald his arrival in France with highly colored newspaper articles stating that he had arrived in France and that now all would be well. It was to be remembered that it took a high degree of spirituality to be continually exposed to charity and to accept the situation amicably. One French woman expressed this feeling by saying that the French were exposed to two enemies, the Germans and their own friends, the Americans. Dr. Farrand performed his work quietly and unobtrusively, in the closest co-operation with public spirited French people. He assisted in organizing for anti-tuberculosis work one of the arondissements in Paris and one of the departments outside of Paris, thus demonstrating the method of carrying on a campaign against tuberculosis in both a city and a rural community. Motor cars with a traveling exhibit, such as we were accustomed to employing in this country, had been placed in operation. Seventy nurses were being trained to go into this work. The method of co-operation between the American and French Red Cross organizations served as an illustration of international co-operation, yet this represented but one agency.

There was another agency for the promotion of internationalism in the Surgical Research Council. This set up workers in London, Paris, and Washington, and provision was made by the governments for constant intercommunication between these groups. They formed what was in reality a syndicate. This meant a recognition of the community of interest in science. This was the spirit that would be valuable in bringing the

world together again. Dr. Vincent expressed the conviction that the work done by medical men for the public health and in research, in the exchange of professors, in the migration of students, and in application of science to human welfare, a work which recognized the community of mankind and laid emphasis on the things that men had in common, science that sought the truth and applied it for the benefit of mankind, would knit the old world together again. He said that he did not paint a picture of the millenium as about to arrive, but he did believe that we were drawing closer together and that the things that were being accomplished in public health work by quiet persistence and good will would create an understanding among different peoples, and that it would be found that nothing was more effective in reconstructing the world than preventive medicine applied to the welfare of mankind.

Dr. GEORGE D. STEWART expressed the gratitude of the audience to Dr. Vincent for having presented the broad view of the drawing together of different peoples. This broad view was most enlightening to the members of the medical profession who were accustomed to having their attention concentrated on a very narrow field. All America was being unified under the forces that were at work to-day. Every man between the ages of twenty-one and thirty-one was getting a physical examination and all the doctors were getting additional medical education. The war was giving us a big nationality to fit a great nation. It was to be hoped that we would have, not necessarily universal military service, but universal service for our country and our fellow men.

Child Welfare Work in France by the American Red Cross.—Dr. ESTHER LOVEJOY presented moving picture films, shown for the first time in this country, demonstrating the relief work done by the Red Cross among the refugees from the occupied territory of France and Belgium. She said she had been interested in Dr. Vincent's remarks about conquering the Filipinos with machine guns, and could not help wondering why we had not employed the dispensary first before using the machine guns. In regard to America doing relief work in France, it had been her experience that the general feeling among the French was not that of the woman who felt that the French people were besieged by two enemies. On the contrary, there was a feeling of confidence and joy that the Americans were there in France. The French people might read in the papers that the Americans were helping them, but they liked to see the visible evidence of a helping hand in the shape of an American uniform or even an American in citizen's clothing. The visible evidence that we were assisting these people was an inspiration to them. Dr. Lovejoy said she had heard Dr. Farrand speak for a few minutes to a French audience. He spoke in French and they were very much interested in what he had to say. In fact, the French people were greatly interested in anything that was American. The pictures shown illustrated the relief work done at Evian and Toul. All the people sent back from the occupied territory of France and Belgium were either old people or children of from two to fourteen years of age. Women with more than one child were sent back to France, but those having but one child were kept because they could still do some work and care for one child. Of those sent back 40 or 50 per cent. were children under fourteen years of age. There were few children under two years of age because most children that age were fathered by Germans and were kept in Germany. The children sent back home were mostly undersized and undernourished. If a child appeared to be fairly well nourished it was the rule to find that it was two or three years older than one would think from its size and appearance. The people coming to Evian were sent from the occupied territory of Belgium or France by a three days' journey through Belgium. From three hundred to three hundred and fifty thousand refugees had been sent back in this way since the beginning of the war. The old people presented a most pathetic picture, for it was much harder to get them to leave their homes than it was the younger generation. They seemed to be attached to the locality in which they lived more than to the people about them, and would cling to their homes even in the midst of bursting

shells. The pictures showed Dr. William Palmer Lucas and Dr. Woods Hutchinson at work among the refugees as they were being taken from the trains. Evian was a town of only 5,000 inhabitants, and the convoys brought in about 300 refugees every day. These had to be evacuated as rapidly as possible in order to prevent congestion. Dr. Lovejoy described how the spirit of France has been kept alive among the boys being brought in from the occupied territory. The younger children, however, remembered nothing but war and were apathetic, apprehensive, and fearful. At Evian an isolation hospital was maintained by the Red Cross to prevent the introduction of contagious diseases into France. They also operated a large delousing plant which cared for 200 persons at one time. Many of the children brought back had not been washed for months, and as a consequence skin diseases were rife among them. The necessity that compelled children to wear gas masks inflicted the greatest cruelty upon them. Dr. Lovejoy exhibited a gas mask such as the children in the occupied territory wore and showed how uncomfortable they made a child. The biggest work the Red Cross was doing to-day was backing the French societies in the relief work they were undertaking.

A MEETING FOR THE SAFE-GUARDING OF CHILDREN IN WAR TIME.

Held at the Hotel McAlpin, New York, February 25, 1918.

DR. S. JOSEPHINE BAKER IN THE CHAIR.

THIS meeting was held under the auspices of the Pediatric Section of the New Academy of Medicine, the Bronx County Medical Society, the Brooklyn Pediatric Society, the Bureau of Child Hygiene of the New York City Department of Health, the Babies' Welfare Association, the Civitas Club, the Women's City Club, the National Association of Great Britain and Ireland for the Study and Prevention of Infant Mortality, the Women's National Health Association of Ireland, and the Women's Municipal League.

DR. S. JOSEPHINE BAKER, in opening the meeting, said that no two things seemed more dissimilar than children and war, and it was exceedingly difficult to realize how close the connection between them was. The most important thing to be done after looking to the welfare of our fighting men was to look to our second line of defense, the children. Practically all the child welfare work now being done throughout the world was because of war. The large number of men rejected as unfit for military service at the time of the Boer war directed attention to the need of better physical development among young men of the British Empire and means were sought whereby the physical defects that unfitted them for military service might be overcome or prevented. In France child welfare work assumed a place of importance because of the falling birth rate. Germany and Austro-Hungary also reported a declining birth rate. All of these countries were making much more extensive efforts than ever before toward the preservation of child life. In the beginning of the war all the attention of the people was directed to providing for the fighting forces, but after a year or two of war Europe awoke to the fact that the infant mortality rate was increasing and that many children were suffering from undernutrition. Although we had not as yet had to face the problem of a declining birth-rate, it was probable that we would have to confront this problem if the war continued. It was a fundamental fact known to every student of public health that the baby was the first to react to whatever economic conditions obtained in a community. Thus far the effect of the war upon children in this country was due to economic causes. There were today in New York City 216,000 children suffering from undernourishment because of the increased price of food and the lack of certain types of food essential to the proper nutrition of children. To meet this situation before it became more acute the Federal Children's Bureau would present a program. There were immediate problems which must be met at once throughout the United States. One of the deficiencies to be met was the lack of proper birth registration in a number of States. The United

States still had a baby mortality which was practically criminal. To be effective, child welfare work must be done by groups of people working in their own communities. The importance of this work was evident when we stopped to consider that the children of today would be the men and women of tomorrow who must do the reconstruction work after the war was over. Therefore we must get together early and work as we had never done before to fit the children to perform the great task that lay before them. Once in a generation we found a person who did a particular thing so superlatively well that he gained recognition for all time. We had with us this evening, Dr. Baker said, such a man, Dr. Truby King, who had reduced the infant mortality rate of New Zealand from 80 per 1,000 living births to 50 per 1,000 living births. He was responsible for the lowest infant mortality rate in the world today. Dr. King was on his way to England for the purpose of organizing the child welfare work in Great Britain.

Child Welfare Work in New Zealand.—DR. TRUBY KING of New Zealand made this address, which he illustrated with lantern slides. He said that the simplest way to present the subject was to tell briefly how they had come to make a beginning and what they were now doing. The chief factor that had brought their attention to the necessity for child welfare work was the lamentable inefficiency of the men who were examined for military service. The large number of disabilities and defects which unfitted the men for military service were preventable so that this state of affairs practically amounted to criminal negligence. The main cause for the existence of these defects was the unpreparedness of the women for motherhood and the vast amount of bottle feeding which was responsible for poor jaws, poor teeth, and all forms of indigestion, respiratory troubles, etc. There were several factors that played a prominent part in the reduction of the infant death rate in New Zealand. Their work was not the result of any new discovery; it was founded on the principles laid down by Professor Rotch and Harvard and Dr. Holt of this city. All they had done was to put into practice the principles known in America and in the Old World. What they had done was to adapt this knowledge to their own conditions. Some two or three years after having had the need of infant welfare work brought to his attention Dr. King said he happened to spend a year in Japan. There the population was largely agricultural. Most of the people lived on small farms and the women helped to do the work of the farm. They were well developed, lived in the open air, wore loose clothing, and all nursed their children. History told of the military efficiency of the Japanese. In his own Island Dr. King said his work had been the management of a colony for mental diseases and in connection with this he had the administration of a large farm. This involved the study of the best methods of agriculture and of stock raising. By applying scientific methods to his farming he had been able to achieve amazing results. They had found that by adding a certain substance to the soil they were able to double the crop of potatoes. By the application of scientific methods to storage they had been able to protect their crop from loss. They learned that a transplanted oak did not do as well as one allowed to continue its growth where it began to grow. Transplanting the tree cut the roots and interfered with nutrition. The same was true of children. The artificially fed infant was a parallel instance; the roots were cut so far as proper nutrition was concerned. Taking the cows they found that they had been losing 20 per cent. of their calves from "scouring," or, in other words, from infantile diarrhea. They found that by the application of scientific methods to the rearing of the calf a difference of 100 pounds in weight resulted by the end of the sixth month. After they had applied scientific methods to the care of their calves they no longer lost them by "scouring," they no longer had tuberculosis, and the cows never gave any more trouble even though they lived to be twenty years old. The way in which a calf was fed made all the difference in the world in the shoe that was made from its hide. Since scientific methods worked out so well in their crops and their live stock it seemed worth while trying them with children. In initiating a campaign for child wel-

fare, attention was first paid to the known requirements of mothers and their infants. That it was evident that the basic principles of nursery hygiene must be taught, just the ordinary kind of information which for generations had been handed down from mother to daughter. Their first step was to secure a nurse who should go about among mothers giving this instruction. After they had a nurse doing this work for about six months the wives of the doctors began to realize the value of the instruction and availed themselves of it. It was not long before the women began to recognize the value of this instruction and a women's committee offered to relieve the speaker of some of the responsibility. Gradually these women's committees were organized throughout the country, until at the present time there were 80 of them among a population of about one and a quarter million. The women composing these committees represented all grades and classes of society and all varieties of religious persuasion. In demonstrating the value of scientific methods applied to the rearing of children, liberal use was made of the illustrations drawn from the farm and the dairy. Articles were published in all the weekly papers on the feeding and care of the baby and this had been continued up to the present time. In addition a number of pamphlets were published and widely distributed, courses of lectures were given, and a hospital was established for the training of nurses in infant welfare work. This work was at first supported through voluntary contributions. The Government was, however, not slow to recognize the value of the work and gradually extended its assistance. For every dollar now contributed by private agencies the Government gave five or six dollars. It furnished free transportation for the nurses and in many ways lent its support and encouragement without in any way taking away the initiative from the women's committees. The work had been taken up very wholeheartedly by Lord and Lady Plunkett. They had a large family and Lady Plunkett came to the school to learn the scientific methods there taught. She became greatly interested and was very successful with her family. She lost no opportunity of telling what the knowledge we had given her had done for her family. She explained that if this knowledge was useful to her it would be useful to others. Women of social position, the wives of professional men, and others of the more intelligent classes, had come to them for instruction and the knowledge then filtered down through all classes of society; if one worked with the submerged classes only the knowledge would not become disseminated so readily.

In New Zealand they had another advantage in their work, and that was their equable climate, a climate very much like that of California. However, he did not think that a more rigorous climate with greater variations in temperature, such as we had in the United States, was necessarily an impediment to the attainment of as great a reduction in the infant mortality as they had obtained, for the colder and more stimulating climate produced a more vigorous race, just as the Scandinavians were more vigorous as a race than the Italians. All the factors which had aided them in their work in New Zealand were not evolved hastily within the background of the war; they had been a long time in developing, had grown slowly and deliberately and from the more intelligent classes of society had worked downward. The question might be raised whether it was right to give this knowledge to people who were able to pay for it. His answer was "Yes." We recognized the necessity of providing public schools, high schools, and universities for all, so why not this knowledge which was more essential to human welfare than any other. The question might also be asked whether giving this knowledge to the people was acceptable to the medical profession. It was well known that the medical profession had always worked for the advancement of preventive medicine, even though it cut the ground from under its own feet. The medical profession had always been ready to sacrifice itself for the sake of a healthier population. Dr. King showed slides giving the death rates of the large cities of the world. Auckland led with a death rate of from 8 in 1900 to three and a fraction in 1914. New Zealand as a whole had a death rate of 5.1 when New York had one of 13. The spirit of competition had also played a part in

stimulating the women to take better care of themselves and their babies.

Dr. King then referred to his study of mental diseases and the means of their prevention and said that only one-third of the people who went into an insane asylum ever came out again, and most of these never really adapted themselves to a normal life again. The only way to diminish insanity was to begin in the cradle. The only way to stop all vice and crime and disease was to begin in the cradle. He showed slides illustrating the changes in the brain cells in certain forms of insanity. When brain cells were damaged by such poisons as alcohol or syphilis they lost their arborizations and degenerated into masses of fatty tissue; the individual with such brain cells vegetated for a time and then passed out. That alcohol and syphilis were poisons causing such results one could make people understand, but the thing they had not understood was that equally dangerous poisons were generated in the systems of all of us. In order to have a healthy organism the lungs and kidneys must functionate properly and dispose of the poisons generated in the body. If in addition to a sluggish function of the kidneys and lungs there was sluggishness of the bowels, we had a condition in which poisons were produced and absorbed into the blood that had a more deleterious effect on the cells of the body than the poisons of alcohol and syphilis. The only way to restore the cells of the body when they were thus damaged was by proper bathing, exercise, fresh air, and plain food; if these did not restore the cells of the body, nothing could do so. It was these poisons in the blood of the mother that caused her to suffer from neuralgia, headache, lassitude, etc., and they unfitted her to be the mother of a healthy child. When women understood these things and gave proper attention to bathing, exercise, proper clothing, and proper food, and in addition learned how to care for their babies, we would not have an infant death rate of 50 per 1,000 living births, but a rate of 25 deaths per 1,000 living births would be considered abnormal. The most rapid period of growth was during the prenatal life and the next most rapid period in the entire life of the individual was during the first two years of life. This was the time *par excellence* for the growth of the brain and nervous system. By the time a child was three or four years of age its brain had attained a growth comparable to that of the remainder of the body at the age of twenty-one years. The physical and mental capacity of the individual for his entire life was determined for him during the first few years of life. A child's teeth were determined for him before he was born by the condition of the mother's blood. The importance of plenty of cool fresh air could not be overestimated. The mother should have this before and after the birth of the child. Mother and child should have separate beds so arranged that a current of fresh air passed between them continually.

Dr. King exhibited pictures of the hospital where, he said, they did not keep babies any longer than was necessary, but they kept and trained nurses and mothers. The babies were placed in homes as soon as possible. They had a separate home for the mothers and made it as attractive as they could. They frequently had mothers come and stay for a time because they were failing to nurse a baby satisfactorily. They had frequently been able to restore a mother's milk supply after it had been absent several weeks. In this home the mothers were taught the relative values of the different varieties of foodstuffs and how to cook. They were also instructed in regard to what constituted proper clothing, and a fashion injurious to health was held up to unsparing ridicule. They especially condemned the high heeled shoe. They had also been teaching schoolgirls the care of the baby. They first tried it in the hospital with the sick babies, but concluded that sick and ailing babies were not best calculated to instill a love of motherhood, so now they were keeping a few normal babies to aid them in giving this instruction to the schoolgirl. Another point which Dr. King emphasized was the importance of plain food and of food that required chewing. He said that if we would have a virile and vigorous race we must turn back to simpler and more primitive ways of living. We must live more in the open air and we must cease to live on "pap" foods and to feed our children on

sweets. In New Zealand they had many open-air schools and had demonstrated that the children in these schools developed greater physical strength and mental alertness than those who studied indoors. In old Rome when one wished to express contempt for the ignorance of a man it was said, "He knows neither letters nor swimming." Swimming was then held to be an essential part of a liberal education. There was not a more stimulating form of exercise than swimming, and it should be made a part of the education of every child. There should be a swimming pool in connection with every school. If everyone were accustomed to taking a swim, a rub down, and twenty minutes of active exercise daily the amount of inefficiency in the world would be greatly reduced. By due attention to the matters of hygiene mentioned, even a delicate woman might become healthy and the mother of vigorous children; on the other hand, even a strong woman could not disregard the laws of hygiene and expect to be the mother of healthy children. In New Zealand this essential knowledge was considered not unworthy the attention of women of rank. The world to-day was concerned about its falling birth rate; men and women were shirking the responsibilities of parenthood. In New Zealand men and women were proud of their fatherhood and their motherhood.

Dr. BAKER said that if she had any message from the city it was to thank Dr. King for the inspiration he had brought. They were more determined than ever that New York should not long take second place to New Zealand. To come back to the war, we had done much work, but much more remained to be done. Between 40 and 50 per cent. of our drafted men were rejected because of physical defects. It was not possible to permit conditions that produced such results to continue. The Federal Child's Bureau had a plan to present which was designed to promote child welfare and prevent these defects in the next generation.

The Plans for the Children's Year; One Hundred Thousand Children Must Be Saved in America During the Second Year of Our War.—Dr. JESSIE PEIXOTTO of the Federal Children's Bureau, in presenting the plan of the Bureau, said that war asked of every person a feeling of patriotism. It asked of some that they go to the front. Others of us stayed at home with nothing to do but to sit and wait. As a result of what had been planned at Washington those of us who hitherto had had nothing to do but sit and wait would have work to perform. In the proposed campaign there were four main features. These were: (1) The protection of infants and mothers. (2) The protection of mothers with older children, children approaching adolescence, where the mother was confronted with the problem of providing for such children on an insufficient income, and also with many other problems and perplexities that arose as the child approached adolescence. (3) They were going to concern themselves with the children sent to work before they should be sent. (4) They were going to take up the question of providing decent and sufficient recreation for adolescent children. In view of the fact that the Women's Council on National Defense was already organized it had seemed wise to work through that organization rather than to make a new departure. The necessity of saving children for the future was evident to all of us. More children should be well born than ever before and, having been well born, they wanted them to live. The drive was to begin on April 6, and their slogan was, "Save 100,000 babies to the nation." Many States would complain because they thought their assignment of babies to be saved was unjust, but that was because of the lack of proper birth registration. The Federal Bureau had called upon the women's committees of the Council on National Defense to organize for the work, and at the present time there were 5,090 such committees organized and ready for work. In cities in which the women's committees were very large they had asked them to divide into subcommittees, each subcommittee taking a different branch of the work, and then coordinating their work. They had asked for volunteers to help in the clinics and infant welfare stations. Physicians had been invited to give information with reference to conditions that were responsible for a high infant mortality and to make suggestions for their correction. They hoped to get many nurses

and doctors who would volunteer to work from twelve to twenty hours a week. The local committees were going to study the economic side of the question and make suggestions whereby people of limited means might meet the high cost of living. At Washington they could only dream the dream and sound the trumpet; it was for the committees in their own home towns to make the dream a reality and to do a work that was only second to fighting in the front line trenches.

The first step in the campaign would be the weighing and measuring of babies. From time to time the other features of the program would be announced.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

THE NATIONAL BOARD OF MEDICAL EXAMINERS.

Chicago, October 10-18, 1917.

(Concluded from page 485.)

SURGERY.

1. Give symptoms, prognosis and treatment of abscess of the brain.
2. Give diagnosis and differential diagnosis of carcinoma of the lip.
3. Give diagnosis, differential diagnosis and treatment of chronic cystic mastitis.
4. Give diagnosis, differential diagnosis and treatment of strangulated inguinal hernia.
5. Give diagnosis, prognosis and treatment of fracture of upper third of femur.
6. Give diagnosis, differential diagnosis and treatment of stone in the bladder.

OBSTETRICS AND GYNECOLOGY.

1. Describe briefly the changes that take place in the fecundated ovum up to the time that segmentation is complete.
2. Discuss pernicious vomiting in pregnancy. (a) Etiology; (b) Symptoms, including urinary findings; (c) Treatment.
3. Describe the clinical history, mechanism of labor and the treatment of a face presentation, left mento-anterior position.
4. Discuss the pathogenesis, symptoms and differential diagnosis of acute pyelitis complicating pregnancy.
5. Bacteriology, symptoms and treatment of puerperal sepsis.
6. Causes, ordinary complications and treatment of proclitica uteri.
7. Causes, symptoms and treatment of chronic endocervicitis.
8. Causes, symptoms and treatment of vesicovaginal fistula.
9. Clinical history, diagnosis and treatment of purulent pelvic inflammation.
10. Diagnosis, prognosis and treatment of coexisting uterine fibroids and pregnancy.

ANSWERS.

SURGERY.

1. ABSCESS OF THE BRAIN. *Symptoms:* "The symptoms in traumatic cases are acute, and, as there is usually diffuse meningitis, there is intense pain, fever, and rigors, coma quickly supervening. In the more common chronic cases the symptoms are often vague in the early stages, but when well marked consist in signs of intracranial pressure. 1. The headache and tenderness are severe and localized to the site of the abscess. 2. The temperature is subnormal, unless there is associated meningitis. 3. The pulse is markedly slowed, even down to 30 or 40. 4. The patient is quite intelligent, but cerebation is very slow; vomiting and optic neuritis are usually present. 5. Motor symptoms may occur if the abscess is in the anterior part of the temporo-sphenoidal lobe, either irritative or paralytic. If the cerebellum is affected, there is giddiness both while walking and lying down, together with weakness

of the hand-grip and increase in the knee-jerk on the side affected. Lateral nystagmus often occurs.

"Treatment: The abscess must be opened as soon as possible. Unfortunately, many cases are only diagnosable when it is too late for evacuation to produce a cure. As cerebellar abscess is more common, it is as well to explore the cerebellum first, unless focal symptoms point to the temporo-sphenoidal lobe as the site. A flap is turned down and a piece of bone removed with a trephine. The dura is then incised and the abscess punctured with a trocar and cannula or sinus forceps. These should be passed in various directions till the pus is found, and then the opening must be enlarged, the pus gently washed out, and a drain left in for several days. For a temporo-sphenoidal abscess the trephine opening should be made $\frac{3}{4}$ inch above the posterior root of the zygoma, and directly above the posterior border of the bony meatus; for a cerebellar abscess, $1\frac{1}{2}$ inches behind the center of the external auditory meatus and 1 inch below Reid's base line. In most cases the mastoid antrum should be first explored; by removing the bone behind it the lateral sinus can be exposed, and by working above or below it the cerebrium and cerebellum can be explored." (*Aids to Surgery*.)

Prognosis: Abscess of the brain is a very serious condition, but it is amenable to surgical treatment if this is carried out thoroughly and promptly. Occasionally, a temporo-sphenoidal abscess may burst and the pus escape through the middle ear.

2. Carcinoma of the lip usually occurs on the lower lip, most often in men. It may appear as a wart with an indurated base or as an ulcer involving the whole thickness of the lip and having indurated base and edges; there is no necrotic sloughing floor as in chancre or gumma. The submaxillary and submental lymph glands are enlarged.

Chancre occurs as an ulcer with steep and indurated edges, the process is limited but involves the thickness of the lip at the vermilion border; the lymph glands on the same side are involved, the induration is less than in cancer, and the secondary symptoms of syphilis soon appear. As a rule, it appears earlier in life than cancer, and either lip may be affected.

3. Chronic cystic mastitis occurs usually in patients at or past the menopause. There is infiltration and overgrowth of the connective tissue, and proliferation of the epithelium, so that the acini are filled. Cysts may form owing to the pressure of the interstitial growth preventing the escape of secretion. These are known as involution cysts, and the fluid may be clear or turbid and brown. As a rule these cysts are multiple, scattered and tiny, but one may become large and resemble a tumor. **Symptoms:** There may or may not be pain in the breast, but a number of small scattered lumps are usually found. Both breasts are usually affected. The skin is seldom attached over the lumps, but the lymphatic glands may be slightly enlarged. Distinct cysts may be felt in some cases. The disease slowly progresses, and ends in atrophy of the breast or general cystic formation. It is said that cancer is like-

ly to follow interstitial mastitis. The **diagnosis** from scirrhus rests on the fact (1) that the whole breast, and probably the other breast, are affected with scattered nodules; (2) that the nodules are free from the skin and pectoral fascia; (3) that the lumps are less distinctly felt with the flat of the hand than those of scirrhus; (4) that the glands are not so stony hard as are those of scirrhus. The two diseases are occasionally present together, and in any case of doubt an exploratory incision and microscopic examination should be made. **Treatment** consists in supporting the breast and applying a belladonna plaster. Single cysts should be removed, but if the whole gland is cystic complete removal is better.—(*Aids to Surgery*.)

4. Symptoms of strangulated and inguinal hernia:

General.—"Severe pain comes on suddenly after some effort, at first referred to the umbilicus, and subsequently to the site of the hernia. This is accompanied by some shock. The pulse is weak, and, though slow at first, becomes rapid; the skin is cold and clammy; vomiting occurs, and soon becomes frequent and fecal smelling. Constipation is complete, though both feces and flatus may be passed at first from the lower bowel. The patient generally becomes exhausted from the vomiting and inability to take food. When gangrene occurs the temperature becomes subnormal, the pulse very rapid and weak, and the patient dies of toxemia from the general peritonitis which follows gangrene. **Local.**—A tumor forms at the site of the hernia, or more often the patient has been the subject of a hernia, which he now finds to be irreducible, tense, tender, and without impulse on coughing. If allowed to persist the sac and coverings become gangrenous."

Treatment is taxis or operation. "Operative treatment should be undertaken at once when gentle taxis has failed. An incision is made over the sac, which is then opened. There is usually fluid in the sac, so there is no danger of wounding the gut. The fluid is washed away, then the cause of strangulation is made out, and a hernia knife guided up to it by a finger or broad hernia director. The constriction is nicked in one or two places and the gut is drawn down so that the site of strangulation may be examined. Omentum is ligatured and removed. If the patient is profoundly collapsed and will not bear a prolonged operation, an artificial anus is established by dividing the constriction outside the sac, so as not to open the peritoneal cavity. The loop of bowel is then opened to give free exit to the feces. Most of the cases which have to be treated in this way are so bad before treatment is commenced that a fatal termination must be expected. If the patient can possibly stand it, immediate resection gives the best chance, and with Murphy's button or a bobbin much time can be saved. A radical cure is advisable after the strangulation has been relieved, unless the patient's condition contraindicates it. Liquid food is given at the end of twenty-four hours, and the bowels need not be disturbed for five or six days, when castor oil may be given."—(*Aids to Surgery*.)

The following table of differential diagnosis is given by Eisendrath:

	REDUCIBLE HERNIA.	SIMPLE IRREDUCIBLE HERNIA	STRANGULATED PARTIAL ENTEROCLE	STRANGULATED COMPLETE HERNIA.	INFLAMED HERNIA.	OBSTRUCTED OR INCARCERATED HERNIA.
Swelling ...	In hernial region.	In hernial region.	Usually none to be felt.	Larger than before and firmer.	Larger than before.	Larger than before.
Impulse	Distinct on coughing.	Distinct on coughing.	None	None.	Present on coughing.	Present on coughing, but less marked.
Reducibility.	Disappears on lying down or manipulation.	Does not disappear after same tests.	Irreducible.	Irreducible.	Generally reducible, but may not be.	Irreducible.
Other local signs	Soft if intestine, firmer if omentum.	Usually feels firm and doughy.	Some pain over hernial region.	Dull pain over swelling, later signs of peritonitis.	Redness, pain, local heat.	....
Signs of obstruction..	None.	None.	Not as marked as in complete form. May pass liquid feces and gas; vomiting not so marked.	Colicky pains, absolute constipation; vomiting; later fecal.	But little nausea. No absolute constipation.	Gradual onset; vomiting slight; bowels can be moved. Occurs in aged.
General disturbances..	None.	None.	Not as early as in complete.	Marked and early intoxication.	Fever and leukocytosis.	Slight, no collapse.

5. "In fracture of the upper third of the femur, the symptoms are pain, swelling, muscular spasm, abnormal mobility, crepitus, deformity, and shortening. The upper fragment is pulled forward by the iliopsoas, and drawn outward and rotated externally by the external rotators; the lower fragment is pulled upwards by the flexors and extensors of the leg, inward by the adductor muscles, and rolled outwards by the weight of the limb. The treatment is flexion of the thigh and traction to reduce the deformity, and the application of a double-inclined plane with extension in the axis of the thigh. A shot bag may be placed over the upper fragment if it is too short to be retained by an anterior splint. The Hodggen splint can be used; it consists of two long pieces of wire joined at each extremity and at the middle by a cross piece. The limb rests in a trough of flannel attached to the frame. A Buck's extension is applied and attached to the foot piece, and further extension made by suspending the limb by cords, passing obliquely upwards to a vertical post at the foot of the bed. All forms of treatment, however, are unsatisfactory, and if the displacement is marked and the patient young and healthy, operative fixation should be considered."—(Stewart's *Surgery*.)

6. The symptoms of stone in the bladder are: Increased frequency of micturition; pain at end of urination, chiefly felt at the end of the penis or in the neck of the bladder; the urine may contain pus, mucus or blood; a "click" can be obtained by using a searcher or sound; examination by the cystoscope may reveal the presence of the stone. Actual diagnosis is made by the use of the sound and the cystoscope. The treatment consists in removing the calculus, by litholapaxy, or lithotripsy, or lithotomy (suprapubic or perineal).

OBSTETRICS AND GYNECOLOGY.

1. *Changes in the ovum following impregnation:* "Directly after the formation of the nucleus of segmentation by the fusion of male and female pronucleus the ovum begins to segment. The original mass divides itself into two cells (blastomeres), these into four, and so on until the whole ovum is surrounded by a layer of cells including a group of somewhat larger cells morula, or mulberry mass), and a hollow cavity containing albuminous fluid. This stage of development is called the blastula, or blastodermic vesicle. The cells of the ovum next arrange themselves into a thinned-out, laminated layer around the periphery of the ovum, and another layer just within this, the offspring of the central mass of cells (the ectoderm), and the proliferating central mass itself, the entoderm. Regarding the surface of the ovum, an oval, opaque region may be observed (the embryonal area), and in the middle of this area a streak of greater opacity appears—in the primitive streak. At the site of this streak a depression next appears—the primitive groove. A microscopic examination of a section through this region now shows the development of a median layer of cells (the mesoderm), made up of cells derived in part from a layer furnished by the ectoderm and by another furnished by the entoderm. In the course of its development the mesoderm develops lateral reduplications and parts into two layers (the parietal and visceral layers) inclosing spaces—the body-cavity, or celom. The parietal or somatic layer unites with the ectoderm to form the somatopleure. The visceral or splanchnic layer joins the entoderm to form the splanchnopleure. At the end of the second week the development of the embryo proper begins, by the formation of the neural folds, the neural canal, the chorda dorsalis, or notochord, and the somites, or provertebræ."—(Hirst's *Obstetrics*.)

2. *Pernicious vomiting in pregnancy. Etiology:* It may arise from a variety of causes. The most common are: Reflex disturbance, caused by the rapid growth and distension of the uterus; some pathological condition of the uterus or its adnexa; some pathological condition of the gastrointestinal tract; excessive sexual intercourse; kidney insufficiency, or some other form of faulty nitrogenous metabolism. The principal symptom is continuous vomiting, which results in exhaustion and death unless relieved. The urinary examination shows diminution of urine and total nitrogen; ammonia is in excess, indoxyl and skatoxyl are increased. Leucine, tyrosine, albumin and sugar may be found. The

treatment consists in rest in bed in a quiet, darkened room and the administration of easily digested foods, such as milk, broths, eggs, etc. A careful search must be made for some local exciting cause, and if any such condition is found it should receive appropriate treatment. Sexual intercourse should be interdicted. The bowels should be kept freely open. Sodium bromide, camphor, cocaine, silver nitrate, cerium oxalate, hyoscine hydrobromide, antipyrine, etc., are among the drugs used internally. Rectal alimentation may be necessary, and, as a last resort, dilatation of the cervix and internal os, or abortion may be performed.

3. *Mechanism of labor with a left mento-anterior position:* "The successive steps are: Extension.—The head presents at the superior strait imperfectly extended, so that every case of face presentation may be said to begin as a brow presentation. There is also at first imperfect engagement of the presenting part, on account of the large diameters presented at the superior strait. Under the influence of the expulsive action of the uterus and the resistance of the pelvic walls, the brow, caught upon the pelvic brim, is held stationary, while the chin descends lower and lower by an extreme extension of the head. Molding, or an accommodation of the shape of the presenting part to the shape of pelvis, occurs to a moderate degree or not at all, because the face is a loose fit in the normal pelvis. The molding is confined to the back of the skull. Lateral inclination is a constant feature, so that one cheek is a little deeper in the pelvic canal than the other one. Descent of the presenting part follows the dilatation of the cervical canal, the descent of the chin being accomplished almost solely by the extension of the head, and not by a descent of the head as a whole. Anterior rotation of the chin occurs as soon as it encounters the resistance of the pelvic floor. Anterior rotation is followed by the engagement of the chin under the symphysis pubis. Then follows the delivery of the head by flexion and propulsion, the mouth, nose, eyes, and forehead sweeping over the perineum and appearing successively at the posterior commissure. Restitution and external rotation follow the escape of the head from the same causes that impose those movements upon the head in a vertex presentation. The delivery of the body takes place as in a vertex presentation."—(Hirst's *Obstetrics*.) *Management:* Expectant treatment may suffice; but care must be taken to observe that the chin does not rotate backward. Spontaneous version may occur and the presentation become a vertex one. Failing this, or as a means of favoring this, postural treatment, such as Walcher's position, has been recommended. If, in spite of this, engagement has not occurred, cephalic version is indicated, care being taken not to rupture the membranes. If this is not successful, podalic version should be tried. If, after all these manipulations, the child is still alive and the head is engaged, symphyseotomy is indicated; if the child is dead, craniotomy should be performed.

4. *Pyelitis complicating pregnancy:* "This is an infection of the bladder, ureter, and kidney separately or together by the bacillus coli communis. The infection has been supposed to come from the blood or to be an ascending one from the external genitals. Berry Hart believes that it is an infection from the large intestine *via* the extra-peritoneal wall of the bowel and general connective tissue, where there has been stasis of intestinal contents from ineffective evacuation of the bowel. The weak points in the abdomen where structure is a compromise sufficient for ordinary use only, are the pelvic floor, the inguinal and femoral regions, and the extra-peritoneal surfaces of the large intestine, bladder, ureter, and kidney. Into these last areas the bacilli pass from the bowel, travel, and entering the ureter or bladder set up the pyelitic condition. According to some, stagnation of the urine in the ureter, owing to the pressure of the uterus, is a factor. The right ureter is more often affected. The symptoms may come on from the fourth month onwards, and are lateral abdominal pains over the kidney and ureter region or in the appendix region. They thus cover a wide area. Vaginally the bladder may be tender, and there may be pain on pressure over the ureter where it lies in the bladder wall. The patient has a chill with a rise of temperature in the evening (103° to 104° F.), and with a remission to nearly normal or even below it in the

morning. The pulse rate is increased, but not markedly. *Differential diagnosis.* This condition must be separated from appendicitis, lower inflammatory thoracic conditions, acute intestinal obstruction, and eclamptic prealbuminuric conditions. What keeps one right, as a rule, is the examination of the urine, the rigor, and the kidney tenderness. The distension, sometimes extensive, may be puzzling, but it is to be noted that it has been observed in pyelitis by good observers apart from intestinal obstruction or appendicitis. It is often set down as an albuminuria of pregnancy, as we have albumin in the urine, headache, sickness, but here again the more careful noting of the acid re-action, the presence of the bacillus coli and its cultivation, should lead us in the right direction." (Berry Hart's *Guide to Midwifery*).

5. **PUERPERAL SEPSIS.** The bacteria which cause puerperal sepsis are: *Streptococcus pyogenes*, *staphylococcus pyogenes aureus*, *gonococcus*, *bacillus coli communis*, *bacillus diphtheriae*, *bacillus typhosus*. They are generally introduced by the fingers of the physician or nurse, or by instruments, or general lack of cleanliness. *Symptoms:* Chill; rapid rise in temperature, to about 103° or 104° F., higher in the evening than in the morning; sweats; rapid pulse; depression; dry tongue; anorexia; carphologia; scanty, high-colored, albuminous urine; restlessness; sometimes delirium or coma. The uterus is large, and tender; the lochia are diminished or suppressed; the milk secretion is often suppressed; pain in the abdomen; peritonitis may develop. *Treatment:* Prophylaxis is of the greatest importance. Purgatives; vaginal douches; some recommend curettage, others decry it; the introduction of antiseptics into the uterus; supportive and general treatment are indicated; specific sera and vaccines have been recommended by some.

"The treatment of puerperal sepsis is both local and general. Locally a thorough disinfection of the whole genital canal is called for in every case. It may appear unnecessary, and may prove, on actual experience, to be even harmful, but no one can tell beforehand how necessary this procedure is. In the vast majority of cases it is productive of the greatest good. It is only occasionally useless, and very rarely actually harmful. It should precede all other treatment for puerperal infection. The method of disinfecting the genital canal may be described as follows: A double tenaculum, a large, dull curette, a placental forceps, and an intrauterine catheter are boiled for fifteen minutes. The operator disinfects his hands and arms and wears sterile gloves. The patient is placed in the dorsal posture across the bed, with her buttocks resting on a rubber pad. The external genitalia and the vagina are scrubbed with tincture of green soap and pledgets of cotton; the vagina is doused with a sublimate solution, 1:2000. The operator then seizes the anterior lip of the cervix with a tenaculum. An intrauterine douche of sterile water, at least a quart, is administered. Then, with the placental forceps, and, if necessary, with a dull curette, the uterine walls are gone over thoroughly but lightly in all directions, six to twelve times, until nothing is brought away but bright blood. A second intrauterine douche concludes the treatment. If the womb is flabby and large, with a tendency to flexion, so that the drainage of the uterine cavity is not good, it is advisable to pack it with iodoform or sterile gauze. In addition to cleansing the uterine cavity, false membranes or areas of inflammation and localized infection on the cervix or vagina should be treated by the application of a solution of nitrate of silver, a dram to the ounce. It may be necessary to repeat the intrauterine douches several times—in fact, several times a day for many days: in this case plain sterile water only should be used. The general treatment is stimulating. The patient should have as much food of an easily digestible character, chiefly milk, as she can assimilate, and as much alcohol as she can consume without showing the physiological effects of it. Digitalis is useful as long as the pulse is above 110. Strychnine may be combined with it in suitable cases. To tide the patient over emergencies, carbonate of ammonium in large doses, by the bowel, and nitroglycerine, hypodermatically, may be required. Inhalations of oxygen may be of service. Absolute rest and freedom from all disturbances, mental and physical, must be insisted upon, and the patient

should be given the best nursing that the family can afford." (Hirst's *Obstetrics*.)

6. **PROCIDENTIA UTERI.** *Etiology:* Injury at childbirth, lacerated perineum, relaxation and elongation of the ligaments of the uterus, loss of rigidity of the abdominal walls, increase in the weight of the uterus, subinvolution, increased intraabdominal pressure. *Symptoms:* The patient complains of a feeling of "bearing down"; of trouble with micturition and defecation; of pain and fatigue on walking, and of "falling of the womb." The cervix is low down in the vagina; the sound shows that the uterine cavity is lengthened. Procidentia is evident on inspection. *Treatment:* "A prolapsed uterus must first be placed in proper position, or a procidentia reduced. In many cases the introduction of a rubber ring pessary will then suffice to prevent recurrence. But it will often be found necessary to repair a torn perineum, removing at the same time redundant portions of the vaginal walls, before the ring will remain in the vagina. When such an operation is contraindicated, and the vaginal orifice is so wide that a ring cannot be kept in, some form of pessary with a vaginal stem and perineal bands will be required. In cases of procidentia, where the exposed surface is much ulcerated, the patient should be kept in bed, emollient applications made to the ulcers, and vaginal douches given. When the ulcers have healed, a pessary may be introduced. Procidentia due to supravaginal elongation of the cervix must be differently dealt with. Amputation of a portion of the cervix must therefore form the first step in the treatment, and it may be required also when the hyperplasia is secondary to descent. Cases of prolapse and procidentia which resist milder measures require further operative procedures, such as ventrofixation of the uterus or the shortening of the round ligaments. It is in cases of this kind that hysteropexy has often given satisfactory results. Total extirpation of the uterus has been advised and practised for the treatment of procidentia."—(Sutton and Giles' *Diseases of Women*.)

7. **CHRONIC ENDOCERVICITIS.** *Causes:* Puerperal lacerations of the cervix, foreign bodies, tumors, polypi, excessive coitus, bacteria (especially gonococci). *Symptoms:* These may be slight or severe; headache, backache, pain in the pelvis, disordered menstruation, digestive disturbances, sterility, are the most important. *Treatment:* Removal or alleviation of the cause, cleanliness and disinfectants; palliative treatment is of little avail and a thorough excision of the affected area, followed by a plastic covering of the exposed surfaces, (such as Schroeder's operation) is the best method of treatment.

8. **VESICOVAGINAL FISTULA.** *Causes:* Sloughing of the vagina during protracted labor, injuries from obstetric implements, ulceration due to pessaries and other foreign bodies, ulceration of the bladder, and vesical calculi; carcinoma of cervix, vagina or rectum. *Symptoms:* "The patient complains that she cannot hold her urine. Some urine may collect in the bladder and be voided periodically if the fistula is small; otherwise the urine escapes from the vagina as rapidly as it enters the bladder. The vulva and vagina are inflamed and excoriated by the constant wetting, and sometimes a phosphatic incrustation forms." *Treatment:* "The principles underlying the treatment of all fistulae of mucous canals apply here, namely: (1) The vivifying of the edges of the fistula; (2) the careful suturing of the edges; (3) immediate union. (1) Access to the vagina is obtained by means of a duckbill speculum held by an assistant. The margins of the fistula pared by means of a sharp, delicate knife mounted on a long handle. These knives are usually supplied in sets of three or four, with the blades adjusted at different angles to meet any difficulty according to the position of the fistula. In paring the edges care is taken to avoid bruising, but it is necessary to thoroughly vivify the whole circumference of the fistula. (2) The sutures may consist of silk thread or silkworm gut. Whatever material is used it should be introduced with a slender needle, and should traverse the muscular but not the mucous coat of the bladder or urethra. This stage affords much scope for ingenuity on the part of the operator. After the sutures are fastened it is wise to test the wound to ascertain if it be watertight. For this purpose milk is injected into the bladder. Should any

escape through the wound an additional suture is inserted at the situation of the leak. If all be secure the bladder and vagina are gently irrigated with warm water and the patient returned to bed."—(Sutton and Giles' *Diseases of Women*.)

9. **PURULENT PELVIC INFLAMMATION.** "The patient complains of severe pain in the lower abdomen and in the pelvis, which often radiates down the thighs; there is a rise in temperature; the pulse is rapid and weak; and there is loss of appetite, great prostration, and often repeated chills. The rectum and the bladder may become irritable and cause painful urination and defecation. The abdomen is not distended as in peritonitis and there is no tendency to nausea or vomiting. *Diagnosis:* As a rule the patient complains of pelvic pain and tenderness during the examination. The mass formed by the purulent accumulation is irregular in shape, more or less diffused, and immovably fixed in the pelvis. It may be soft and boggy to the touch or it may be so completely surrounded by inflammatory exudate that it conveys a hard resisting sensation to the examining finger. As a rule, fluctuation cannot be elicited; but in large abscesses this sign is easily determined and the examiner has but little, if any, difficulty in recognizing the presence of pus. The *treatment* consists in evacuating the abscess without delay and establishing free drainage. Laparotomy should be performed, and a thorough investigation of the condition made; if the uterine appendages are found to be normal, the abdomen can be closed at once and the abscess opened and drained through the vagina. (From Ash-ton's *Gynecology*).

10. **COEXISTING UTERINE FIBROIDS AND PREGNANCY.** *Diagnosis:* "In many cases, the presence of tumors may have been recognized before impregnation. It will be easy to make out one or more hard masses connected with the uterus. If tumor is low down, it will be felt *per vaginam*, distinct from the presenting part. An ovarian dermoid will give much the same feel through the vagina, but it will not be so firm, nor so closely connected with the uterus, unless it is adherent. The differential diagnosis between the two conditions is of little importance, as the treatment of both conditions is the same. *Prognosis:* During pregnancy, if the tumor is large, pressure symptoms will supervene, and these may become so bad that an operation will be necessary; but, in many cases, the pregnancy will run an ordinary course. It is during labor that the most risk is incurred. If the tumor is low down, and cannot be pushed up, the condition is a serious one, and probably will necessitate an abdominal operation; but if it is high up, unless it be a large one, it may not have much influence upon the labor. *Treatment:* During pregnancy, a subperitoneal, or even an interstitial, fibroid may be removed without interfering with the pregnancy, but this is not advisable, unless there are indications calling for operations, such as pressure symptoms, or twisting of the pedicle in a subperitoneal tumor. To remove a tumor during pregnancy, because it is feared it will obstruct during labor, is a mistake. Even when the tumor is low down, it is often drawn up out of the way as pregnancy advances, so that, at full time, it no longer forms an obstruction. Another objection against operating during pregnancy, unless absolutely forced to do so, is that the uterus may expel its contents, when the child will certainly be sacrificed, if it has not reached a viable age. Even if it has reached that age, its chances of surviving are not nearly so good as at full time. To the mother the risk of operation at full time should not be any greater than during the pregnancy, provided she is in as good a condition. When an operation is necessary, either during pregnancy or labor, where it is at all possible the tumor or tumors should be removed and the uterus left. With multiple tumors this will not be possible, and a hysterectomy will be necessary." (Jardine's *Delayed and Complicated Labor*.)

Gonorrheal Epididymitis Treated by Diathermy.—Canovas treated 73 cases of this affection in all stages and obtained cures in from 3 to 4 days and marked improvement in one day. Patients are able to walk about freely during the attack provided that a suspensory is worn.—*Archives Médicales Belges*.

Miscellany.

Disturbances of Vision by Cerebral Lesions.—

At a meeting of the Royal Society of Medicine held in London on December 12, 1917, Lieut.-Col. Gordon Holmes gave an account of exhaustive researches carried on by him in hospitals in France on disturbances of vision by cerebral lesions. He summarized the results of this study as follows: (1) The upper half of each retina is represented in the dorsal and the lower in the ventral part of each visual area. (2) The center for macular or central vision lies in the most posterior part of the visual areas, probably on the margins and in the lateral surfaces of the occipital poles. (3) The center for vision subserved by the periphery of the retina is situated in the anterior portions of the visual areas, and the serial concentric zones of the retina from the macula to the periphery are probably represented in this order from behind forwards in the visual areas. (4) Those portions of the retina adjoining their vertical axes are probably represented in dorsal and ventral margins of the visual areas, while that in the neighborhood of the horizontal axes is projected on to the walls of the calcarine fissures. (5) Severe lesions of the visual cortex produce complete blindness in the corresponding portions of the visual fields, or, if incomplete, an amblyopic color vision being generally lost and white objects appearing indistinct, or only more potent stimuli, such as objects moved sharply, may excite sensations. (6) The defects of vision in the fields of the two eyes are always congruous and superimposable, provided no disease or injury of the peripheral visual apparatus exists. (7) Lesions of the lateral surfaces of the hemispheres, particularly of the posterior parietal regions, may cause certain disturbances of the higher visual perceptual functions with intact visual sensibility, as loss of visual orientation and localization in space, disturbed perception of depth and distance, visual attention loss, and visual agnosia.

The Effects of Tobacco.—In a paper read before the Association of Health Officers of Nova Scotia (Quarterly Bulletin of the Department of Public Health of Nova Scotia, January, 1918), Dr. Fraser Harris gives a résumé of the effects of tobacco upon the body, of which the following were the conclusions: (1) The substances in tobacco smoke which are injurious are probably oxidation products of nicotine and other alkaloids. (2) The smoking of tobacco is the more injurious the younger the person, hence young recruits suffer more readily from tobacco heart than older men. (3) The chewing of tobacco is much more injurious than the smoking of it, and ought to be discouraged. (4) Since what is injurious in tobacco smoke is absorbed more readily by inhaling than by smoking without inhaling, inhaling ought to be discouraged. (5) There is in some cases a marked idiosyncrasy toward tobacco in respect of the substances which raise the blood-pressure, cause irregularity of the heart, and give rise to gastric acidity. (6) Those who have this idiosyncrasy ought not to use tobacco at all. (7) Those who do not have this idiosyncrasy may use tobacco in moderation with impunity.

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MANIFEST PULMONARY TUBERCULOSIS.*

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WASHINGTON, D. C.

WHILE numerous articles in the medical press are devoted to methods of detecting incipient tuberculosis, the study of the more advanced forms of pulmonary tuberculosis is, in comparison, much neglected. The textbooks, with their numerous subdivisions and wealth of detail, are confusing to the beginner, who is apt to feel at a loss when confronted by the varied signs of large tuberculous lesions. Yet the importance of skill in diagnosis of age and kind of lesions present in a given case is great for all who have to do with tuberculosis cases, for upon such diagnosis depends the prognosis. Prognosis is the first and last thing demanded of the physician by the patient's friends, and upon the prognosis which he gives he is judged. In military medicine a correct diagnosis and prognosis is perhaps peculiarly desirable, because the conditions of military service frequently make necessary the transportation of tuberculous patients, sometimes over great distances. It is important, for reasons of humanity and for the credit of the medical officer and of the service, that he distinguish transportable from non-transportable cases. Too often it seems to be considered that, a case once labeled as tuberculous, all of the usual contraindications as to travel are removed and that a moribund patient may properly be sent on long journeys to seek, forsooth, the advantages of a change of climate. Medical officers should be held strictly responsible for the exercise of an enlightened judgment as to cases which may or may not be evacuated from their hospitals, not only as respects the obvious indication that dying men should be allowed to pass their last days in peace, but also the retention for proper periods of patients with exacerbations or with history of recent hemoptysis. In view of the above considerations it has seemed to the writer expedient to attempt a brief discussion of some of the salient points in the diagnosis of the manifest pulmonary lesion, with a view to indicate simple methods of reaching an approximate diagnosis and prognosis of the disease. The effort has been made to simplify the subject by the omission of all but the most important points, in the hope of furnishing clues for threading the maze of signs and symptoms of the advanced cases. As in all attempts at simplification, the danger is run of omitting too much—of making unguarded statements which may be all too successfully at-

tacked. It seems best, however, to run this risk rather than to incur the other risk of confusing the presentation of the subject, by guarding the statements made so carefully that the rules involved are lost sight of in the exceptions. No one can be more conscious than the writer of the difficulties of such an undertaking, and he offers this contribution in the hope that its shortcomings will be viewed with charity.

In order to assist the inexperienced, after a discussion of the various types of the disease, paragraphs have been added which indicate by questions the points which should be borne especially in mind in the study of the tuberculous lesion.

Fibrosis.—When tuberculous infection first takes place the cells of the body begin to receive a pabulum through the blood which is changed in quality; it has a tuberculous taint; the products of the tubercle bacillus and the albuminous constituents of the blood which have come in contact with these products and have been changed thereby afford a new nutritive problem for the tissue cells. They must hereafter obtain their nutrition from materials of an altered quality—they must learn to digest tuberculized albumen. Hence a change must take place in the nature of the ferments which are to convert the nutritive substances furnished by the blood into other substances adapted for the special needs of the cells in question. This change in the functional activities of the cells begins at once. Grüner and Hamburger think that a change in the reactivity of the body can be demonstrated to occur within six days after infection, but the initial changes are only a beginning. The process requires at least three months before it can be said to furnish a good measure of protection, and years elapse before the body has attained the power to digest tuberculized albumen or, if you please, to furnish tuberculocidal or bacteriocidal ferments, to the fullest extent of which it is capable. Immunity, then, shows itself in the ability to furnish ferments capable of attacking the tubercle bacillus and its products.

Looking at the process from another standpoint, we may say that immunity manifests itself in the ability of the cells to maintain their existence and to proliferate in the presence of the poisons of the tubercle bacillus. The well-nourished, vigorous cells will naturally gain such power more quickly and to a greater extent than those less healthy. The stronger and better nourished the individual, the greater his chance to acquire a durable immunity, provided that the initial dose of poison has not been too large. Excessive doses of toxic substances

or defective nutrition of the cell defeat the effort to acquire resistance. If the two unfavorable factors are combined, the result of the infection is disaster, immunity is not acquired, and the initial tuberculosis leads speedily to death. We may judge, then, of the degree of immunity by the success with which tuberculous lesions are isolated through the formation of a capsule of connective tissue which prevents their further growth. One disadvantage is, however, apparent in this isolating process, which is that the poisons of the focus are accumulated instead of being dispersed. A point may be reached beyond which the concentration of the poisons of the focus cannot be endured by the most vigorous cell, the cells die, small foci coalesce into a single large focus, and a cavity may result. Even yet there is an opportunity for the defense to rally, the cavity becomes surrounded by a thick wall of fibrous tissue, the more readily because the caseous tissue has dropped out and no longer poisons its environment, and the former lesion may first be discovered at autopsy after many years of immunity to tuberculosis infection.

This is the explanation of the hard saying that cavitation is a sign of immunity—immunity shows itself by the isolation of the focus even though such isolation leads to the death of the cells most closely involved. We see, then, in the most chronic cases, few and large foci sharply circumscribed and isolated, instead of the many and smaller foci surrounded by little or no new-formed connective tissue which characterize cases of less resistance. The process of isolation of the tuberculous focus being favored by relative rest of the part, large foci or cavities are typical of lesions of the upper part of the upper lobe, and are succeeded by smaller lesions as the disease progresses downward to parts of greater motion. Though the initial efforts to resist the spread of the disease may fail, the cells of the resistant organism still retain the power to proliferate in the presence of the toxic substances of the tuberculosis, the result of which, continued during many years, is the formation of great beams of connective tissue about the upper lesions. By the time that death finally ends the long struggle, the upper lobe, even the entire lung, may have become converted into a fibrous sponge, contracted sometimes by the drawing together of the fibrous threads into a small gristly mass of bronchi blood vessels and fibrous trabeculae which bears little resemblance to the normal lung either in size or in structure.

From the foregoing we draw two conclusions: first, the presence of abundant fibrous tissue is a sign of an old lesion; second, it is also a sign of relatively high immunity. From the physical properties of fibrous tissue, its relative non-vascularity, its contractility, and from its density as compared with normal pulmonary tissue we would expect that the lesion would be dry, that the tissues would be indurated, and that breath sounds would be conducted with increased distinctness. Fibrous lesions are in fact characterized by diminution or absence of râles, by well-marked dullness on percussion, by distinctness of transmission of the voice and, above all, by a sharpened inspiration and a prolonged as well as sharpened expiration.

The defense exerted by fibroid encapsulation is

often loosely spoken of as an absolute mechanical defense, as if the wall of fibrous tissue were really impenetrable for the tubercle bacilli. That this is not true is shown by facts such as the following: first, in well-marked cachexiae, as of cancer, reactivation of ancient tuberculous foci sometimes occurs; minute invasions of new-formed tubercles are found on close examination to have proceeded from hard contracted fibrous glands at the hilus or elsewhere in the deep lung, without evidence of active tuberculosis in other parts of the body; second, at autopsy we often find evidences of the invasion of fibrous structures by tubercles as part of the miliary extensions characteristic of the pre-agonal stage of the disease, perhaps as a row of minute tubercles like a string of pearls, threaded through the midst of a massive beam of fibrous tissue. The connective tissue wall is a protection, but not an absolute one, against further dissemination. Only the ferments produced by the immune cell can truly inhibit the growth and extension of the tubercle bacilli. Fibrous tissue thus invaded is no longer a dry tissue. But, with this exception, it is correct to say that in general the fibrous lesion is a dry lesion.

Caseation.—The effect of the presence of caseous foci is to produce a wet lesion. As will be understood from the foregoing, a caseous mass, even if surrounded by dense fibrous tissue, may still soften and liquify. We may have numerous caseous areas embedded in connective tissue, some of which are dry and apparently stationary, while others are in the process of breaking down. In general, however, the presence of numerous caseated areas discourages the formation of fibrous tissue. Where fibrosis predominates, the lesion is called fibrocaseous. Where tubercle is abundant, it is called caseofibrous. Thus, it will be seen, the presence or absence of moisture determines in a rough way the amount of caseous tissue present, the absence of moisture usually establishing the fact that there are at least no softening tubercle connected as open lesions with the air tubes of the part, while the presence of abundant moisture leads us to conclude with some degree of probability that the reverse is true.

Breath Sounds.—The bronchovesicular breathing in the chronic case may be said to be a sign of the presence of fibrous induration. It is also characteristic of the dry lesion. Dryness greatly favors the conduction of the bronchial sounds to the periphery. A wet tube may give not bronchovesicular* but rough breathing, or the breath sounds, at least in feeble or moderate respiration, may be indistinguishable from the normal, even though considerable induration be present in a fibrocaseous lesion. In massive caseation the tissues have lost their elasticity and, in so far as they are caseated, do not expand at all in inspiration. Ordinary breath sounds are absent in such cases or are present enfeebled in less complete caseations. Ordinarily what is heard is a weak and distant bronchial breathing, conducted from the deep bronchi and mingled with the coarse râles characteristic of these tubes.

*For the sake of brevity the term "bronchovesicular" is used to designate a change in breath sounds which consists in increased harshness or "sharpness" of inspiration and expiration, with prolongation of the latter.

The observer should, therefore, be on his guard not to draw necessarily a favorable conclusion from the absence of small or medium-sized râles when the patient's condition is bad. In gangrene, breath sounds are lost over the affected area. The same is true of plugging of the bronchi which may be temporary or permanent, the result in the latter case being ultimately caseation as a rule.

Râles.—Râles are divided into typical pneumonic râles, the crepitant and subcrepitant, and indeterminate râles, the latter including all râles not characteristic of acute pneumonic inflammation. Indeterminate râles may profitably be subdivided into typical and atypical râles. The typical indeterminate râle is moist, viscid, small, or medium in size (but always larger than the true subcrepitant râle), is heard during inspiration, bursts near the ear, and may occur in showers. It is formed in small bronchi, plentifully supplied with exudate as the result of inflammatory reaction to neighboring tubercle. Its presence is therefore a sign on the one hand of the existence of an active superficial tuberculous lesion, and on the other hand of the fact that there is no massive caseation, the tubercles are still discrete, and the process, therefore, either recent or of only moderate acuity. As the crepitant and subcrepitant râles are signs of acute inflammatory reaction, so the typical indeterminate râle is a sign of chronic inflammatory reaction; and, further, just as crepitant and subcrepitant râles disappear when exudate fills the alveoli, so does the small, moist, indeterminate râle disappear when bronchi become occluded or extensive caseation has developed.

The disappearance of small, moist râles in a given region of the lung with advanced lesions is therefore of as much significance as their presence. Localized persistent and numerous typical indeterminate râles constitute the best evidence of the existence of chronic inflammation in lesions containing discrete tubercles and furnish a means of determining the location of deposition of tubercle in fibrocaceous lesions. The atypical indeterminate râle is found in tubes which contain varying and usually relatively small amounts of fluid. Hence they have no fixed characteristics as respects size and time of occurrence in respiration. As a rule, in tuberculosis the atypical indeterminate râle is the râle of the large bronchi, but they are found towards the close of the early stage of miliary tuberculosis and in deep peribronchial tuberculosis. When they are disseminated over the entire lung, they are usually a sign of nontuberculous disease—heart disease, pulmonary edema, asthma, bronchitis, or pulmonary excretion ("gouty bronchitis").

In examining a large lesion it should be remembered that, except in the most acute forms, it is altogether probable that the greater part of the lesion will not be undergoing a typical inflammation at the time of examination. The problem will be to determine the regions where there is true activity and to distinguish them from other regions in which the process has burnt itself out, where, perhaps, râles come from small cavities interspersed in massive fibrous tissue or where fibrous tissue alone remains and transmits occasional râles from the bronchi beneath it. To accomplish this it is necessary to study carefully the characteristics of

the various râles which may be heard. Râles bear no necessary relation to sputum; indeed sputum is not a necessary concomitant of the tuberculous process—rather is it a complication, the evidence of irritation of neighboring bronchi. In some cases of extensive and active tuberculous disease there is practically no expectoration.

The degree of viscosity of the bronchial moisture is an important datum in the study of the chronic lesion. In fibrosis there is usually an old circumscribed lesion of the upper parts of the lung, a cavity or at least dilated or otherwise damaged tubes from which exudes more or less mucus, mingled usually with pus. Hence cough and expectoration are present as a rule in cases of fibrosis. When the fibrosis is the preponderating condition, the râles will be confined to the larger tubes and the mucus will be viscid and raised with difficulty, except so far as it may be diluted with the pus from pyogenic membranes. The coarseness of the râles reveals their origin. If small or medium râles are detected, the lesion probably contains softening tubercle and the prognosis as to prolongation of life is less good. The degree of viscosity and the abundance of the râles give some idea as to the relative acuity of the process, which is the more acute the less viscid within limits and the more numerous the râles. Least viscid of all the râles is the so-called serous râle. These are heard rarely in the chronic lesion under conditions which are little understood. The effect is as if the lesion had been flooded with a non-viscid fluid through which air bubbles. The râles are very numerous, burst without the characteristic delay of the mucous râle, as if, in other words, the rupture of the bubble were not attended by resistance, and have a peculiar, soft, breezy quality which cannot be described. This phenomenon is generally evanescent and is not inconsistent with a considerable prolongation of life.

Râles constitute the auscultatory evidence of inflammatory reaction to the poisons of tubercle. They are the best evidence that the lesion is resisting its foes. Râles are absent in the obsolete or arrested lesion—the body does not need to fight. They are present in the stage of reaction—the body is fighting—whether successfully or not is to be determined in part by the number and quality of the râles, in part by other considerations which will be taken up in the following section. They may be absent again when the body can no longer fight—when the power to react has been lost. Nothing could be more erroneous than to draw favorable conclusions from the diminution or the disappearance of râles in the very advanced case.

Symptoms.—As has been stated, the number and degree of viscosity of the râles justify conclusions as to the acuteness of the tuberculous process, many râles of slight viscosity denoting a process which is not progressing favorably, in which the lesions are breaking down with more or less rapidity. But conditions may be equally or more unfavorable when râles have become more viscid and scanty or finally disappear entirely. For the determination of such a case recourse must be had to the symptoms—it is very important to determine whether the disappearance of râles is a sign of good or evil omen. If the patient is gaining weight, if he feels stronger, if fever is abating or absent, if expecto-

ration of mucopus from cavities is lessening, the sign is a favorable one. If, on the other hand, the patient continues to lose weight, if cough and expectoration do not diminish, if fever continues and especially if it becomes more persistent and the patient's strength grows less, the absence of râles is to be interpreted as evidence that the reactive powers are beginning to wane. The condition is naturally only finally determined after continued observation.

Topical Diagnosis.—We cannot get a correct idea of the tuberculosis of the civilized man unless we think of it as a process which develops in the partially immune subject. Immunity against tuberculosis is produced successfully in the majority of the members of civilized races, so successfully that in fully 70 per cent. the disease is never recognized clinically, and in the remaining 30 per cent almost all the cases of the manifest disease present themselves under a form very different from that which characterizes truly primary tuberculosis. Manifest tuberculosis is due to a temporary or permanent, complete or partial loss of immunity. The forms in which it appears differ according to the degree of immunity which has been present, but usually there is evidence of a considerable resistance during the early phases of the disease. In the highly immune the manifestations of tuberculosis are the less apparent the more perfect the immunity; hence the failure to recognize the fact that tuberculosis is or has been present at all. However, the *x*-ray and the comparatively coarse tuberculin test, both subcutaneous and by the von Pirquet method, give positive results so frequently that the most reasonable hypothesis is that the immunity of the untested or negatively reacting minority is also due to tuberculous infection.

Normal Apex.—Breath sounds and percussion-note normal for location. Krönig's isthmus broad and equal on both sides. Apices resonant on Goldscheider percussion. Observation excludes well-marked chronic disease of upper part of upper lobe. *Does not exclude acute forms.* Examine for râles on ordinary breathing and with expiration and cough, above and below clavicle on both sides.

Apical Tuberculosis.—Observation shows that in the more resistant cases the first manifestation is in the apex. In the best cases the *x*-ray shows a single thickened line extending nearly vertically from the hilus, which ends in a network as the surface of the lung is approached, the lines of the network terminate at the pleural surface, as it were a stream which branches into a delta near its mouth. When the resistance has been less the lines from the hilus become multiple, the superficial network thicker and more complex, containing often one or more discrete fibrous or calcified tubercles. A lesion of this degree is rarely recognized during its activity. It results in contraction of the apex shown by a narrowing of Krönig's isthmus, an induration recognizable by accurate percussion, and by a slight change of breath sounds toward the broncho-vesicular quality. Progressively less resistant are the forms in which the initial foci coalesce into one or more large foci, which may become encapsulated or may lead to cavity. Usually by this time the process is no longer confined to the true apex and is more properly denominated tuberculosis of the upper lobe.

Whereas the first forms described are wholly benign and are not usually recognized as tuberculosis until light is thrown upon them by the *x*-ray, the latter forms are accessible to physical diagnosis and should be recognized by dullness, and by broncho-vesicular breathing with or without râles.

Apical lesions in the strict sense are of importance in diagnosis only as respects the decision as to whether a lesion is present at all. It is quite exceptional that a lesion in its acute stage is found in the apex which does not extend below the clavicle, though the possibility is of course admitted. The apical lesion being in continuity with the extension from the hilus, and being situated in lung which has little or no motion, is aborted in cases with reasonably good immunity. It then presents itself to the observer with the signs of a fibrous lesion. This fibrous lesion is often mistaken for a non-tuberculous collapse, or not detected at all. The nontuberculous collapse, being a simple atelectasis, is characterized by an enfeeblement or loss of breath sounds; the air does not pass freely into the lung, whereas in the fibrous lesion breathing is free and loud. The breath in both lesions may have the bronchovesicular quality, but this is more marked and louder in the fibrous lesion. From the fact that the apical lesion is usually found in an arrested state, it is often not recognized, and the later extensions lower down in the upper lobe are taken to be the first of the superficial lesions. The doctrine is held by many that the earliest incidence of tuberculosis is at a point lower down in the upper lobe than the apex, or is even at the upper edge of the lower lobe. The *x*-ray shows, however, that in the great majority of cases the apex is first of superficial parts to be invaded.

Upper Lobe Lesions.—Often the tuberculous lesion of the upper lobe has consisted in the deposition of a few tubercles which remain discrete, become fibrous or calcified or, if small, disappear entirely, and the existence of a lesion is to be determined solely by the signs which point to diffuse thickening of the connective tissue framework. If pneumonia occurs, the period of pneumonic inflammation being a self-limited one, the probability is great that lesions of the upper lobe will be first detected when they have reached a stage of chronic inflammation or of the induration or caseation which marks the terminal stage of the local process. As a matter of fact, it is quite rare that true subcrepitant or crepitant râles are found in this region. The lesion as it usually presents itself is a chronic lesion, characterized by a harsh inspiration and harsh and prolonged expiration, with or without indeterminate râles according to the activity of the process. Not rarely a well-marked lesion of the upper lobe is seen, which has run its course and becomes arrested without the knowledge of the patient and without detection by his physicians, in some cases notwithstanding numerous examinations. The writer recalls a clergyman coming for examination on account of hemoptysis, who had a typical paralytic thorax and extreme gastroptosis, who stated that because his appearance led to the suspicion of tuberculosis he had been frequently examined for that disease, in the large eastern city in which he dwelt, but always with negative results. Notwithstanding this history there was a well-

marked and good-sized lesion of the right upper lobe which was shown with great distinctness as an old and arrested condition by the *x*-ray. The history pointed back with clearness twenty years to the inception of the disease as a manifest process.

Less chronic and less indurated small lesions of the upper lobe are detected with greater difficulty. Percussion gives slight dullness on the affected side, with usually some increase in vocal resonance; the breath sounds are of the bronchovesicular type, but not necessarily markedly so. The measure of the degree of induration and contraction is sometimes better afforded by the narrowing or disappearance of Krönig's isthmus than by the classical signs over the lesion itself, which are often rendered indistinct by a compensatory emphysema of the neighboring lung.

The presence of an old lesion may only be shown by bronchovesicular breathing and a slight shortness or raised pitch of the percussion note, as shown by careful comparison with the other side. (Bronchovesicular breathing in the second interspace, right side near sternum, diminishing rapidly outward and downward, is normal. If the signs extend outward in the second and third interspace for more than a short distance, there is a lesion.) But it does not follow that a lesion of this kind is of clinical importance. There is as much difference in the severity of even arrested lesions as exists between a scorch of the skin and a burn of the third degree. It is one of the remarkable facts in physical diagnosis that slight changes in the fibrous framework, so slight as ordinarily to escape notice at autopsy, if they extend to the surface may be detected by auscultation and percussion.

In one case the *x*-ray shows a single line from the hilus, ending near the surface of the apex in small branches, the lesion dating back to a hemorrhage thirty-eight years ago without evidence of any signs or symptoms since that time. Several experts have independently determined the existence of an old lesion by physical diagnosis. The importance given to the determination of such obscure lesions rests upon the erroneous assumption that harshness of breathing and prolongation of expiration constitute signs of an incipient lesion. As has been said elsewhere, if the increased transmission of sounds from the bronchi is due to inflammatory engorgement, there is a frank lesion; usually these signs show a chronic condition. In estimating prognosis we should consider the intensity of the now obsolete process as carefully as its extent. There is a wide range from the lesion in which the pleura is glued fast to the ribs, breathing is harsh, dullness is marked, *x*-ray shows many strongly marked lines and one like that referred to above. The first type has some clinical importance; the second is to be neglected. It is therefore incorrect to fill wards with so-called suspicious cases in which the determination of the diagnosis is delayed from doubt as to the significance or importance of obscure signs, there being no reason why the diagnosis cannot be made at once. It is true, of course, that the possibility of a dissemination of tubercle, which has not yet given signs of its presence, introduces an element of uncertainty in *all* diagnoses, but the chance of such a dissemination in an obsolete lesion is much less than in a healthy part of the lung. It

is only justifiable to suspend the rendering of a diagnosis in cases in which the patient is much more ill than can be accounted for by the visible disease.

The Large Superficial Lesion.—Typically this lesion is made up of a cavity surrounded by abundant fibrous tissue above, below this a few large isolated tubercles, and still farther down numerous small tubercles. We find above well-marked dullness on percussion, cavernous breathing or very harsh bronchovesicular breathing, increased vocal fremitus and resonance with pectoriloquy over the cavity. Proceeding downward, an area is reached over which râles are finer, less viscid, and more abundant. Dullness less clearly made out or absent; a patchy crepitation, and voice sounds are less clearly transmitted. Still farther down the râles may be finer still, the dullness less clearly made out or absent; a batch of true subcrepitant or even crepitant râles may rarely indicate a beginning caseation. A lesion of this kind may be called a compound lesion. It represents at least three stages of development: first, the stage of cavitation in which the disease has burnt itself out; second, a stage of the development of large foci under conditions of fairly good resistance; third, a succeeding stage in which resistance has greatly lessened and the disease is beginning to have its own way. A process of this kind denotes a progress of years. The prognosis depends upon the kind and number of râles in the lower parts of the lesion and whether or not there is evidence there of circumscription of the process from the presence of fibrous tissue; in short, whether or not the breathing is of the bronchovesicular type characteristic of such tissue.

Is the breath bronchovesicular, with no râles, the changes in breath sounds being slight and well diffused, dullness being elicited with difficulty? Here we have an obsolete lesion with diffusion of fibrous induration of no marked degree. If the signs are well marked, we have more extensive fibrosis. The absence of râles, even after expiration and cough, shows that the lesion is arrested. Of course, the more marked and extensive the fibrous induration, the more severe has been the attack and the greater the likelihood that caseous masses are present in the lesion. The absence of râles shows them at least to be dry and well encapsulated. We speak of this lesion as a fibrous lesion, meaning, of course, a lesion the course of which is chiefly influenced by the fibrous component. If with the same signs small indeterminate râles are also present, the prognosis of the lesion is worse, because their presence makes it probable that there is softening tubercle. We infer as to the extent and importance of such foci by the abundance and wide distribution (or the reverse) of such râles. Numerous and well-distributed clusters of moist râles lead one to think of numerous disseminated caseous foci which are softening, whereas a few râles may proceed from a bronchus irritated by an insignificant tubercle. Proceeding downward, if the lesion is dry, do all the signs cease at the same line which is distinctly marked? If so, the lesion is arrested. This sign is obtainable with more distinctness in the case of well-marked fibrosis than in the more diffuse and indistinctly marked fibrosis due to sparse and small arrested

tuberculosis foci. In case of râles the lesion extends downward at least as far as râles are heard; dullness and breath changes may not be made out over its full extent. If râles extend below the other signs they will be rather small moist râles, which show a recent superficial extension of an acute kind. Patches of pneumonia may be found in such extensions, characterized by crepitant or sub-crepitant râles, but this is rare. The lesion in the case considered may extend by deposition of new tubercle below the physical signs, the foci not being apparent until inflammation has led to râles.

Study a lesion of this kind to determine the relative age of its parts and the topographical distribution of caseous and fibrous tissue. Is the lesion a simple one—that is, are the signs alike throughout, indicating contemporaneous involvement of all parts of it, or is there an older lesion above with well-marked bronchovesicular breathing and a relatively dry lung, while patches of râles below, with harsh breathing, indicate an active chronic lesion and much fibrous tissue or with nearly normal breath sounds show a wet lung with much softening tubercle; or, again, with normal breath sounds show the presence of an acute extension? Is the lesion above fibrous with preservation of much of the alveolar structures, or is the breathing cavernous, what remains of the lung being converted into airless fibrous tissue? Are the râles rather small or medium moist râles and numerous, indicating dense tubercle deposition, or are they coarse râles produced only in the cavity? Can more than one extension be made out—a fibro-caseous lesion below the cavity succeeded by an acute dissemination of numerous tubercles? Or, on the other hand, is the whole process arrested as to its downward progress, as proved by the fact that all signs terminate at the same level?

Peribronchial Extensions in the Same Lung.—In lesions of the upper lobe the force of inspiration being in the direction of the ribs, tuberculous lesions are most marked or in slight cases only existent near the surface of the lung. Extensions downward implicate especially the superficial portions of the lung and are conditioned by suction of lymph from parts of less to parts of greater expansibility. But in the lower chest the lateral expansion of the thorax has less influence upon the lymph supply than the movements of the diaphragm. The front of the invader is accordingly directed downward. There is this difference in the two situations, however, that the very mobile and expansile base is in too active motion to permit the establishment of tuberculous foci. Unless pleural adhesions prevent active motion, the base of the lungs generally remains free of tubercle, at all events until shortly before death. The tubercle invasion is checked in the bronchial tubes which run downward and outward and directly downward, but such checking tends to assemble the invaders, returning them to the hilus, whence they can act as reinforcements elsewhere. The bronchi which extend laterally through the lower lobe, since their lymph channels run nearly at right angles to the diaphragmatic suction, are particularly exposed. It is common to see an extension along such a bronchus which shows itself at autopsy as a series of bronchopneumonic foci grouped about the tube. Here we have what is really an atypical peri-

bronchial extension. During life our means of diagnosis do not permit the recognition of the fact, which is, however, worthy of note as respects the prognosis. We may put the facts in this way. Extensions in the lower lobe are more apt to involve the entire course of the bronchus, from the hilus to the periphery, than extensions higher up in the lung. What we judge of as superficial extensions of perhaps slight extent are here really the outward manifestations of a very considerable process, the greater part of which runs its course in the deep lung.

Lesions of the Other Lung.—All pulmonary tuberculosis is essentially bilateral, so far at least as the deep lung is concerned. The x-ray shows involvement of both deep paravertebral regions, but more marked as a rule upon one side than the other. On the side less involved the process may remain restricted to the deep lung, or in time it may in its turn reach the apex and develop superficial lesions of the upper lobe which do not differ in their pathology from those of the lung first attacked. As a rule lesions of the lung secondarily involved are larger and more acute than those of the side first affected. It is a very common error to overlook the initial superficial lesion and to consider the second as the first involvement, or, if the presence of a small lesion is discovered, to consider it secondary in point of time to the larger lesion. The distinction is made as follows: the older lesion will show obliteration or greater contraction of Krönig's isthmus, a harsher breathing, and a more prolonged expiration.

Although the first extension from the hilus is peribronchial, after the period of manifest tuberculosis is reached peribronchial extensions are almost always secondary to superficial and more or less circumscribed lesions.

When a tuberculous process has run its course and become arrested, the process having been sufficiently marked to arouse successfully all the defensive powers of the organism, the result is a certain local immunity. Tuberculosis will not develop anew at this place as readily as elsewhere in the lung. If, therefore, a patient presents evidences of constitutional impairment (fever, lassitude, purulent expectoration, etc.), and a superficial examination shows a completely dry lesion of, say, the right upper lobe, it will not do to ascribe the symptoms to this lesion—an arrested lesion has no symptoms. Especial care should be taken to examine the opposite side, in this case supposedly the left, for the slight evidences of peribronchial processes which are so readily overlooked by the careless observer. Failure to institute proper measures in season may lead to an intensification of the peribronchial process such that, when it finally forces itself upon the physician's attention, the case is quite hopeless so far as recovery is concerned; whereas, if taken in time, it might perhaps have become arrested.

Examine with especial care the character of the breathing of the upper lobe of the other side, comparing it frequently with a normal part of the lung. Do not commit the error of considering a tympanitic note over an acute lesion to be normal, the normal side to have dullness. The distinction is made by the pitch. The diseased side will have a higher

pitched, shorter percussion note. On the side with the broader Krönig's isthmus is there also a lesion? Is the bronchovesicular quality of the breath sounds less marked, showing a more recent extension? Are râles present showing activity? If a superficial lesion is not made out, does careful comparison of the breathing of this side with a normal part of the lung show a bronchovesicular quality to be present? Does it extend throughout the upper lobe? If so, there is a peribronchial extension. This may be purely lymphangitic, or, being of greater severity, it may still be arrested, in which case there will be no râles and the prognosis is good. If râles are present, they vary from very abundant to scanty. The prognosis is bad in proportion to the abundance and distinctness of these râles.

Do not expect to find, as a rule, râles which break near the ear; the early râles of peribronchial tuberculosis are indistinct and atypical. It is as if one were obtaining signs of a process which is evolving nearly out of reach. It is important to exclude a massive peribronchitis, limited to the deep lung, which sometimes occurs. The characteristic physical sign of this process, when well marked, is a limitation of the expansibility of the lobe involved, not to be explained by other factors (pleural adhesions), and a higher pitched percussion note on strong percussion as compared with the symmetrical point on the other side. The percussion stroke should be heavy, in order that it may set the entire side in vibration, the idea being to see whether the fundamental note of the lower thorax is altered by a loss of homogeneity through deep infiltration. A radiograph is of immense assistance in the determination of such cases.

The Bilateral Type of Peribronchial Tuberculosis.—We consider here only those forms of fibroid or cirrhotic change which can be ascribed to tuberculosis. The presence of tubercle bacilli in the sputum and the history of tuberculous disease are important data in the diagnosis.

In cases with high immunity in which the process at one time has been severe, the x-ray shows both lungs involved with long and heavy streaks radiating out from the hilus, following the normal course of the bronchi and blood vessels and representing these structures thickened by an enveloping fibroid induration. The two sides are not universally or equally involved, but on both the induration extends well into the lower lung. This condition may develop and become arrested without leading to conspicuous symptoms, the extensive fibrosis revealed by the x-ray being often greater than signs would have led one to anticipate. In other cases the shadows are massive and the course of the tubes and vessels is no longer apparent. The enormous formation of fibrous tissue speaks for a high original immunity, but at the same time an immunity which has been excessively stimulated; in other words, there has been a strong reaction to the presence of widely spread tubercle bacilli and bacillary poisons. The more massive the indurations the more likely therefore that they contain disseminated tubercles. Such tubercles may have become calcified or fibrous at the time of examination, so as probably no longer likely to be of harm, or they may be a source of great danger. The distinction is twofold: First, the presence or absence of râles;

second, the general condition of the patient as respects emaciation and fever. The râles are indeterminate, not very large nor very viscous. They may be disseminated irregularly over both sides; they may be irregular in their appearance, being heard, for example, over the back on both sides at one examination, again only or chiefly on the right; and still again only or chiefly on the left. No favorable deduction should be drawn from the diminution or disappearance of those râles unless such changes be shown to be permanent. This they almost never are.

The system has put forth enormous efforts in laying down the almost incredible amounts of fibrous tissue. Notwithstanding these efforts the râles show that the defense has been a failure, a secondary crop of tubercles has made an invasion, and this is really the beginning of the end which, manifesting itself usually as a miliary extension, is deferred more or less according to the patient's mode of life. The breathing in both types is harsh, with prolonged expiration. Dullness is distinctly present. The transmission of the voice is increased, but owing to the bilateral character of the affection gives little useful information in typical cases. In those cases in which extensive fibrosis has been superadded to an originally slight, well-encapsulated lesion there is no cough and expectoration. If a cavity of the upper lobe has not dried up the sputum is characteristic of that condition. Cough and purulent sputum in conjunction with râles, in cases in which no unhealed cavity exists, are too often an ominous sign.

Acute Peribronchial Tuberculosis.—There remain to be briefly described those cases in which there has been a sudden and extensive formation of tubercle about the bronchi. In the cases seen by the writer this has occurred on the heretofore healthy side, opposite an old and apparently nearly or quite healed lesion. The disease may develop without warning in persons who believe themselves quite well. In this dreadful type of peribronchial tuberculosis the masses of tubercle are grouped so thickly about the bronchi that the latter become inflamed. The peribronchial becomes bronchial tuberculosis—that is, the process progresses toward the lumen of the bronchus, in some places it perforates at an early date, and there is bacilli-laden sputum. Over long stretches the tubes are as yet only stiffened with inflammatory exudates and the mucosa is irritated and swollen. A reflex cough is excited, which is incessant and perfectly hopeless as to results. The only relief for the unfortunate patient is efficient doses of morphine, the effect of which, however, soon wears out. The spasms of cough generally terminate with vomiting, which is further favored by the large doses of morphine, and the patient is speedily worn out by the addition of inanition to his other troubles. The breathing in this class of cases is of the bronchovesicular type, perhaps harsher and louder than in less severe cases. Here, exceptionally, the breath sounds are conducted along the bronchus by an acute inflammatory instead of a fibrous induration.

Large Sluggish Lesions.—The large lesion which has been described with the cavity or the well-marked fibrous area above, succeeded by smaller cavities or by relatively small caseous foci imbedded

in a more or less abundant fibrous tissue, to be perhaps succeeded in its turn by a series of much smaller, more or less closely aggregated tubercles, is a condition which presents sharply drawn characters. It is typical in its development and is easily diagnosed, the physical signs are readily heard through the thin chest wall, and there is perhaps just a shade of dyspnea which results in a force of breathing well calculated to make the auscultatory signs distinct without conscious effort on the part of the subject. The most salient characteristic of a lesion of this class is its development according to law. There are individual differences, of course, of omission or of intercalation, but on the whole there is a typical course which is determined by two factors—the immunity of the individual on the one hand, and, on the other, the relative mobility of the part. Hence we expect cavities and fibrous tissue at the summit, followed by progressively smaller and more numerous lesions as the mobility of the lung increases downward and the lapses of immunity become more serious. The lesions might be compared to a mountain—craters extinct or active at the summit, farther down caves, and, still farther, stratified rock of various kinds. But there is the difference that, whereas in the mountain the age of the different levels increases downward, in the lung the lowest stratum of tuberculous tissue is the most recent—a topsy-turvy geology, as it were.

But there is another class of cases in which the diagnosis is not so easy. We distinguish two types. The first is obscure in its manifestations because the lesion consists essentially in a disseminated fibrosis, which from its nature does not give very sharply marked signs. The problem here is to determine by comparison with the other side whether or not the tissues have been impaired in resonance and have had their conductivity of sounds increased, with the further important question: Is there evidence of the presence of disseminated tubercle and, if so, are these foci in a condition of activity? The problems which such a case presents are not difficult of solution for one whose ear is trained to detect minute changes in breath sounds and percussion note, except so far as the decision as to amount of caseous tissue present is concerned. The difficulties of the inexperienced are due to two causes: first, expecting to elicit well-marked physical signs; second, giving morbid significance to normal topical variation in breath sounds.

But there is another class of cases with larger and older lesions in which, while they are still no doubt subject to law, the laws which govern are plainly quite different and less easily explained, and the lesion when interrogated stands mute, it may seem, to the uninitiated, or gives out information as to its nature but sparingly. Such a lesion is usually found in cases of long standing in which the patient has been under favorable conditions as respects food and rest, but has been slowly retrogressing. If one examines such a lesion, dullness is present nearly everywhere over the thorax, breath sounds are faint or inaudible over the greater part of one or both lungs, râles are atypical, found here and there, differing in number and distribution at succeeding examinations, and the conduction of the voice is rather diminished than increased. In short, the examiner may conclude his examination with

the feeling that there is undoubtedly a tuberculous lesion, but that the determining of its age, distribution and prognosis is a very different matter. In such a lesion the difficulties of diagnosis are largely due to the presence of extensive plastic pleural exudates which act in various ways to obscure the physical signs. Chronic tuberculous affection of the superficies of the lung are, as a rule, accompanied by a certain amount of plastic pleurisy. Pleurisy of this kind can only occur when the tuberculous involvement of the visceral pleura and underlying lung is slight and chronic. In other words, adhesions cannot form over large caseous foci. The beneficent effect of pleurisy in prolonging life is not always considered. In its absence the first good sized caseous tubercle that breaks down upon the surface of the lung will infallibly lead to pyopneumothorax. That this complication is comparatively rare is the best proof of the rôle of the pleural adhesion. We expect, then, more or less pleurisy to accompany every well-marked and large chronic lesion.

In cases with high immunity, in which lesions develop slowly and are well demarcated, the pleurisy is, as a rule, limited to the immediate vicinity of the lesion, leaving the lower lung free to expand in respiration and thus check the downward progress of the disease. In such cases we find that the basal parts of the lung furnish strong respiratory sounds, and the autopsy shows this portion of the lung to be free of manifest tubercles. But in cases of less immunity, especially in the lung secondarily involved, in which a disseminated extension has taken place, pleurisy may tie down the entire lung, even involving the diaphragmatic pleura. A lung thus affected operates under different laws. It is in a condition of enforced rest, is incapable of full expansion and, under ordinary conditions, does but little of the work of respiration. It therefore comes under the influence of the law that lesions forming under conditions of rest will be larger, more discrete, and more likely to break down into cavities. One sees rarely at autopsy a lung completely adherent everywhere through which are interspersed large caseous foci, such as are characteristic of the upper lobe lesion. Usually, however, the lesions have been laid down before the lung has become motionless, in which case they are small and numerous, and the question is: Will the effect of rest be helpful or harmful? The answer is, helpful if the dissemination is sparse, in which case the individual foci may become fibrous or calcified; harmful if the dissemination is dense, the stagnant poisons then tending to break down the healthy tissue between the tubercles, with the result that the lung melts down into a vast cavity if life is sufficiently prolonged.

In the majority of cases, however, the termination is neither fibrosis nor cavitation. The lesions, neither very sparse nor closely aggregated, pursue an extremely sluggish course, and the patient is generally carried off at last by some complication such as pneumonia, or his entire loss of immunity is shown by a final crop of miliary tubercles in the lungs or throughout all the viscera.

Even in these cases the signs of a former immunity may be shown by the difference in behavior of the two lungs. In one the tissues are drier,

there is a sharper respiration, there may be old cavities in the upper lobe, the lesion is more sharply demarcated below, the lung below the lesion may be free of morbid signs, and the respiration of the individual may be largely carried on by it; whereas, on the other side, the breathing is faint, often apparently normal, râles are indeterminate, rather large and few under ordinary breathing, sometimes developing showers after effective cough. The percussion note is dull everywhere, sometimes approaching flatness in the lower axilla. Flatness is, of course, a sign which should at once lead to the suspicion of the presence of effusion. But in the class of cases under consideration the percussion note is very dull, rather than flat. *Fremitus* is absent, but vocal resonance can still be obtained. This is known as Kuthy's dissociation phenomenon. The discoverer explains the absence of *fremitus* by the supposition that the voice cannot cause a commotion of the thoracic wall because the vibrations are checked in passing through the non-homogeneous stratum of the thick plastic adhesions, whereas the sound of the voice, having greater penetration, still reaches the ear.

In studying these difficult cases, determine first which lung has the older lesion. Often the patient knows only of the older lesion, believing his disease to be unilateral. Fibrosis and cavity above, succeeded below by well-marked bronchovesicular breathing throughout the lesion, the lower edge of which is sharply demarcated, the breathing at the base being free, and exaggerated or puerile in character, are favorable signs. The prognosis of this lesion depends, however, chiefly upon the number, density (abundance), and size of the râles following the cough. Usually the lesion is a wet lesion, approaching in its character that of the newer lesion of the opposite side. The more recent lesion is characterized usually by absence of cavity, or cavities when present will be recent, and by feeble respiration with inability to increase its force above a certain slight degree. Often the examiner will believe that the patient is making no effort to breathe until comparison with the other base shows powerful respiratory movements with correspondingly loud breath sounds there. Vocal resonance may be less loud than on the other side, but everywhere present. The presence or absence and the distribution of vocal *fremitus* furnish a clue as to the density and thickness of the plastic exudate of the pleura. The lesion is a wet lesion, the number, size, and density of the râles constituting the best guide to the condition as respects caseous foci. In general the prognosis as respects prolongation of life is better the more obscure the physical signs, and it is to be determined partly by the amount of fibrosis present, but chiefly by symptoms (fever, expectoration, emaciation, loss of strength, etc.) rather than by signs. Here, as in other advanced lesions, the observer should be on his guard against drawing favorable conclusions from the absence of signs of moisture if the patient's general condition is distinctly bad.

In studying these lesions Krönig's isthmus may not indicate the age of the lesion, being contracted on both sides. The older side may show a sharper breathing, a smaller lesion, a free base, perhaps a larger cavity. Are there extensive pleural adhe-

sions as shown by restricted breathing? Are vocal resonance and *fremitus* increased, showing the influence of the parenchymatous lesion, or diminished, showing an extensive plastic deposit in the pleura? What is the amount of fibrous tissue? Are there extensive areas with dullness and harsh breathing but without râles, or is the whole lung wet and the bronchovesicular quality absent or but slightly marked in the respiration? Do showers of râles on expiration and cough show that there is inflammatory reaction of softening tubercle, or are the râles few and coarse from cavities or irritated bronchi? The prognosis will probably be determined by the condition of the more recently involved side. Is the lung involved throughout or to a lower level than the other side? Bear in mind the effect of extensive pleural adhesions in restricting the breathing so that less information will be obtained from study of breath sounds. Percussion gives much useful information here. Distinguish the very dull note of plastic exudate from that of the more resonant parenchymatous lesion. Is the newer tubercle breaking down? Are there indications of a cavity of the lower lung? Do not forget to exclude empyema and localized pneumothorax. Consider carefully the patient's general condition and bring it into relation with the physical signs.

There is one class of cases apparently similar to those just described, which presents great difficulties in diagnosis and prognosis. It may be described as a lesion with all the evidences of advanced disease, dullness, changes in breath sounds, abundant moisture, etc., in which the patient's general health is good entirely out of proportion to the apparent gravity of the lung conditions. The writer has in mind one case in which the breathing of the right lung was greatly restricted and the lung was everywhere full of râles, in which there is rarely fever, the nutrition and appetite excellent and the patient so little conscious of ill health as to be desirous of accepting a commission in the Medical Reserve Corps. Here we have a case in which firm adhesions interfere with the play of the lung and lead to stagnation of the lymph, the moisture apparently being due in large measure to such stagnation rather than to the exudation of active inflammation. It is probable that the fluid in the lung of such cases is due in part to errors of metabolism, but this is a point which demands further study. The determination of such cases is made by the dissociation of signs and symptoms. The patient's condition appears desperate from physical signs, but the symptoms indicate a very tolerable, though, of course, precarious, state of health which may be enjoyed during some years. Here, as in all advanced cases, symptoms furnish the surest clue to the prognosis.

The Cavity.—Cavities result from the death and absorption of pulmonary tissue. They are divided into superficial and deep, open and closed cavities. Occasionally a cavity of the upper lobe is seen in which the entire interior of the lobe has been scooped out, leaving walls of air-bearing tissue. Such a cavity is difficult of diagnosis, especially as respects its extent, even a thin wall containing air-filled alveoli having an extraordinary effect in diminishing the conduction of sound. As a rule, however, the cavity, especially the large cavity, has de-

stroyed the superficial lung so that its external wall consists of little more than the two layers of the pleura glued together and firmly adherent to the ribs. From such a cavity sounds are conducted with startling distinctness. Most characteristic is the conduction of the voice and the whisper. Spoken words seem to be enunciated from the depths of the cavity; hence the term *pectoriloquy*. Whispering pectoriloquy is equally or more distinct in its peculiar reproduction of spoken words than is phonation. The râles produced vary greatly, according to the quantity of fluid present and the resonance of the cavity walls.

A very large cavity is always a more or less wet cavity. Small cavities are difficult of diagnosis. Occasionally a cavity is detected by the x-ray which gives no physical signs. Conversely, a cavity may be diagnosed by physical signs which is not shown on the radiograph. A closed cavity gives no certain physical signs. If full it is equivalent to an abscess. The presence of such a cavity may be suspected if its location and weight are such that it exercises a pull upon the pleura, in which case there is the characteristic hopelessly unproductive "pleural" reflex cough, which, once heard, will always be remembered. A deep cavity also presents some difficulties in diagnosis. The marked physical signs due to the resonance of the walls of the superficial cavity are absent. Often the only sign is a respiration in which inspiration is almost inaudible, expiration being very prolonged and deep-pitched. A variety of the deep cavity is the serpiginous cavity, which appears at autopsy as a narrow sinuous tube extending sometimes far down into the lung, as if the process of its formation had consisted in a progressive melting away of the bottom of the sac. Its importance lies chiefly in the prognosis of hemorrhage. When in its downward course a cavity of this kind encounters a blood vessel, hemorrhage is likely to ensue, which is raised with difficulty, the greater part of the effused blood infiltrating the surrounding lung. The fact that hemorrhage may appear to be slight or that it ceases altogether is of no importance if the patient's face becomes cyanosed. This is a fatal sign, evidence of the extensive infiltrations of the deep lung with blood which the autopsy will speedily reveal.

If the breathing is characteristic of cavity, we have to determine the size and position of the cavity and the condition of the surrounding tissue. Are the sounds from the cavity very marked, reaching the ear with the greatest distinctness? Is the percussion note tympanitic or very resonant? We infer, then, that the cavity is superficial and the pleura adherent. Passing in all directions from the point where the sounds are most distinct, the patient counting vocally or in a whisper, note where the pectoriloquy, though still plainly heard, becomes less loud. We are now over lung tissue, but it is not always easy to determine whether the cavity still extends behind that tissue, the difference in sound being merely due to the interposition of a thicker wall, or whether the sounds are reflected downward into uninvaded territory. However, the important question is: What is the condition of the surrounding tissues or, what amounts to nearly the same thing, what is the nature of the cavity? Is it progressing or stationary? The walls of the

cavity may be of smooth and firm fibrous tissue throughout, or of sloughing masses of caseous material, interspersed among thickly studded softening yellow tubercles of small size; or there may be intermediate cases in which the tubercle persists in only a portion of the wall, usually the floor. The first type is characterized by the distinctness and metallic quality of breath sounds and râles, often by the scantiness of its contents (shown by the fact that râles are only elicited at the base of the cavity) and by their frequently tenacious character, the blast of strong respiratory movements of air producing what are plainly waves ruffling the surface of a mucilaginous pool, as it were.

When the walls, on the other hand, are soft and crumbling, the sonority of the acoustic phenomena is much diminished. Pectoriloquy is still present, but one fails to get the impression of a resounding cavity. On expiration and cough the sides of the cavity are brought into apposition. Their separation in the following inspiration is sometimes manifested by a whiff and by a sound resembling numerous simultaneous small râles. The contents of the cavity are usually much more abundant and râles of varying quality are obtained at a higher level. If the breaking down is rapid and the fluid largely pus, râles are not necessarily conspicuous or peculiar. In some very advanced cases, however, there is an extraordinary viscosity of the greenish-yellow, often blood-stained, sputum, which has been ascribed to the presence of nucleinic acid. In such a case the sputum hangs in ropes in the patient's mouth, and he often attempts to extract it with his fingers after repeated failures to expel it in the usual way. In the cavity the same viscosity of its contents leads to the most remarkable variety of râles, snoring, bubbling, creaking râles, the sound of "new leather," simulations of friction rubs and the like, the diagnosis of which, if there is doubt, is speedily cleared up by the change effected by a coughing fit. The sputum varies with the nature of the cavity contents, mucous or mucopurulent, viscous, comparatively scanty and raised with difficulty in the first type, more abundant, more frankly purulent, easily raised in the second type, raised with some and expelled with more difficulty in the variety just described. If the cavity is not large we must ask ourselves the question: What is the character of the remaining solid structures? About the encapsulated cavities, which may be multiple, there are masses of fibrous tissue that are completely destitute of patent alveoli. In such cases no respiratory sounds are forthcoming from the surrounding parts, the indurated tissues of which transmit the cavity sounds with great distinctness. The condition of the air-bearing tissue in the neighborhood of the cavity is determinable by criteria already discussed. A bad combination as respects general prognosis and also in the present case the probability of extension of the cavity, is apparently normal low-pitched respiration, with an abundance of râles, and, worse yet, is such an abundance of râles as to render the breath sounds inaudible.

One variety of the cavity which sometimes escapes the unwary is one in which the lumen of the cavity is practically obliterated by a dislocated heart. Some change in the heart's position probably occurs in every case of at all extensive cavity,

the lung on the healthy side expanding to fill the vacancy and pushing the heart before it. In some cases the dislocation of the heart may be marked, the greater bulk of the heart being found to the right of the median line of the sternum, or in the left-sided cavity it may be tucked away well up toward the axilla. He who does not percuss out the heart and determine the location of the apex beat as a part of his study of lung conditions is doomed to an occasional unpleasant surprise. One more word on this subject. Do not ascribe any signs of failing heart or possibly venous obstruction to a kinking of the great vessels as the result of the heart's displacement. The heart can be swung in any direction within the thorax without leading to any diminution of caliber of these vessels through undue approximation of their walls, as dissections have convinced the writer.

Miliary Tuberculosis.—The term "miliary" relates merely, of course, to the size of the tubercles. A better name would be "disseminated hematogenous tuberculosis." The complete failure of immunity, which so often immediately precedes and is the cause of death in tuberculosis, is the signal for the development everywhere of tubercle, often minute and determinable only by the microscope, sometimes of a more chronic type and appearing as macroscopic yellow tubercles. It is incorrect to speak of death as occurring from miliary tuberculosis in such a condition. The term should be reserved for cases in which there is a large or a universal dissemination, often from an old and apparently insignificant focus, of minute tubercles which constitute the principle disease. Much study has been expended upon the causes of this condition, but the point upon which especial emphasis should be laid is that the initial condition which is the real cause of miliary tuberculosis is the complete failure of immunity, which allows collections of tubercle bacilli to be set free and to establish everywhere new colonies. Miliary tuberculosis as studied in the lungs gives at the outset no signs and symptoms. It is invisible to the x-ray. In physical examination of the chest, in a case in which the overwhelming of the vital forces is apparent, day after day no signs are obtained. At last distant and faint atypical indeterminate râles are to be made out. By this time there is a characteristic restraint of the breathing. The lung expands slightly and ineffectually and gives the impression on auscultation of a body which moves slightly amid wet surroundings. If life is prolonged until softening of the tubercle has taken place, the râles are more characteristic and nearer the ear, and the x-ray reveals a multitude of minute shadows.

Hematogenous disseminations of tubercle may be sparse or dense. Their characteristic feature is their irregularity of dissemination. Peribronchial tuberculosis is known at autopsy by the occurrence of "clover leaf" groupings of tubercle, which represent sections of bronchi and bronchioles filled with caseous material or with pus. When section at autopsy shows thickly set tubercles, in great part of the same size and equally placed, the condition is not miliary tuberculosis but the last stage of a bronchitis or bronchiolitis which is the termination of the most marked forms of peribronchial tuberculosis.

METHODS OF PREVENTION AND CONTROL OF DISEASE IN WAR INDUSTRIES.*

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THE present struggle has demonstrated in the most forcible way that the effective organization of industries is fundamental in the successful prosecution of modern war. Mere numbers avail but little against an enemy who has brought war industries to the highest pitch of efficiency, unless, in like fashion, war materials and the means to transport them be forthcoming to a hitherto unprecedented extent.

Success in this can be achieved only by maximum continuous production over the entire interval of the war. There is abundant evidence to show that the most important factor influencing production is keeping the workers continuously well. As the British Health of Munition Workers' Committee so cogently remarks, "Without health there is no energy; without energy there is no output."

As output will win this war, the vital necessity of maintaining the health of our industrial army at the highest possible level is self-evident. Unfortunately, as has been so ably shown by the preceding speakers, the conditions surrounding war industries are such that workers are intensively exposed to such health hazards as industrial poisons, high degrees of heat and humidity, defective conditions of illumination and ventilation, to dusts and fumes, to excessive muscular strain, to noise and vibration. In addition to these, there are the harmful effects of speeding up and over-fatigue caused by the endeavor to furnish supplies in the enormous amounts required.

Nor are the hazards of the work-place the only ones to which our industrial army is exposed. There are the defective sanitary conditions arising in the industrial community itself, which menace the health during the hours passed outside the workplace. While we have always had defective community conditions in the past, the extent of such conditions has considerably increased because of the great influx of workers to newly developed industrial centers.

A continuous state of health of the industrial army, therefore, can be secured only by the application of measures for the intelligent supervision and control of sanitary conditions in industrial plants, for the prevention of occupational diseases and poisonings, for the medical care and supervision of the working force, and for the elimination of defective sanitary conditions in industrial communities.

A forcible illustration of the necessity for such provisions is shown by the experience of Great Britain. Although the factory system of the British Empire is subject, in normal times, to many wise regulations for the safeguarding of industries, nevertheless, at the outbreak of the war, in the desire for maximum output, industries were speeded up without adequate supervision to the

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breaking point; sanitary precautions ordinarily enforced were disregarded during the period of initial stress; long hours and long periods of overtime were worked. In addition to this, all volunteers, physically acceptable, were enlisted without regard to their ability as industrial workers. Many women were drafted into industry to replace men, thus exposing them to industrial hazards with which they were unfamiliar. These conditions so slowed up output that it became necessary for the British Government to supervise the industries from the health standpoint and to recall from the front workers who should never have been diverted, in the first place, from the service they were peculiarly able to give.

Prior to the entry of our Government into the war, the furnishing of munitions to the Allies had already stimulated exceedingly the extension in this country of the industries concerned, namely, the explosives and munitions industries, the textile, the metallurgical industries, the chemical and allied industries, the rubber, shipbuilding, and leather industries. The part now being played by our country in the war will still further greatly enlarge the previous activities. New plants for the production of war materials will spring up, like mushrooms, over night. It is to be expected that men will undertake production in government contracts who have had but little previous experience with the manufacture of the materials in question and the hazards to the health which may surround such manufacture.

Moreover, in view of the recent march of events in Europe and submarine activities, time seems a vital element in the successful military intervention of the American people. It, therefore, seems imperative, on the part of the Federal Government, if the European experience is to be avoided, to exercise such supervision and control of the sanitary conditions surrounding war industries and the health of the industrial army that the health requisite to maximum output will be insured. That the need for such federal supervision exists at the present time has been amply shown by the previous speakers by investigations already made in such industries by officers of the Public Health Service and by others.

Thus the explosives and munitions industries present the hazard of industrial poisoning by such coal-tar compounds as T. N. T. and tetryl, which already have caused, both in this country and abroad, numerous fatalities, and a much greater number of acute and chronic poisonings. Yet it is possible, by proper precautions, well-nigh to eliminate these causes of lowered efficiency and ill health.

Apart from the munitions and explosives industries, other industries essential to the successful prosecutions of the war each present their own specific health hazards. For instance, in the manufacture of airplanes, the solvent used in "doping" wing fabrics is often highly poisonous, so that its use may cause many cases of poisoning and death unless adequate precautions are taken.

The "nosing" of shells, the manufacture of shrapnel bullets, the loading of shrapnel shells will expose the workers to the dangers of lead

poisoning unless proper precautions are taken. Again, in the rubber industry, poisonous compounds are used which may readily result in serious poisoning unless protective measures are applied.

Besides the high accidental rate, the metallurgical trades expose the workers to much physical strain, to dust and fumes, to extremes of heat and humidity, and often to industrial lights injurious to the eyes. Yet such exposure can be reduced to a minimum, without impairing efficiency if simple protective measures are introduced.

In addition to the specific occupational hazards, the feverish effort at production brings in its train the deteriorating factors of speeding up and over-fatigue, the study of which and consideration of proper remedies, has already attracted so much attention in the work of the Health of Munitions Workers Committee in England. This problem is also being studied by the Public Health Service.

It must be remembered, too, that for the best results, sanitary conditions must be secured in the total environment of the workers, for it is evidently not enough to provide a sanitary workplace, when during the hours of rest and recreation the worker is exposed to the dangers arising from defective community sanitation.

The conservation of the health of the industrial army is therefore a major problem in public health and should be solved by the effective and coordinate action of all the public health agencies of the country.

Because of the authority conferred by Congress on the U. S. Public Health Service to investigate insanitary conditions, because of the studies it has already made, and because of its facilities to study and advise in matters pertaining to the public health, in a national emergency, such as exists at the present time, this service may be regarded as the proper medium through which the Federal Government may unite and coordinate the health agencies of the country in order properly to protect the health of the industrial army.

Such concerted effort is rendered all the more necessary because the large numbers of physicians which are at present or will be on duty with the military forces will considerably diminish the number of those available for the protection of the health of the civil population. For this reason alone it becomes necessary, first, to diminish sickness by preventing it, and second, to increase the efficiency of the remainder of the profession in order to care for those who become sick in spite of preventing measures. Moreover, owing to the lack of standards of industrial hygiene, lack of uniformity in health organization and great differences in facilities for disease prevention in various parts of the United States, unless there be some concerted action to provide uniform measures of health protection we are certain to be faced with the problem of greatly diminished efficiency, because of preventable disease in war industries developed in areas where as yet a sanitary organization is not adequately provided. An adequate supervision of the health in war industries should embrace the following points:

1. The creation of minimum standards of in-

dustrial hygiene covering the important points in factory sanitation and prevention of occupational diseases and poisonings.

2. Sanitary supervision of premises, buildings, and processes of industrial plants engaged in supplying war materials to the Federal Government. Such sanitary supervision would include not only general plant sanitation, such as the securing of adequate illumination, cleanliness, water supply, toilet facilities, and the like, but also the supervision of processes in such manner as to prevent the incidence of occupational diseases, industrial poisoning, and rapid physical deterioration.

3. Medical supervision of workers in industrial plants. This would include (a) such physical examination of workers as may be necessary to prevent the spread of communicable diseases among the plant personnel and the selection of workers for jobs at which they may maintain the greatest efficiency in output on a minimum physical stress, (b) medical supervision of workers so that minor physical ailments would receive appropriate treatment at the plant, thus avoiding loss of time, or, in the event of serious illness, provide a correct and reasonable diagnosis, so that the proper medical treatment may be obtained at the earliest possible moment, having in view the restoration of the workers concerned to full earning capacity in the shortest practicable time.

4. The avoidance of industrial over-fatigue, (a) by adjustment of hours of labor, rest, and recreation to the type of work so that maximum output will be maintained from hour to hour, from day to day, and week to week.

5. The institution of a campaign of education in personal hygiene by personal contact with workers so as to obtain their full co-operation in the general sanitary measures designed for their benefit.

6. In addition to the activities directly concerned with industrial sanitation and plant sanitation, collateral studies should at the same time be carried on with a view further to improve and increase efficiency and safeguard the health of the industrial workers. Such studies would include the relation of fatigue to the particular industry or process concerned; the influence of proper rest periods; the elimination of superfluous mental and physical stresses incident to the process or occupation; the efficiency of sanitary precautions adopted in the prevention of occupational diseases, the object of such studies being to eliminate superfluous, while maintaining adequate precautions.

7. While due attention to sanitary conditions within the plant will assist greatly in maintaining a continuous state of health on the part of workers, it is evident that attention must also be paid to community sanitation in industrial centers actively engaged in the production of war materials. It will avail but little to institute ideal sanitary conditions in industrial plants if at the same time there exist in the community environment of the workers such conditions as defective water supply, crowded and insanitary housing conditions, surface privies, inadequate facilities for garbage and waste removal, and the like. It will, therefore, become necessary in connection with

any general scheme for the protection of the health of the industrial army to play an active part in promoting community sanitation in industrial communities.

8. Nor must we lose sight of the moral side of bodily health. Measures which will remove deteriorating mental states, such as discontent, apathy, monotony, absence of mental stimuli, play no small part in reinforcing other measures for the protection of the health previously outlined.

As soon as minimum standards of industrial hygiene have been prepared, it is clear that the program as outlined above could be realized by active cooperation of State and local health agencies and State departments of labor with the Federal Government through the Public Health Service, active as a unifying and coordinating agency. In this manner we would realize in practice the attitude always maintained by the federal to the State and local health agencies, namely, an attitude which supplements and stimulates but does not supplant State and local activities. There is at present pending in Congress a measure by which all this may readily be brought about. This measure, known as Joint Senate Resolution 63, creates a reserve of the Public Health Service in which may be commissioned all persons skilled in sanitary science, and which empowers the Public Health Service to do two vitally important things: (1) to sanitize ports and places at or near which military forces are mobilized or are to be mobilized, and, similarly, ports or places at which industrial forces are mobilized or to be mobilized: (2) it empowers the Public Health Service to cooperate with and make effective the health agencies of the United States. The passage of this bill would at once enable the Public Health Service to expand to meet the public health situation which now confronts it. The present march of events in Europe, the urgent desire felt by all of us to see our country throw its potentially invincible resources of man power and materials into one concentrated victorious effort surely demand that no stone be left unturned to secure this great result. The adequate protection of the health of the industrial army must be regarded as an essential factor in this effort.

AID FROM THE MEDICAL PROFESSION IN THE PREVENTION OF DISEASE IN WAR INDUSTRIES*

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THE term War Industries is here used in a sense more comprehensive than is implied in the name Munition Works, and includes a great variety of occupations, such as shipbuilding, iron and steel works, textile factories, and a large number of others not so directly related to the necessities of war. In general terms, we may consider as War Industries all those occupations which will be required to supply national necessities, and in which

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all efforts will be put forward to secure the maximum output consistent with the physical welfare of those employed. Some of these, such as munition plants and shipbuilding plants, will frequently be in somewhat isolated positions and under quite complete governmental control, not only at the shops but also in the housing areas where the workers live. In the case of these, the supervision of the health of the employees will be relatively simpler and more effective than in the case of the large bulk of industries located in the midst of crowded industrial centers, their workmen living near or at a distance from the works, but in closer contact with the general community than is the case with the employees of isolated plants. The aid which the general medical profession may render in the prevention of disease among war industrials will be of especial importance in the case of these scattered plants; in the segregated ones an official medical organization under governmental control can more readily supervise the whole matter.

Before we turn to the details of the kind of aid the medical profession can render it is well to outline some of the assumptions that may be made regarding measures of prevention of disease at the source. The outside medical profession can be of little aid here except by assisting in the instruction of workmen and their families. The important causes of diseases originating in industries are: fatigue, impure and dust-laden air, improper heating, lighting and ventilation, traumatism and infection, various forms of poisoning incident to the occupation, and crowding or contact with masses of human beings. I leave out of consideration entirely the question of industrial accidents.

1. Fatigue very properly occupies the first place in this list, though I have not attempted to set the others in any order of relative significance. But fatigue, without question, leads all others, and is the underlying cause that occasions the reduced resistance or increased susceptibility to infection as well as to various other direct causes of disease. The tired man or woman most readily falls the victim to conditions that might otherwise prove innocuous. Leaving out of consideration the ulterior effects of fatigue in the causation of disease, this factor stands out prominently in the economic consideration of labor, because fatigue is, after all, the important cause of inefficiency. The regulation of the hours of work, the institution of rest periods, the insistence upon sufficient time for meals, the arrangement of chairs and stools, work benches, and other appliances to cut down unnecessary tire, these are some of the axioms in the scientific management of industrial plants. The number of hours of work appropriate to men, women, and children is gradually becoming a matter for direct and scientific determination. That workmen will actually accomplish more work in shorter working days or weeks, and with determinably less fatigue no longer surprises any one who has followed the literature of the last few years. The figures must naturally vary with the type of work, as well as with different individuals, but broad rules can be laid down. It is natural, therefore, to assume that definite regulations will fix the hours of work subject to partial modifications in selected cases.

2. That every appliance for proper lighting, uni-

form heating, movement of air, and elimination of dust and noxious fumes will be installed with the same care as safety devices to prevent the more obvious "industrial accidents," may be assumed as constituting a second group of regulations. I single out the matter of lighting for an added comment because of its special bearing on fatigue. Work in ill-lighted shops is demonstrably more fatiguing to the general nervous system than in an establishment of proper modern construction.

3. Cleanliness, with the resultant healthy condition of the skin, is a factor in the prevention of infection that deserves a more thorough appreciation than it has received. Every modern plant is provided with proper wash rooms, toilets, and even showers or bathrooms, and in many cases time out of the working day is allowed for their regular use. In certain industries this should be strictly enforced. Where contact with dangerous poisons cannot be wholly avoided, even with gloves, masks, or other devices, the propriety of such a regulation is obvious.

4. Crowding is used here in the sense of the massing together of people rather than to indicate a lack of cubic space of the workrooms per person. The avoidance of the latter is, of course, assumed; but the possibility of diseases spreading rapidly among masses of men not subjected to grossly unsanitary overcrowding is a factor of importance in industries. A counterpart of what is here in mind has been repeatedly observed in camps, where the periodic admission of new recruits from civil communities is followed by waves of increased morbidity. The danger can be obviated only by greater strictness in observing and treating minor conditions among such masses. The First-Aid Department of establishments has one of its important functions in this connection. Carefully prepared health cards of individual workers, and their utilization for the recording of what ordinarily seem trivial complaints, should form an essential part of the work of the First-Aid Department.

Closely related to the matter of the health record of industrials is that of his proper selection. The emergency of war work makes imperative what has always been recognized as desirable—that men, women, and children employed in any form of labor should be classified according to their physical standards and general adaptability. Certain individuals are as unfitted for one type of work while suited to another as other individuals are adapted to the reverse conditions. It is, of course, manifest that only broad generalizations can be made, and the experience of the foremen and the local medical corps must decide after considering individual conditions.

5. Food. Though the nutritional requirements of laborers are an essential to their physical wellbeing and consequent productiveness, I did not place this item among the conditions calling for regulation, because it, after all, pertains to the outside life of the worker; but as one meal at least is eaten during the working day and at the works, it is impracticable to ignore this question on the assumption that properly paid workmen will provide themselves with sufficient and suitable food. Experience has shown that even under the conditions of unusually high pay prevailing in war industries it is

erroneous to assume that workmen will come well fed, and practice has shown that economically it pays to establish canteens and even to assess the industry with the cost of maintenance, and, in large part, of the food itself. Perhaps the need in this country may be less than in England, or elsewhere in Europe, where many workmen have been in the habit of starting the day's work before their first meal, or breakfast.

Assuming that all proper regulations have been adopted to insure the right selection and classification of workers and to prevent overfatigue and disease at the plants, the next step is that there shall be a prompt recognition of disease as well as of overfatigue that may occur despite these regulations. It is at this point that the aid of the medical profession begins, and I repeat what I have said before, that outside physicians can obviously be of use mainly in connection with plants situated in the midst of crowded communities and operated by workmen whose homes are scattered about the whole community. It is evident that family physicians come in closest touch with people of all classes of society, and are in especially favorable relations with workmen and their families to aid in the campaign against disease by instructing people in the matters of personal and domestic hygiene which are so fundamentally important in the preservation of health. The best-thought-out plans of protection against the development of diseases at the places of work must of necessity fall far short of what is desirable if the home life of the workmen and their conditions generally during the hours of the day when they are not at work are unfavorable. Rules and regulations will accomplish much less to correct such evils than will the personal interest of the family physician.

That effective aid may be given by the doctors of the community it is necessary that they have knowledge of the conditions resulting from the industries, and also that they be as well informed as possible regarding industrial medicine generally. A number of new diseases have made their appearance in connection with the manufacture of modern munitions, and with some of these the medical profession is not yet familiar. Among other conditions, T.N.T. and Tetryl poisoning, and conditions local or general resulting from picric acid, nitrous fumes, fulminate of mercury, and other explosives, or their subsidiary ingredients, are of special importance. After these diseases have become well developed the symptoms are marked enough, but the earlier symptoms, which are precisely the ones which would first come under the notice of the family doctor, would scarcely arouse the suspicion of a physician unfamiliar with the subject. That this is no mere supposition I can best show by reporting that within my own knowledge in the last two or three years a number of instances of what were regarded as rather obscure diseases have occurred in parts of New Jersey, Delaware, and Pennsylvania, at some little distance from the munition plants on the Delaware. To those who were familiar with Industrial poisoning, the connection between the symptoms and the occupation was clear enough but the cases were not promptly diagnosed and in some a second or third poisoning was allowed to occur. No doubt the absence of the workman

from his occupation was regarded at the works as due to the alleged minor causes—bilious attacks, grip, colds or whatever the diagnosis may have been. It is evident that the first step to be taken is one of publicity and this might very well take the following forms:

1. Repeated meetings of local medical societies to arouse interest in industrial diseases generally, and especially to extend among physicians a knowledge regarding the more important diseases. In such meetings, emphasis should of course be laid upon housing, diet, recreation and rest, and other matters pertaining to the home life of industrial workers, conditions over which family physicians, through their advice, have more control than public authorities.

2. The preparation and wide distribution of brief but carefully written descriptions of industrial diseases with information regarding safeguards, treatment, etc. It would be an advantage to have these of uniform size and numbered and punched for temporary binding between cardboard backs.

3. Establishment of public clinics for industrial diseases, equipped for proper scientific investigation, as well as treatment of patients. Some special publicity might properly be given such clinics for the sake of stimulating interest and courses of instruction for physicians should be arranged.

4. In line with the subject matter of No. 3, it would be a timely advance in medical teaching if all medical colleges established special courses in industrial medicine, and large general hospitals gave more specific attention to this important matter.

5. Rules should be made by the public health authorities, in co-operation with the National Council for Defense, requiring as an emergency measure the reporting of certain classes of cases occurring among workmen in war industries; and it would perhaps be well if in addition cards were issued to physicians for the report of all conditions medical or surgical among such workmen. Supplementing these returns of physicians, there should be reports of special inspectors who would investigate hygienic conditions at the homes of workmen. Though some of the suggestions I have made may seem to involve encroachment upon the private rights of workmen and also to imply a considerable extra labor on the part of physicians, it will no doubt be found that all parties will loyally yield to the necessities of the times.

1728 SPRUCE STREET.

SURGERY IN ASSOCIATED STIGMATA OF DECLINE.*

By ROBERT T. MORRIS, M.D., F.A.C.S.
NEW YORK.

WHEN man began to rise upon his hind legs, either as a terrestrial or as an arboreal primate, his anatomy had to adapt itself to a posture for which it was apparently not intended by nature. We anthropocentrics assume that something unforeseen by nature took place and our postulate is based upon the fact that an engineer observing

*A paper read before the Surgical Section of the New York Academy of Medicine on March 1, 1918.

the anatomy of man finds that it is inferior for its purposes as compared with the anatomy of man's phyletic cousins among the anthropoid apes. The defects of man's anatomy are evident in his weak-walled inguinal canals, his badly arranged sacroiliac joints, the necessity for bowel contents to run up hill in the ascending colon, and in many other defects which need not be enumerated here. Suffice it to say, that the erect posture obliges man to carry numerous obstacles to good anatomical development.

Man is gregarious by nature, with a tendency to form urban populations. Under these circumstances he is freed from many features of contest with nature and like domestic animals or cultivated plants under similar conditions has a tendency to reach cultural limitations in his various nations. These nations come and go like varieties of cultivated plants and animals. When cultural limitations are being approached in man there is a tendency toward arrested development of various organs, and arrested development of various organs added to natural obstacles represented by man's anatomy results in mental states which are more or less abnormal. The reason for this is because structure and function are closely allied. Some of the philosophers tell us that structure and function are simply phases of the same thing. So much for the abstract feature of the proposition.

Concretely, a patient with fibroid degeneration of the appendix who has his appendix removed may tell us that he has not received any benefit from the operation. What does that mean? It means that in his case the fibroid appendix presumably represented one of the stigmata of decline, and this was only part of a picture in which the surgeon might have found associated stigmata of decline in the presence of a high arched palate, a gunstock scapula, and in relaxed peritoneal supports. Associated with the tangible and patent stigmata in this case were probably defective glands furnishing internal secretions, the enzymes of which were essential for the well-being of the individual. Removal of the fibroid appendix removed only one factor in the patient's troubles, and not a very important factor. After such an operation the patient is commonly benefited for a few months. A part of this benefit is psychic in its nature and dependent upon principles which allow Christian science, or any other suggestive method, to furnish stimulus which is more or less potent for increasing the well-being of the individual temporarily. Much depends upon the personality of the surgeon in such a case. There are men whose patients usually gain in weight and in good spirits no matter what is done to them, and there are others who do not happen to carry any such therapeutic manner and presence.

Not long ago I listened to an address by an oral surgeon who believed that many cases of mental derangement could be relieved if non-erupted molars were removed. He was no doubt correct. But he failed to take a comprehensive view and to say that removal of impacted molars from a large number of patients with mental derangement would, on the whole, be unsatisfactory in therapeutic effect. Impacted molars are stigmata

representing arrested development. Most of us carry some stigmata, and most of these are unimportant. If the oral surgeon had said that patients in whom associated stigmata of decline were strongly in evidence made little response to treatment so far as mental disturbances were concerned, we would have listened more intently to what he had to say concerning the few selected cases.

A loose kidney commonly represents a stigma of decline and is very apt to be found in connection with associated stigmata. Fixation of the loose kidney in well-selected cases is one of the most satisfactory operations in surgery, but fixation of a loose kidney associated with other stigmata that are markedly in evidence is so unsatisfactory that the operation has fallen into disrepute among men who have not made themselves familiar with the quantitative method of exact science—with that method which deals with parts and wholes and which assembles all testimony before arriving at conclusions.

Neuroses and psychoses are particularly apt to appear in patients carrying associated stigmata of decline which may be readily observed and tabulated by the diagnostician. Sometimes the influence produced by the peripheral irritation going with a fibroid appendix or a loose kidney or a sagging colon furnishes the precipitating factor for the patient's nervous or mental derangement. It is not the causative factor. Please note my insistence and emphasis when distinguishing between a precipitating factor and a causative factor. Patients with associated stigmata of decline represent a group highly susceptible to the influence of peripheral irritations and of focal infections.

Surgery which does not comprehend any one such case as a whole, may sometimes incidentally bring about spectacular benefit. The surgeon then is in danger of generalizing from insufficient data and he may proceed to operate in cases which he believes to be similar to the one receiving benefit, but with disappointing results. There is no doubt that properly directed surgery in carefully selected cases offers a very large and promising new field in psychoses and neuroses, but unless note is made of the character of associated stigmata present in any one case, progress will be halted by that sort of justified opposition which will come from the conscientious physician.

616 MADISON AVENUE.

CHRONIC PNEUMONIA; REPORT OF A CASE.*

By STANLEY L. WANG, M.D.,

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CHRONIC non-tuberculous pulmonary lesions are of interest because of the difficulty of distinguishing them from chronic pulmonary tuberculosis. Such conditions are, as a rule, first diagnosed tuberculous and later, after prolonged observation, the proper diagnosis may be made. These cases are usually grouped together under the common heading, chronic non-tuberculous pulmonary disease, but it is desirable to classify them for the different types are distinct clinical entities.

The following case of chronic pneumonia is reported from the Sea View Hospital.

representative of one important group of chronic non-tuberculous pulmonary diseases.

Female, white, age 19, single, houseworker. Measles, scarlet fever and whooping cough in childhood. She had always been very healthy before her present trouble. In March, 1914, she got wet in a rain storm, after which she was confined to bed for a little more than a week, with a cough and bloody expectoration, fever and a sharp pain in her left lower chest. She seemed to improve very slowly, and after a short time some friends sent her to Maine for her health. She remained in Maine during the summer of 1914 and was not improved, her cough, dyspnea, weakness, and periods of fever confining her to bed at times. She returned to New York in December, 1914, and was admitted to a hospital where a diagnosis of far advanced pulmonary tuberculosis was made. A few weeks later she was transferred to Sea View Hospital, Staten Island, New York, with the provisional diagnosis "far advanced pulmonary tuberculosis probably complicated by small left pleuritic effusion." Her subjective symptoms at that time were frequent productive cough most marked in the morning, raising 150-200 c.c. of purulent sputum which was occasionally blood-streaked and usually foul. She practised postural drainage of her sputum, inclining her head and shoulders downward over the edge of the bed each morning before arising, thereby raising about one-fourth of her daily excretion. Her strength was much diminished although she was able to walk. She had dyspnea and vertigo on slight exertion. Her weight was 89 lbs., having lost about 40 lbs. since her illness began. Occasionally she had fever up to 102° F., although she frequently had afebrile periods of several days' duration.

Physical examination showed a flattened chest with respirations more obvious on the right side. The left base had one-half inch less expansion than the right base. There were areas of consolidation, probably pleuritic, signs of cavitation and many large moist râles in the left lower lobe, extending into the left upper lobe. The heart was drawn a little to the left and the second pulmonic sound accentuated. Her fingers and toes were clubbed. The skin and subcutaneous fascia seemed well nourished and of good color.

The sputum was always negative for tubercle bacilli, and an attenuated type of pneumococcus was the most abundant organism. Tuberculin tests and Wassermann reactions were negative, also was the blood cytology.

During her stay of a little more than one year in this hospital she progressively grew weaker and her symptoms were unchanged although they showed occasional exacerbations. She died during January, 1916, and Dr. L. Achard performed the autopsy and the pathological examinations. The findings were "chronic interstitial pneumonia with bronchiectasis of the upper and lower lobes of the left lung, most marked in the lower lobe; left subphrenic abscess; small splenic abscesses and an abscess in the right frontal lobe of the cerebrum." "The cerebral abscess was probably the immediate cause of death."

In reviewing this case, it seems probable that she had an attack of pneumonia in March, 1914, which did not resolve and it became a chronic condition causing progressive sclerotic changes in the lower left lung. The thickening of the pleura at the left base and the bronchiectasis there, indicate that the initial pneumonia was croupous with the usual accompanying pleurisy. The subphrenic, splenic and brain abscesses were very likely metastatic and probably shortened the duration of life, for the right lung was unaffected and was compensating.

The sequelæ of acute pneumonia are varied. In the most instances the disease is merely prolonged beyond the usual period and eventually convalescence occurs. Such cases as these often have a localized sclerosis at the site of the pneumonic process and this sclerosis is evidenced either or both by a slight chest deformity and changes in the auscultatory

and palpatory signs. These changes in the physical signs are often the basis of a wrong diagnosis of incipient tuberculosis especially in children. There is a small number of cases of pneumonia in which the disease becomes chronic such as the above described case. In these convalescence does not occur. The pneumonic process does not resolve and it becomes an indurating progressive lesion. Fibrotic organization of the pneumonic process takes place and very slowly extends into the contiguous pulmonary tissue. Bronchiectasis frequently supervenes as a result of the organizing induration.

The diagnosis of these cases, which is primarily a differential diagnosis from tuberculosis, is dependent on a close study of the history, course, physical signs and laboratory findings. The history and symptoms are very similar to those of chronic tuberculosis. There is probably a little less constitutional disturbance in chronic pneumonia. The skin and the subcutaneous fascia and the general appearance and nutrition are not affected to the same extent as is usual in chronic tuberculosis. Complications such as metastatic abscesses are not infrequent in non-tuberculous bronchiectatic lesions and they are a dreaded post-operative complication in the surgical treatment of these conditions. The chronicity is said to be greater than in tuberculosis. Bonney¹ observed this in this case. The lesions are usually basal and unilateral. Tuberculosis is almost always apical and it is extremely uncommon to find a lower lobe tuberculosis without apical disease although such may occur. The localization of the lesion in the lower lobes is often the first indication of a non-tuberculous disease. However, this localization is not limited to chronic pneumonia for syphilis, abscesses, infarcts and malignant growths, both primary and metastatic, are also found in this region. The physical signs are extremely variable and at times the lesion seems very dry where a short time before there were many moist râles. It is difficult to trace any relation between the symptoms and the variations in the physical signs for both seem to vary spontaneously and independently. The extent of the disease seems relatively constant and very little extension is noted, physically, over a long period of time. The absence of tubercle bacilli in the sputum is of course one of the chief aids in the differential diagnosis.

To be relatively certain that tubercle bacilli are absent, they should be searched for regularly and carefully, over a long period of time. Babcock, Lord, the younger DaCosta, Osler and Cabot lay emphasis on repeated sputum examination.

The frequency of chronic pneumonia as a complication of bronchial or croupous pneumonia is as yet undecided. Milne² found 10 cases of fibroid organization in 159 autopsies of pneumonia, of which 95 were croupous and 64 were bronchial. Of the 10 showing fibroid organization, there were 6 males and 4 females. These 10 cases represented examples of pneumonia where the usual process of resolution had failed and organization of the inflammatory exudate in the air alveoli of the lung by fibrous tissue had resulted. There were changes in the whole lobe or at least in large areas in 9 cases and in only one was the process patchy or bronchopneumonic in character. These findings were different from those of the majority of other

observers, some seventy in number, since Lænnec reported the first case in 1819. Most of these thought that chronic pneumonia usually followed bronchopneumonia and that it was most frequently found in the apex. Milne did not find this to be true in his case. He stated that these cases were of exceeding interest because of the lack of clinical data, the difficulty of diagnosis, the uncertain prognosis, the irregularity of symptoms, and the likelihood of complications.

Marfan³ described what he assumed were badly defined forms of pulmonary sclérosis with a pneumonic history. These cases were usually taken to be tuberculous, even though tubercle bacilli were absent, because of the bloody and muco-purulent sputum.

Jacobi⁴ mentioned a case of interstitial pneumonia occurring in a child four years of age. This was a colored girl who entered the hospital with the history of long-continued lobar pneumonia. She had fever, constant cough with copious, bloody, purulent, foul sputum, and a large cavity in her right lung.

Riesman⁵ described seven cases of a type of pneumonia occurring in young adults, which he classified as a type of lobular or catarrhal pneumonia, that became confluent and assumed a lobar distribution. All of his cases ended in recovery without a vestige of the morbid process remaining. The chief symptoms were a cough and moderate fever extending over a period of from several weeks to four months. The physical signs were entirely out of proportion to the symptoms. In the majority the lower lobe of the left lung was involved. Most of the cases were female and were between 10 and 20 years of age, although one was 27 and one 28 years.

The literature of long-continued pneumonia impresses one with the variability, within wide limits, of these conditions. In some, such as Riesman has described, convalescence occurs with no sign remaining; in others, after convalescence, changes in the physical signs at the site of the disease are noted, and still in others convalescence never takes place and the disease becomes a chronic process. The study of chronic diseases of the lungs necessarily is centered in tuberculosis because of its frequency, and this perhaps explains the reluctance in diagnosis and the obscurity of chronic pneumonia, which is only a part of the so-called group of chronic non-tuberculous pulmonary diseases. However, as Milne has stated, these cases are very interesting because of the difficulty of diagnosis, the uncertain prognosis, the irregularity of symptoms, and the likelihood of complications.

I wish to thank Dr. Edward S. Rimer, as this patient was on his service.

REFERENCES.

1. Bonney, Sherman G.: Chronic Non-Tuberculous Affections of the Lung. Section of Practise of Medicine, A.M.A., *Jour. Amer. Medical Asso.*, 1906.
2. Milne, Lindsay S.: Chronic Pneumonia, *Amer. Jour. Med. Sciences*, Sept. 1911, p. 408.
3. Marfan, A. B.: *Traite de Medicine* by Chareot, Boucard and Brissand, Vol. IV, p. 471.
4. Jacobi, A.: Peribronchitis and Interstitial Pneumonia, *Archives of Ped.*, Jan., 1903, p. 1.
5. Reisman, David: A Lobar Form of Bronchopneumonia of Long Duration, Occurring in Children and Young Adults, *Amer. Jour. Med. Sciences*, Sept., 1913, p. 313.

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THE PHYSICIAN BEFORE THE LAW IN SOME EUROPEAN COUNTRIES.

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FRANCE.—In his relations with the French law, the physician may appear (1) as an expert, (2) as a witness.

The summons may be verbal, but is usually in writing. It must contain the title of the magistrate who is the sender; the name, profession, and dwelling of the addressee; the place where he is to appear; the character of the transactions; the date. All these items may be needed for the control of the expenses at the time of settlement. For the same purpose, the judge (*juge d'instruction*) must note, at the foot of the summons, the actions performed by the expert and the time consumed in this performance. When the expert accepts the appointment, he first renders an oath before the judge to make his report and give his opinion honorably and conscientiously. The discharge of this formality is put down in writing in the proceedings, in default of which the report loses its character and has the value only of a simple testimony. Extreme importance is attached by the law to this condition. After the oath has once been rendered, it is no longer necessary to repeat it if the expert has to make further visits or reports in the same case; but these reports must mention the oath previously rendered. In certain special cases, where a consultation of experts is required or an opinion is needed on a common report, the judge may determine the points to be specified and the questions which require a decision.

Although, theoretically speaking, any doctor of medicine may be called upon as an expert, the summons will presumably be addressed, as a rule, to practising physicians only. Every general practitioner is bound to obey the summons he may receive from the courts. He must present himself, but before proceeding to an examination or an autopsy he has the right and the duty, if he feels himself incompetent, to inform the magistrate to that effect and to declare that he does not possess the knowledge required for the task with which the law means to entrust him. The physician must show his willingness, and when able to do so he will lend his assistance. But, if the case is difficult and the physician does not feel himself equal to the task conferred upon him, he should not hesitate to give this declaration, so as not to incur any responsibility. After the expert has accepted an obligation, he must discharge it completely and carry out all the rulings; otherwise, he may be fined and even made to pay damages. If summoned as a witness, he must obey this injunction. However, the physician who has witnessed the deed or attended to the patient may refuse to testify if he has promised secrecy. Otherwise, he must answer as a witness. A physician who is summoned as a witness must not fail to appear. Failing to obey the summons, he is punished according to the common law. It is understood that he cannot answer in regard to points which seem to him to violate professional secrecy.

The law has distinctly specified the differences existing between the *expert* and the *witness*. The

witness states a fact, the expert expresses an opinion. The witness of a deed, act, or crime is the only person able to say what has occurred, what he has seen and heard; hence, he cannot be replaced. The expert may be replaced, any other expert being able to accomplish the same task and to assist the ends of justice. A witness who is convicted of not having spoken the truth is punished by the law. The expert cannot be prosecuted for having expressed an opinion which is sometimes contradictory to that of another expert. He alone is master and judge of his statements or opinions. Experts must have pursued special studies, and they must show intelligence and judgment. They alone can appreciate the weakness of their knowledge and compare it to the exigencies of expert testimony. The ends of justice are better served by prudent reserve than by ridiculous arrogance and presumption.

The law makes a distinction between fees due to medical experts and witnesses. The expert receives special fees for visits, reports, etc., but the physician summoned before the courts on account of his statements, visits, or reports is no longer considered as a professional, but becomes a general witness and is remunerated accordingly.

Intervention of the Physician in Criminal Proceedings, Upon Request of the Defense.—The physician is not invariably summoned by the prosecution, but may be called upon to render testimony at the request of the defense. These cases require extreme tact and circumspection, and all intervention should be governed by the greatest caution. The physician may be consulted by the defense in civil or criminal proceedings. He has the right, and even the duty, to interfere in a process, whenever he believes his intervention necessary for the establishment of the truth. Serious considerations and the idea of preventing the perpetration of an injustice should alone cause the physician to lend his support to the defense.

ENGLAND.—A medical man acts as a common witness when he gives evidence as to the condition of a wounded person examined by him. In such a case his duty is to describe the nature of the wounds, the general condition of the patient, and other circumstances that he observed at the time he made the examination. A common witness is obliged to give evidence if legally summoned to do so.

The obligations of the expert witness are not so easily defined as those of the common witness. Hypothetically, the knowledge possessed by an expert who has no personal acquaintance with facts relating to a given case is his own property, and therefore he ought not to be obliged to part with it against his will. This view has been taken by more than one judge. Lord Campbell ruled that a scientific witness was not bound to attend on being served with a subpoena. Justice Maule ruled that an expert is under no obligation to give evidence before a court of law. Unfortunately for experts, the difference of opinion of which they are proverbially accused pervades the judicial bench. Other judges have ruled that wilful neglect of a properly served subpoena constitutes contempt of court. In the face of decisions so adverse, it is difficult to determine what the law on the subject really is.

It is probable that an expert who had no personal acquaintance with a case might neglect a subpoena without rendering himself liable to attachment for contempt of court, but he might render himself liable to an action for damages. Such an action, though futile so far as obtaining a verdict goes, would subject the defendant to much trouble and to some pecuniary loss in defending it. Having regard to the uncertainty of the results, the safest course would be to obey the subpoena under protest.

Previous knowledge of the facts of a case precludes a witness from taking any possible advantage of the status of an expert witness. There is no doubt as to the obligations of a witness so situated; he must obey a subpoena in his capacity as a common witness, although the evidence he is going to give may be of an expert character.

When giving evidence solely as an expert, the witness acts as an interpreter of facts without having personal knowledge of them. Usually, a medical witness acts both as a common and as an expert witness, his skilled or expert opinion being founded on facts that he himself has observed.

Before giving purely expert evidence—that is, evidence founded on facts of which he has no personal cognizance—it is necessary for the witness to have heard the facts on which he expresses an opinion stated on oath before the court.

SCOTLAND.—There are certain differences with regard to legal proceedings in Scotland as compared with England.

The Procurator Fiscal performs the duties undertaken by the Coroner in England, but without a jury. If a dead body is found, or a case of suspicious death occurs, the Procurator Fiscal, on being informed, has the power of directing a medical man to make an examination of the body and to forward him a report dealing with the case, all such reports being certified by the reporter "on soul and conscience." If the medical examiner is satisfied with an external examination, he may certify to the Procurator Fiscal without making an internal examination. If a complete examination is requisite, the Procurator Fiscal issues a warrant to the medical practitioner who has already seen the case, and usually associates with him another practitioner of experience. The warrant is countersigned by the Sheriff or Justice and empowers the holder of it to take charge of the body and to make such examination as the law requires. To ensure completeness of examination, the Crown Office in Scotland issues a form of instructions to medical inspectors, which contains elaborate directions for making the necropsy.

A medical practitioner, whether previously acquainted with a given case or not, cannot refuse to be precognosed (privately interrogated) if duly cited to that effect. Refusal is met by a further warrant and in case of contumacy by imprisonment.

The fee for attendance at High Courts of Judiciary or the Sheriff Criminal Court is a guinea per day, if the court is held in the town in which the medical witness lives. If the witness comes from a distance he is allowed two guineas per day, both for the actual attendance at court and also for each day occupied in traveling to and fro, with a guinea per day for traveling expenses.

SWITZERLAND.—The law in regard to the practice

of the medical professions in the Canton of Bern distinguishes by the ruling of March 14, 1865, between physicians, druggists or apothecaries, dentists, and midwives. These various categories of medical experts may be employed exclusively as functionaries in the scope of their degrees or diplomas. For the individual medicolegal examinations the requisite medical experts are nominated by the examining judge. In the Canton of Bern the judge has entire freedom of choice between the registered medical persons (free system), whereas in certain other Swiss cantons (Vaud) he is limited to definite medical functionaries (restricted system, likewise obtaining in Germany and Austria). The number of experts to be summoned for the medicolegal investigations is determined by the examining judge, with the reservation that two experts are summoned for the more important cases and only one expert for the less important ones. Article IX of the Berner Strafprozess rules that two experts should be summoned in a general way, one expert sufficing in misdemeanors and infractions of police regulations.

The great majority of examinations on the part of medical experts in criminal cases take place in the course of the preliminary examination, which is not public; hence the persons concerned in these preliminary proceedings are held to preserve secrecy in this connection. Article XCIII of the Berner Strafprozess rules that all persons assisting in these closed proceedings must maintain their secrecy inviolate.

ITALY.—The Medical Faculty of Rome, in view of the distressing spectacle furnished by the rendering of expert medical testimony on the part of the prosecution and the defense in recent criminal proceedings, unanimously voted, at a meeting on June 20, 1905, for the institution of a radical reform of expert medicolegal testimony, by the establishment of a single expert committee, for both the prosecution and the defense, with suppression of the expert debates in public proceedings, in the interest of science and justice. The entire faculty of the kingdom was invited to take similar action.

The Liguro-Piemontese Section of the Società Freniatria Italiana, meeting of June 29, 1905, approved the following order of the day: The Liguro-Piemontese Section of the Società Freniatria Italiana, following the initiative of the Medical Faculty of Rome, votes that in every process in which expert medicolegal evidence may be required these testimonies should be audited by a Single Expert Committee, and that in those cases in which the expert committee fails to agree, on account of marked differences of opinion between its members, an arbitrator should be nominated and selected by a competent body, such, as, for instance, the Academy of Medicine or the Freniatrial Society.

Notwithstanding the opinions repeatedly expressed in the past, it appears that in the amendment to the Criminal Code the suggestion of the Single Expert Committee has not as yet been accepted and sanctioned. Meanwhile, it is a good sign that these opinions are being more and more urgently expressed, especially since in the Ministero di Gracia e Giustizia there already exists a

special bill, submitted several years ago, for the rational and critical regulation of the medical expert system. Moreover, it appears that at present a bill is under preparation for the reform of criminal proceedings in which the system of the expert evidence is likewise to be amended. The solution of the problem will be further assisted by the establishment of medical judicial experts, which was recently insisted upon by the voting of the Superior Consiglio di Sanità. This will be facilitated by the institution of "finishing" courses for the various specialties, as sanctioned by the new university schedules, and will be supported by the Ministro dell' Istruzione.

BIBLIOGRAPHY.

L. Dixon Mann: "Forensic Medicine and Toxicology." Second edition, London, 1898.

Emmert: *Lehrbuch der gerichtlichen Medizin*, mit Berücksichtigung der Deutschen, Oesterreichischen und Bernischen Gesetzgebungen. Leipzig, 1900.

A. Lacassagne: "Précis de Médecine Légale." Paris, 1906.

Medicolegal Notes.

Privileged Communications.—In an action for personal injuries the Idaho Supreme Court holds that under the state statute forbidding a physician to be examined as to any information acquired in attending his patient the acquisition of which is necessary in order to enable the former to prescribe or act for the latter, all statements made to a physician by his patient while the former is attending the latter in a professional capacity, for the purpose of determining his condition are privileged, although they have nothing to do with the patient's treatment or the determination of his injuries. It is immaterial in the application of the statute that the physician was hired by the patient's employer. The patient does not waive the privilege by testifying that in caring for his injuries he followed the physician's advice.—*Brayman vs. Russell, etc., Lumber Co.*, 169 Pac. 932.

Right to Practise Optometry.—In an application for a writ of habeas corpus by one committed for violating the California statute regulating the practice of optometry the petitioner contended that by virtue of his being the holder of a certificate entitling him to practise osteopathy he was by the terms of the act itself regulating the practice of optometry excepted from its prohibitory provisions. The exception referred to is contained in section 10 of the act (Stats. 1913, p. 1097), and is in the following language: "The provision of this act shall not be construed to prevent duly licensed physicians and surgeons from treating or fitting glasses to the human eye." The question to be determined was whether an osteopath, licensed under the statute regulating that profession, was within the purview of the optometry law a licensed physician and surgeon. The California act of 1913 regulating the practice of medicine and surgery (Stats. 1913, p. 723), provides for the examination of persons desiring to follow these professions, and for the issuance of two forms of certificates, one designated a "physician and surgeon certificate," and the other a "drugless practitioner certificate." The district court of appeals said: "The distinction between these certificates is quite marked, and they are issued as the result of a different examination; and it is very apparent to us that the term 'duly licensed physician and surgeon,' as used in the section of the act above quoted, has direct reference to the holders of the former class of certificates to the exclusion of the holders of the latter. The cases cited by petitioner from other jurisdictions holding that an osteopath may be said to engage in the practice of medicine and surgery have, in our opinion, no application to the facts of this case, where the question is much narrower and is one of statutory construction. Under our statute we are clearly of opinion that the petitioner is not a 'duly licensed physician and surgeon.' It results from this conclusion that the writ should be discharged."—*Ex parte Rust*, 160 Pac. 1050.

Military Medicine.

Mitral Stenosis in the French Army.—Denis refers to earlier published statements of his to the effect that mitral stenosis sometimes passes unnoticed. Since that period he has learned that the proportion is larger than was at first believed. In addition to the contingent due to congenital and youthful endocarditis there are other cases without clinical history, which are first manifested after prolonged marching and other forms of strenuous exertion. These soldiers present evidences of disturbed pulmonary circulation—bronchitis, hemoptysis, etc.—with complication of the general health. In such cases a cardiac lesion is often unsuspected and the patient is looked upon as tuberculous. These mitral subjects are often sickly and the physical signs may suggest tubercle. One soldier was sent back as unfit no less than five times in six months. Life at the front invariably brought on, within a few days, a congestion of the lungs which subsided after a period of rest. Such a state of affairs should have been impossible, for auscultation should have at once disclosed the presence of a cardiac lesion. There are other cases which are complicated by old recovered or latent tubercle, upon which substratum of the cardiac lesion has developed. Even these should have been promptly identified.

When the mitral lesion causes other than pulmonary symptoms diagnosis may be simplified, but in some subjects we see only general failure of health, perhaps, with gastric symptoms. The general reaction may be expressed as intolerance to exertion, the subject tiring readily. A systematic examination readily excludes tuberculosis. The sputum is free from bacilli, there is no temperature rise, and the x-ray is negative. To study the heart rhythm the usual listening areas are not sufficient and the author prefers the left intercostal space near the sternum with patient recumbent. The discovery by palpation that the apex beat is within the nipple line is of great value because it at once excludes all other types of official lesion. The rhythm should be correct, despite the altered tones. There is, of course, a systolic—more rarely a presystolic—murmur with duplication of the second sound, imitated by the author as “roun, ta ta.” The systolic murmur, however, does not always give the same sound, and there is a distinction between two tones expressed as “roun” and “oun.” At the apex the first sound may be represented as “brouté.” The blood pressure is low.

In several ways this lesion is notably atypical; and in the absence of autopsy material the author is puzzled to account for its presence. To what extent is it a cause and to what an effect? Is the heart involved in a vicious circle? The soldiers often state that they have always been weak and timid even from the days in which they were spoken of as tied to the maternal apron strings, or preferred the quiet pastimes of girls to the rougher ones of boys. Cross questioning may bring out a history of a stitch in the left side or a constricted feeling in the chest. Everything points to a not uncommon latent condition lighted up by war hardships.

Amputation in View of Future Prosthesis.—

In the *Medical Journal of Australia*, January 26, 1918, Lieut.-Colonels Victor Hurley and Hugh R. G. Poate write on the adaptability of the various stumps met with for the fitting and effective use of an artificial limb. Protest is made against the “guillotine” amputation, so frequently carried out through the healthy tissues of a limb some distance above the original lesion. This operation is a most pernicious one and can by no means be regarded as a life saving measure, the usual excuse for its performance, as shock is increased by the further damage to healthy tissues. A re-amputation is generally a necessity later on, and a further length of limb must be sacrificed. When a limb has been badly smashed the ideal operation is a section made through the seat of fracture, and whenever possible an attempt should be made to leave flaps of some sort, even if they have to be sewn back to allow of a full exposure.

Stumps in general should be carefully examined before being passed for the fitting of an artificial limb. Bulbous and tender nerve ends are frequently met with. Often they are involved in the cicatricial tissue of the scar, by the contraction of which they may be displaced from their normal position. At times bulbous nerve ends can be felt which are not painful, but if there is any tenderness the nerve must be excised. Perhaps the most difficult situation to deal with is the brachial plexus in high amputations of the arm. The practice of firmly ligaturing all nerves with catgut seems greatly to minimize the development of end bulbs, due probably to the fact that the neurilemma is drawn over the ends of the injured fibrils and so diminishes their tendency to wander outside their limiting membrane.

As a rule, so long as the scar is freely movable over the end of the bone, and will stand an equal pull over the circumference of the limb without becoming ischemic, it will pass, even though it is wide or puckered. The mobility depends primarily upon the operator having been able to draw a good fatty pad over the end of the bone. It is not worth while suturing muscle, as it invariably atrophies, and only the fatty pad is left to cover the bone. If the scar is stretched and adherent it must be excised, the edges undermined and brought over without tension even though bone may have to be removed. Frequently broad, thin scar is seen, which even without tension, and certainly with it, will blister or break down; treatment, however prolonged, is of no avail, and excision must be resorted to.

Edema of the stump is frequently seen persisting for many weeks after an otherwise perfectly healed amputation and must be dispersed before an artificial limb can be fitted. Very firm bandaging with some massage and exercise of the stump usually dispels it in seven to fourteen days. The range of movement of the stump must always be carefully watched and attention must be directed to maintaining the full range of joint movement during the healing of the wound. If any contracture has developed appropriate measures must be adopted for its removal before a limb will be of any use. Bony spines are often seen resulting from an outgrowth of callus along tendinous insertions or intermuscular septa. They are met

with particularly about the lower end of the humerus and are especially common about the femur, along the *linea aspera*. If they cause any tenderness or pressure they must be removed.

Attention may here be drawn to the frequency with which tender spots, blisters, or ulcers develop over the crest of the tibia after the fitting of limbs when care has not been taken to round off this bony prominence thoroughly; but, as a rule, these troubles can be relieved by moulding of the leg bucket over the affected area so as to relieve all pressure.

The shortest forearm stump to which an artificial limb can be applied is one measuring 5 cm. from the tip of the olecranon. It is useless trying to save anything shorter than this, as a limb can be much more conveniently fitted to the stump of an amputation done through the upper arm, just above the condyles of the humerus. With forearm stumps of 5 to 10 cm. in length, excision of the origins of the flexor and extensor groups of muscles from the lower end of the humerus is of great advantage and in the very short stumps is a necessity. This procedure increases the weight-bearing area of the stump, by allowing the bucket to be fitted closely to the bony support. The stump does not tend to slip out of the bucket as it so often does if these muscles are left. There is no particular advantage to be gained from a long forearm stump; in fact, the best amputation is one of not more than 20 cm. in length.

Amputation through the elbow joint leaves the most unsatisfactory stump to fit with a useful limb. The end of the stump is too wide to slip into the ordinary upper arm bucket and it is difficult to arrange a workable elbow joint. It is much better to amputate just above the condyles of the humerus, as this gives the most desirable and easily fitted stump for the upper limb.

As in the case of short forearm stumps, so with upper arm stumps, the weight-bearing area can be considerably increased by excision of the humeral attachments and some of the musculature of the pectoralis major and latissimus dorsal muscles. If this does not give a stump of sufficient length to carry a bucket efficiently, then these cases should be fitted much in the same way as is done with a disarticulation at the shoulder joint. At first it was found difficult to fit these cases with a satisfactory limb, but if a moulded leather shoulder cap be made it can be incorporated with a limb provided that care be taken to leave sufficient space in the axilla for the clothes to fit comfortably. If there is a short upper arm stump the limb can be connected by a curved steel piece to the shoulder cap over the point of the shoulder with a joint allowing movements of flexion and extension. It should be situated over the greater tuberosity so as to be in the same plane as the center of the shoulder joint.

The shortest leg stump to which it is possible to fit a satisfactory limb is one resulting from an amputation at the level of the lower end of the tubercle of the tibia. Rather than to leave any stump shorter than this it is better to amputate through the knee joint. The best stump in the leg is one corresponding to the lower end of the belly of the gastrocnemius muscle. In any leg amputation

care should be taken to bevel and round off the crest of the tibia and to divide the fibula at least one and a quarter centimeters higher than the tibia, as it has been noticed that the fibula released from its spring contact with the lower end of the tibia apparently elongates and projects below the cut end of the tibia in a stump and may cause inconvenience. In short leg stumps it is sometimes of value, in order to fit a limb satisfactorily, to excise some of the musculature of the gastrocnemius in order to prevent the stump from pulling out of the bucket, which in such cases must embrace the stump very firmly. A good leg stump is, from the cosmetic point of view, the best we have for fitting with an artificial limb, as after a few weeks' careful practice the patient usually can walk so naturally that it is difficult to detect that he has anything abnormal about him at all.

Unlike the case of amputation at the elbow joint, an amputation through the knee joint affords a very satisfactory stump to fit. An artificial knee joint is a very satisfactory mechanical arrangement, provided that the hinge is centered properly at the level of the transverse axis of the joint, and efficient support is given by a well-fitting bucket to be laced up the center of the thigh in front.

In the case of amputation in the thigh the cardinal rule is to leave as long a stump as possible, for the higher the level of amputation the less satisfactory to the patient is the fitting of the limb. Experience has now proved that with all amputations through or above the center of the thigh it is necessary to order a pelvic band for attachment to the upper part of the thigh bucket. In such cases one must watch very carefully that the maker has adjusted the band correctly and placed the joint in the proper position. Soft, fat thigh stumps are unsuitable for a leather bucket, owing to the folding in and puckering of the skin, and in these cases it is more satisfactory if a well moulded wooden bucket is ordered. When the limb is being tried on one must see that the anterior superior iliac spines are in the same horizontal plane, so that the limb may be of the right length. Six millimeters is the maximum difference in level that may be allowed.

Health in the Camps.—The week's report on health conditions in the camps, issued by the War Department, under date of March 28, shows that the death rate among the soldiers increased from 182 the week before to 223. Pneumonia showed an increase in the National Army and regulars, but in the National Guard all epidemic diseases declined. Deaths in the Regular Army numbered 86, as against 71 the week before; in the National Guard, 20, as against 28; and in the National Army, 117, as against 81. Seventy-three of the deaths in the National Army and seven of those in the National Guard were caused by pneumonia. The National Guard camps reported 76 new cases of pneumonia; the National Army camps 287 new cases of this disease, as against 255 for the preceding week. The epidemic diseases are reported as being on the decline.

Advantages of a Pharmaceutical Corps.—At a

recent hearing before the Committee on Military Affairs of the House of Representatives, Dr. C. Madison Taylor, representing the Medical Society of the County of Philadelphia, advocated the establishment of a Pharmaceutical Corps in the military service, giving as his reason the fact that there were among the pharmaceutical profession a large proportion of highly educated experts in many of the same fundamental lines on which the profession of medicine is advancing. He expressed the belief that among the particular services a specially educated pharmacist could render were the following: He could supplement and contribute to the correlating of data for the surgeon; he could perform a large part of the clinical laboratory work. He could apply tests such as the Wassermann, Noguchi, Widal, etc., and he could keep all the material for those tests up to date. Many chemical problems were arising in connection with poison cases. He could prepare all special materials for such procedures as hypodermoclysis, blood transfusion, Carrel-Dakin solution, etc. He could examine water supplies and all articles of food and drink. One surgeon and two pharmacists could probably do as much good work as two or even three surgeons.

Red Cross Activities.—During the first two days of the great battle in the Somme district the American Red Cross sent vans to help take away the wounded, and they have been called to give special help to the refugees, 10,000 of whom are said to have passed through one place where a canteen is maintained. To meet this emergency the Red Cross supplied 2,000 tons of condensed milk, half a ton of coffee, 500 pounds of chocolate, and 2000 pounds of meat. On March 29 the American Red Cross transmitted to the British Red Cross a check for \$1,000,000, "to alleviate as far as possible the suffering caused by the battle now raging." John McCormack, in a flying tour of concerts for the Red Cross, has earned \$80,000. He expects to have \$100,000 when he completes his tour on May 1.

Red Cross House at Base Hospital No. 1.—A Red Cross house for convalescent soldiers was opened on March 30, in connection with the United States General Hospital No. 1, on Gun Hill Road and Bainbridge Avenue, the Bronx. This is the first of a number of similar houses now being built by the American Red Cross at the larger base hospitals. It is intended as a lounging and rest room for convalescent soldiers and an administration center for the Red Cross field director, through whom relatives may obtain accurate information as to the welfare of the patient.

Medical Officers Dismissed from Service.—Announcement is made by the War Department that officers of the Medical Reserve Corps, who were recently tried by court martial and found guilty of gross neglect of duty in failing properly to examine a private at Camp Funston who subsequently died, have been dismissed from the service.

Hospitals Chosen for Reconstruction Work.—Surgeon-General Gorgas announces that fourteen hospitals have been chosen for beginning the work of reconstruction of disabled soldiers returned from France. The hospitals selected are the following: General Hospital, No. 4, Fort Porter, N. Y., will care for the insane; General Hospital No. 7, Roland Park, Baltimore, will care

for the blind and deaf; General Hospital No. 13, Dansville, N. Y., will care for epileptics and neurotics; the Walter Reed Hospital, at Takoma Park, Washington, D. C., and the Letterman General Hospital, San Francisco, Cal., will make special provision for amputation work. Other hospitals chosen are General Hospital No. 2, Fort McHenry, Md.; General Hospital No. 3, Colonia, N. J.; General Hospital No. 6, Fort McPherson, Ga.; General Hospital No. 9, Lakewood, N. J.; General Hospital No. 14, Fort Oglethorpe, Ga.; Army and Navy General Hospital, Hot Springs, Ark.; Base Hospital, Des Moines, Ia.; Base Hospital, Fort Riley, Kas., and Base Hospital, Fort Sam Houston, Tex. Individual hospitals from this group will be equipped for special work in cardiovascular diseases, tuberculosis, neurological and other head surgery cases, for speech defects, general medicine, and other specialties. In making this announcement Surgeon-General Gorgas recommends the following policy in connection with the work of reconstruction and rehabilitation of disabled soldiers and sailors: "That hereafter no member of the military service disabled in line of duty, even though not expected to return to duty, will be discharged from service until he has attained complete recovery or as complete recovery as is to be expected that he will attain when the nature of his disability is considered." The best facilities for functional and mental restoration and occupational training will be provided at each of these hospitals.

Women in the Volunteer Medical Reserve Corps.—The Medical Board of the Council for National Defense states that women as well as men are expected to offer their services for the new volunteer medical reserve corps now being formed. Nearly 2,000, or about one-third of the total number of medical women of the country have already registered in the organization known as the American Women's Hospitals. Over fifty women physicians have already gone to France to work among the civilian refugees. The first work of the volunteer medical corps will be substituting for physicians called into war service and caring for the health of workers in supply and munition factories in the United States. They are likely also to be called upon for special work as bacteriologists, pathologists, radiologists, anesthetists, etc.

American Women's Hospitals Gets Ambulances.—At the daily luncheon of the Money Raising Committee of the American Women's Hospitals at the Biltmore on April 1 a gift of three motor ambulances was announced. One of these, manned by a squad of women physicians, was on exhibition before the Public Library at Fifth Avenue and Forty-second Street during the week.

Women Bacteriologists Wanted in the Cantonments.—It is announced that the army needs the services of 100 women bacteriologists to take the place of men in cantonment laboratories in this country. A practical knowledge of clinical pathology and laboratory diagnosis is required for the work. The salary is \$720 with maintenance, and \$1,200 without maintenance, transportation furnished by the Government. Applications should be made to the Office of the Surgeon General of the Army at Washington.

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SANITATION OF THE EXTRACANTONMENT ZONES.

THE United States Public Health Service, in addition to its already multifarious tasks, has, as part of its war duties, taken charge of the sanitation of many of the extracantonment zones. In Public Health Reports of March 8, 1918, Surgeon S. B. Grubbe tells of the sanitary work being done in Newport News, Va., and vicinity. In addition to two large embarkation camps, which contain a large and floating military population, the Newport News Shipbuilding and Drydock Co. employs over 10,000 workmen, engaged mainly in Government work. In the district over which the service has authority there is a population of 100,000, an increase of 45,000 since the camps were formed.

So for the control of communicable diseases the first essential is their prompt recognition and reporting, and in recognition of this fact all the physicians in the district have been asked verbally, by letter, and through their societies, to report to the district health office all cases that are or are suspected to be communicable. Contacts are examined and proper measures to isolate carriers of disease and those already in the incubation stage are taken. Contagious diseases among troops and laborers on camp sites are cared for by the army, but there is the closest cooperation between military and civil health authorities, and the various camps report each day details of all cases.

Malaria and typhoid fever are both prevalent in the peninsula in the charge of the service, but the necessary steps are being taken to exterminate and prevent the spread of both diseases. Tuberculosis is also prevalent, but suitable precautions against it are being taken.

The disposal of excreta is conducted on primitive lines in Newport News and in the rest of the district. There are 1,500 privies or so, of unsanitary type and poorly scavenged, in the area under the sanitary domination of the service. Of course, this has offered constant danger of typhoid fever, and a new and sanitary system for excreta disposal will be installed. The water supply is not wholly satisfactory, and means will be put into force to remedy defects in this direction.

With regard to venereal diseases, while it is recognized that they constitute a most serious health problem their control has seldom been attempted, and efforts which have been put forth to do so have met usually with slight success or with absolute failure. However, with the necessity for military efficiency, the subject can be no longer ignored, and the lines of action are being drawn. These are: (1) Recreative amusements and education of the soldier, both within and without the camps; (2) the enforcement of laws against public and clandestine prostitutes both in brothels and on the streets; (3) the treatment of persons in the infective stages of these diseases with the isolation of patients that cannot be otherwise controlled. The fact is likewise well appreciated that education and publicity must necessarily play an important part, probably be the deciding factor, in the suppression of venereal diseases. Surgeon Grubbe concludes by stating that intensive extracantonment sanitation has been made possible by reason of the war, which has justified the expenditure of more money than the local committees could be expected to contribute. Among the troops this work should cause a decided decrease in physical disability that would otherwise result from communicable diseases, especially malaria and venereal infections. Upon the civil population it should act as a protection against infectious diseases brought in by troops which are gathered from all parts of the country. Especially important among these infections may be mentioned measles, diphtheria, and cerebrospinal meningitis. In addition, a great deal may be done to curtail the increase among the civil population of certain diseases, such as typhoid fever and tuberculosis, that thrive on congestion and poor sanitation. One indirect result of these efforts will be the advancement of health education. Those people who have experienced the comfort and satisfaction derived from good sanitation and the feeling of security afforded by a well-equipped health department that deals promptly and vigorously with all communicable diseases, will not be satisfied with the old fatalistic attitude that has been common in the country. In brief, war conditions will wake up the people of the country to the need for extensive and radical sanitary reforms.

ORTHODONTIA IN RESPIRATORY OBSTRUCTIONS.

THE treatment of dental malformations by the mechanical methods included in orthodontia is a comparatively new science, and because of the cost of this form of treatment it is at present available only to a few. The effect of dental malformations and occlusions on the shape of the face, of the jaws, and of the palate is now well recognized. It is likewise recognized that appropriate orthodontic treatment carried out in early life can remedy almost entirely the dental and bony malformations. Moreover, accompanying the bony changes due to

these orthodontic conditions, there is a narrowing of the nasopharynx and a vaulting of the palatal arch, directly causative of obstruction to breathing. Much of the obstruction to breathing found in young children and heretofore attributed to adenoid or intranasal obstruction is caused by this bony malformation, and is therefore not benefited by the usual operations for the relief of the obstructions. Anthropologically, the tendency to this bony obstruction is explained on the ground that in civilized races the development of the cranium takes place at the expense of the bones of the face. In the lower races dental symmetry and the absence of obstruction to breathing receives explanation on these grounds.

At any rate, before subjecting a child to adenoid operation or intranasal interference for the relief of obstruction to breathing, it is well to see whether or not the nasopharynx or the nasal passages are sufficiently patent from the standpoint of the bony structures enclosing them. The suspicion that the respiratory obstruction may have origin in the bony parts is, of course, much strengthened by the presence of the dental malformations caused by the lack of room on the dental bearing surfaces of the jaws. Indeed, there seems to be an entire narrowing of both upper and lower jaws so that the teeth have no room on them; and the palate will also be found to be unduly arched or vaulted. It can be seen that much of the so-called recurrence after adenoid operations is due to these conditions, the slight improvement, if any, being due temporarily to the increase of space from removal of mucous membrane and adenoid tissue thereon. The treatment of choice, when once the real conditions are understood, is the widening out of the upper maxilla by appropriate orthodontic appliances. The palatal arch, the nasal passages, and the nasopharynx are all considerably widened by this procedure, and improvement is usually very rapid and marked.

It can be seen that where the nasal obstruction and mouth breathing retard the physical but especially the mental development of the child, so that it becomes distinctly backward, benefit can be obtained only when orthodontic treatment is instituted early enough before the child has become hopelessly backward and unable to catch up. But in the case of the poor child, although the cause is recognized and the indications for treatment are clear, the cost of orthodontic treatment puts treatment out of their reach. Its only hope of receiving this treatment lies in the extension of the dental clinics now being so widely established so as to include this form of treatment.

PERFRIGERATIONS AND CONGELATIONS.

ACCORDING to Mazzolani in *Il Policlinico* for February 3, these lesions constitute a pathological accident of great significance in a warring army because a number of individuals are stricken at once. Nevertheless the number of victims is rela-

tively small, so far as the official records are concerned; and this appears to show that with proper equipment and care the condition is largely preventable. It should perhaps be possible to distinguish in advance the men who are unduly sensitive to the action of cold, and avoid exposing them. Again, timely treatment will also save a soldier who might otherwise become permanently incapacitated. The soldier must be taught to care for his feet and should be watched with that end in view. Cumulative cases of a severe type requiring amputation occur—the so-called mutilating epidemics due to cold, and come about in an insidious fashion. These are noticeable in conditions of hardship in which there is no opportunity to give attention to routine, as during the recent reverses in Italy.

The author goes extensively into the historical aspect of the subject. We know that in various campaigns the number of deaths from exposure to cold was very large and in the more recent wars we have records of the local effects. During the siege of Sebastopol there were 2,500 cases of freezes of all degrees, not including 800 deaths from cold. After the four-day battle of Pecaotai in the Russo-Japanese war, there were found to be among the Japanese troops from 1,300 to 1,400 freezes of all degrees, of which 700 to 800 required intervention.

The Italian distinction between perfrigerations and congelations is comparatively new, and is not arbitrary but necessitated by actual conditions. A congelation so called requires, as a rule, a very low temperature, at least $-16^{\circ}\text{C. (+3.2}^{\circ}\text{F.)}$. The sequence of pathological changes is as follows: Ischemia of an intense character; direct coagulation of the blood, lymph, interstitial fluids, etc., and gangrene. A congelation is due entirely to extreme cold while a perfrigeration is due to a lesser degree of cold in association with more or less moisture. One distinction made by the author relates to the type of gangrene produced. In a congelation due to intense cold we see dry gangrene; while moist gangrene can occur under much less severe cold, provided that there is an undue amount of moisture.

It is evident that the congelations include most of the third degree freezes and that ordinarily they are much less common than the perfrigerations. The latter should also show the greatest variety in degree and kind and include so-called trench foot. It is at once apparent that with severe cold, with or without slight moisture, a very different lesion would be caused than when the temperature is relatively low and the exposure to moisture excessive. With congelations there appears to be the greater liability to secondary phenomena like tetanus and sepsis; at least in some figures quoted all complications of this type are set down as present in the severer form of lesion. Perfrigerations are responsible for many sequelæ involving the various tissues of the feet

and legs—ulcers and thickening of the skin, chronic edema, tendinous retraction, osteoporosis, and various types of mutilation.

THE BACTERIOLOGY OF POLIOMYELITIS.

THE work of Dr. Horace Greeley on the bacteriology of poliomyelitis, of which a preliminary announcement was published in the *MEDICAL RECORD* of January 13, 1917, and complete details in the *Journal of Laboratory and Clinical Medicine* in July following, has recently been corroborated by Rosenow* and Bristol.† It will be remembered that Dr. Greeley grew, from the nerve centers of cases succumbing to the 1916 epidemic, a pleomorphic, bipolar bacillus which he caused to grow as the "globoid bodies" described by Flexner and Noguchi and also in the form of the "streptococcus" described by Rosenow. Working with cultures obtained from the latter he developed from Rosenow's "streptococcus" the pleomorphic bacillus. This bacillus, besides being susceptible of modification in form between the globoid bodies, through streptococcus or diplococcus forms, to bipolar bacilli, he found was also subject to change from Gram-positive to Gram-negative. The fully developed bacillus was found to be motile, with a single terminal flagellum, would liquefy solidified serum, produce an acid reaction in neutral bouillon, and develop spores. Five out of six strains isolated by Greeley failed to produce gas in sugar media; three out of the six produced a slight amount of indol. He found that the organism would pass the Berkefeld filter and would grow at all temperatures between summer heat (70° F.) and that of the body. His cultures grew readily in market milk and in it resisted the pasteurization process.

Experimenting on animals Greeley produced paralysis with nerve center lesions in dogs, cats, rabbits, and guinea-pigs, and also typical attacks of distemper in young dogs and cats. A culture accidentally dropped in the experimenter's eye produced an abortive case of the malady, and mucus from his throat produced paralysis in a rabbit and a contagious fatal disease, with nerve center hemorrhagic manifestations among guinea-pigs. He tested the organisms isolated with blood serum from fifty convalescents of the 1916 epidemic and found that, while agglutination was ordinarily not produced in high dilution, a specific relation was evident. In animals (cats) he produced antipoliomyelitis sera that agglutinated in high dilution the cultures used to produce them, but which varied considerably in agglutination of other cultures. Using this specific serum and sera from human poliomyelitis convalescents he showed that a distinct relationship existed between the poliomyelitis bacilli and a bacillus isolated from a case of distemper in a dog.

Rosenow now states that he finds that his strep-

*Rosenow, E. C.: *American Journal of Public Health*, Dec., 1917.

†Bristol, L. D.: *Journal of Medical Research*, Jan., 1918.

tococcus will produce the bacillus form, and Bristol, working with one of Flexner's cultures obtained from the Rockefeller Institute, developed from the globoid bodies bacilli such as Dr. Greeley described. Dr. Bristol concludes: "From these studies I venture to suggest the possibility that the organism of poliomyelitis is a pleomorphic bacillus (often indistinguishable, however, from a true coccus), and that it may be closely related to the large group of so-called bipolar bacilli, or Pasteurella. Based on this assumption, the mode of spread may be considered analogous to that demonstrated for all forms of Pasteurellosis in animals, namely: (1) directly, by contact with the fresh secretions or excretions of an infected individual (either diseased or a healthy 'carrier'); (2) indirectly, by the carriage of the specific organisms by insects, or possibly in dust, uncooked food, or drink."

These are practically the same conclusions as those announced by Dr. Greeley some six months previously.

SPLENECTOMY IN WAR SURGERY.

BEFORE the war most writers admitted the practice of suture of the spleen for wounds of this viscus, but the surgery of war has shown that this treatment is unreliable, not to say dangerous, and in the few cases where it has been resorted to the results have been disastrous. As in the case of suture, packing the wound in the spleen is not always preventive of infection or late hemorrhage. Although not a method of choice, it may be very useful in some few cases in which splenectomy cannot be performed with safety on account of some local or general cause. To be of any use the packing must be tight and should not be removed for at least ten days, otherwise hemorrhage will certainly occur.

The experience gained during the past three years has amply demonstrated that splenectomy is the only proper treatment for wounds of the spleen. It does away with late septic and hemorrhagic complications, and on this point all surgeons, at least in France, are in accord. As to the gravity of removal of the gland, opinions differ somewhat. Willems insists on the circulatory disturbances in his splenectomized patients, but the general sentiment seems to be that the removal of the spleen has no unfortunate ultimate results. This reasoning is justifiable. The brilliant successes of Depage, Kocher, Delore, Fiolle, and others are sufficient evidence of this. At one autoambulance seven splenectomies were done, with five recoveries, the two deaths being due to a duodenal and renal lesion respectively.

The future of patients without a spleen is well known. The blood changes noted after splenectomy are transitory. The red blood corpuscles, at first decreased in numbers, slowly return to the normal, usually within a month. The changes in the white count are equally negligible. All this, however, is theory, and what should be known is whether or not the blood changes are compatible with life. There

is no doubt on this subject. The hypoglobulia following removal of the spleen is temporary and without importance, even when it does occur, and no cases of anemia following the operation have been recorded that could not be explained by the trauma and operation.

Therefore, in neither the immediate nor ultimate consequences of splenectomy need there be reasons for rejecting this operation, which is at the same time radical and sure. It is, of course, not an operation devoid of danger, but if the inconveniences in removal of the gland are compared with the serious dangers inherent to the conservative methods of treatment of splenic wounds in warfare, there can be no hesitation on the surgeon's part.

BUY BONDS

THE third Liberty Loan is offered to-day. Only a little over 10 per cent. of the physicians of the country have given their services to the fighting forces; let the remaining 90 per cent. do their bit by loading up recklessly with bonds. These are as good as gold, pay high interest for an absolutely safe investment, and, best of all, will provide an abundance of men and munitions to wipe the execrable German war machine off the face of the earth.

News of the Week.

Low Death Rate Despite Severe Winter.—Notwithstanding the fact that New York City experienced the coldest weather in its history during the first two months of 1918, the death rate for those months was only 15.51, as against 16.97 for the same period of 1917. If the same death rate had prevailed during January and February of this year as is recorded for those months in 1917 there would have been 2,600 more deaths than actually occurred. The most notable reduction in the mortality was from lobar pneumonia, there having been a decrease of 450 deaths reported from this cause as compared with the corresponding period of 1917. The saving of life has been mostly among adults. The number of births recorded for the first two months of 1918 was 22,021, as against 24,227 during the same period of 1917. There was also a falling off in the number of marriages, 8,389 having occurred in the first two months of this year as compared with 11,187 during the same months of last year.

Children's Bureau Issues Instructions for Weighing and Measuring Test.—The instructions for carrying out the weighing and measuring tests of American children under five years of age have been sent by the Child Welfare Department of the Woman's Committee of the Council of National Defense to its State and local child welfare chairmen, who will be responsible for the test in each community. The record cards will follow after word is received of the exact number required by each committee. These record cards give a table of average heights and weights of boys and girls at birth, at every month of age from the sixth to the forty-eighth, and at every year from the fifth to the sixteenth. One-half of the card will be retained by the parents. It includes the table of heights and

weights and has blanks for subsequent records, so that parents can watch the child's growth. The other half of the card provides for recording the height and weight of the child at the time of the national test. It will be used by the local committee in analyzing the facts about its own community and then it will be forwarded to the Child's Bureau at Washington. This test is the first feature of the Children's Year, which begins on April 6.

The Out-Patient Clinic and Occupational Diseases.—The Executive Committee of the Associated Out-Patient Clinics of New York City calls attention to the fact that there exists a great deal of occupational disease, and that cases of occupational disease are often not properly diagnosed in the out-patient clinics. In order to provide the sick with competent medical advice, resolutions have been passed calling the attention of the boards of trustees of dispensaries situated in industrial sections of the city to the need of early recognition of occupational disease, and stating that in order to facilitate the work of the physicians in this task detailed records should be taken as to the occupation of all patients. These resolutions also require that adequate facilities be provided for the treatment of occupational diseases and industrial poisonings, and that an interest in the study of occupational diseases should be stimulated among physicians connected with the dispensaries.

Smallpox on Sound Liner.—Five negro employees of the Hartford Line steamer *Middletown*, which makes regular trips between New York, Hartford, and intermediate landings, were taken to the Kingston Avenue Hospital, Brooklyn, on March 29, suffering from smallpox. The *Middletown* usually carries from 130 to 150 passengers on each trip. The Health Department of New York City is endeavoring to reach all of these passengers with the warning that they should be vaccinated immediately.

Memorial to Dr. David Williams Cheever.—A large bronze memorial bas-relief of Dr. David Williams Cheever was unveiled in the amphitheater of the Boston City Hospital on March 21. In addition to his many other professional activities Dr. Cheever established the first surgical clinics in the Boston City Hospital, and carried them on throughout his life, having given instruction to thirty-three classes of students. The tablet was presented by Dr. David Cheever, who reviewed the part his father played in the life of the Boston City Hospital. Dr. George W. Gay presided at the ceremonies, which were attended by a number of Dr. Cheever's contemporaries.

Bill to Close Medical School.—A bill is pending before the Legislature of Massachusetts which would withdraw from the College of Physicians and Surgeons of Boston its power to grant medical degrees. At a recent hearing on the bill before the legislative committee on education more than one hundred opponents of the proposed legislation appeared and protested against its passage.

Studying Effect of Pneumatic Hammers on Workers' Health.—The United States Public Health Service has begun a study of the effect on the health of workers of pneumatic hammers, as used in cutting limestone. It has been learned that inconvenience is felt by workers in this industry

in using the air hammers in soft stone because of a temporary numbness of the fingers whenever the hand becomes chilled. The cause of this was found to be the higher vibration rate of the hammers when used in soft stone, and a second cause was the tight and strained grasp which the workers had to use. It was found that using a shank of larger diameter with a tight-fitting cover of asbestos made a more comfortable grasp possible, and the asbestos acted as a shock absorber.

Hungary's Decreasing Birth Rate.—A statistical report read before the Hungarian Chamber of Deputies at the session of January 16, 1918, states that before the war 765,000 children a year were born in Hungary. During the first year of the war the number of births was reduced by 18,000; in 1915 only 481,000 children were born; in 1916 the number of births was 333,000; in 1917 the births amounted to 328,000. This would represent a loss of 1,172,866 individuals, or a 50 per cent. decrease in the birth rate. In times of peace the infant mortality for a period of seven years was 43 per cent.; in 1915 the proportion was increased to 48 per cent., and in 1916 to 50 per cent.

Laboratory Test for War-Time Recipes.—An experimental laboratory has been established in which representatives of the Food Administration will cooperate with those of the Department of Agriculture in standardizing war-time recipes and putting them out in the form in which they will be most useful. Recipes will be tried and their nutritive values thoroughly tested.

The Sacramento Society for Medical Improvement celebrated the fiftieth anniversary of its organization on March 16. Dr. W. R. Cluness, the only surviving organizer, presided at the banquet. The society has elected Dr. George A. Briggs *President*, and Dr. W. A. Beattie *Secretary-Treasurer* for the ensuing year.

The Newport County Medical Society, at its annual meeting, on March 22, elected the following officers: *President*, Dr. Edward V. Murphy; *First Vice-President*, Dr. A. F. Squire; *Second Vice-President*, Dr. Charles W. Stewart; *Secretary*, Dr. A. Chace Sanford; *Treasurer*, Dr. P. A. Jacoby.

Hearing on Health Insurance.—The Nicholl bill, a measure providing for workmen's health insurance, is before the Legislature of New York State. The bill was drawn by the American Association for Labor Legislation. A hearing on this bill was held on March 26.

United States Public Health Service Testing Vaccines and Serums.—Samples from every lot of serums and vaccines made by the various manufacturers are now being tested by the United States Public Health Service at the hygienic laboratory in Washington, before the products are placed on the market for interstate traffic. As rapidly as possible the Public Health Service has been determining upon standards for the different serums and vaccines, and where sufficiently accurate standards can be found manufacturers are held up to them. Tests for reliability are now made in the serums and vaccines of pneumonia, meningitis, smallpox, typhoid fever, diphtheria, and tetanus. At the present time a large number of firms are licensed for the manufacture of these products, this meaning that the establishments are satisfactory from a

sanitary point of view and that their products are free from contamination.

Health Department Proposes Ordinance to Cut Food Waste.—The Health Commissioner of New York City, Dr. J. Lewis Amster, has submitted to the Welfare Committee of the Board of Aldermen an ordinance setting a penalty of ten days' imprisonment or \$50 fine for the offense of wasting food. The Health Commissioner has been checking up the amount of food wasted in the city during the past year, and finds that enough has been thrown away to feed 136,000 people, and its value is estimated at \$16,000,000. He finds that the worst waste is through servants in the homes of the well to do, and estimates that in bread alone as much as 6,000,000 pounds a year have been thrown away.

Gifts and Bequests.—Under the will of Mrs. Elizabeth C. Farnham a bequest of \$12,000 is made to Harvard University to create two medical scholarships in the medical school.

Dr. Kristine Mann, director of the health clinic for industrial women in New York City, and lecturer on hygiene at Smith College, has been appointed head of the Health Department in the Women's Division of the Industrial Section Service of the Ordnance Department of the Army, which has been created to look after the health of women employed in the arsenals and other ordnance plants. It is planned to train health officers for the needs of industry. Dr. Mann has asked one of the women's colleges to establish a summer course for women equipped to qualify for this, which would include anatomy, physiology and sociology.

Obituary Notes.—Dr. WILLIAM OGDEN McDONALD died at his home in New York City on March 25, aged 82 years. He was graduated from the New York Medical College in 1855, served as a surgeon during the Civil War, retiring with the rank of lieutenant colonel, was a pension examiner from 1877 to 1884, and later professor of anatomy and gynecology in the New York Homeopathic Medical College.

Dr. ALBERT MEHRER MOORE died of cerebrospinal meningitis, at Philadelphia, on March 6, at the age of 42 years. He was graduated from the Medico-Chirurgical College in the class of 1905, and he had been an instructor in anatomy in his alma mater for ten years.

Dr. JOHN S. TRYON died at Rehrersburg, Pa., on March 6, at the age of 84 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1857.

Dr. WM. HENRY MCCURDY died of pneumonia at Delta, Pa., on March 21, at the age of 64 years. He was graduated from Jefferson Medical College in the class of 1881. He was chairman of York County Draft Board No. 2.

Dr. C. FRANK OSMAN, a graduate of the Harvard Medical School, in 1880, died at his home in Dorchester, Mass., on March 9, aged 62 years.

Dr. JOHN W. SPEER of Alton, Ky., a graduate of the Miami Medical College, Cincinnati, in 1867, died in a hospital in Frankfort, Ky., on March 5, aged 82 years.

Dr. BENJAMIN P. WILSON of Lake Butler, Fla., a graduate of Charity Hospital Medical College in 1876, died in Snead, Fla., on March 10, aged 66 years.

Dr. RANSFORD DELOS CANEDY of North Adams, Mass., who has served several terms on the Board of Health of that city, died, after a brief illness, on March 10, aged 45 years.

Dr. CLARENCE L. HOWES, a graduate of the Long Island College Hospital, Brooklyn, N. Y., in 1878, died at his home in Brockton, Mass., on March 7, aged 70 years.

Dr. JOHN W. ROBERTS, a graduate of the Fort Worth School of Medicine, in 1910, died at his home in Irving, Texas, after an illness of several months, on March 8, aged 34 years.

Dr. GEORGE E. HALLEY died at his home in Kansas City on March 11, aged 78 years. He was a graduate of the Victoria University Medical Department, Canada, and was formerly professor of the principles and practice of surgery in the Kansas City Medical College, and later of the University Medical College.

Dr. RALPH E. MOESSER of Montrose, Ill., was killed in an automobile accident on March 8. He was a graduate of the Kansas City Hahnemann Medical College in 1910, and was 33 years of age at the time of his death.

Dr. SARAH R. ELLISON, retired, a graduate of McGill University, in 1873, died at his home in New York City, on March 25.

Dr. JOHN AUGUST WALTHER of New York, a graduate of the College of Physicians and Surgeons, New York, in 1876, died suddenly at the Memorial Hospital on March 27.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

A MINISTRY OF HEALTH—INVALIDS AND FOOD RATIONING—TWILIGHT SLEEP—DISCHARGED SAILORS AND SOLDIERS AS DENTAL MECHANICS—THE MEDICAL STUDENT AND COMPULSORY MILITARY SERVICE—A MEDICAL PARLIAMENTARIAN—DEATH OF DR. FLEMING MANT SANDWICH.

LONDON, March 14, 1918.

THE country has now been promised, and promised definitely for over six months, that it is the intention of the government to bring in a bill creating a Ministry of Health, the new bureau taking its place as a first-class government department, with its head occupying a seat in the Cabinet. At the present moment the health of the country, so far as it is not in the hands of individual practitioners, is a charge upon half a dozen public bodies. Mainly, it is true, the responsibility devolves upon the local government board, the authority for all public sanitary work, notification of disease, arrangement of sewerage schemes, and so on; but the parts played by the Home Office and the statistical records of Somerset House, by the Foreign Office, and even the Privy Council, are significant, while the commissioners under the National Insurance Act, who trol the whole of panel practice—that is to say the medical care of 14,000,000 out of 36,000,000 persons—have a most practical interest in every conceivable question of national health. The bill is to collate, arrange, and coordinate all these activities, and ought to have made its advent in the House of Commons ere this, while the delay is usually explained

by the difficulty of getting universal agreement upon the fundamental point of the direction in which the supreme authority shall be conferred. To make the Health Ministry a new and separate entity is tempting, but it means the scrapping of many admirable organizations and replacing them in a hurry, to say nothing of eternal overlapping with the functions of the Local Government Board. To erect the medical branch of the Local Government Board into a first-class bureau is the obvious alternative, and one that will probably be followed, but the powers and discretions wielded by the Commissioners of the National Insurance Act cannot be curtailed to a point at which any medical department of the Local Government Board would really be in supreme authority without a struggle. In the meantime the country awaits with impatience the creation of the new Health Ministry for the solution of many important questions. For example, infantile mortality, which in the first three years of the war showed at one time a magnificent decline and at other times a rate below the decennial normal, now exhibits a tendency to rise, and stricter measures of notification are being called for. But the National Health Commission dislikes a system of notification of pregnancy along the usual lines, because this would mean the intervention in domiciliary medical practice of the medical officer of health, who is an officer of the Local Government Board, with functions directed toward the maintenance of public health. The expectant public and medical profession have begun to surmise that so long as these powerful opposing interests are allowed free play so long will last the delay of the bill to create a Ministry of Health; but this week Mr. Bonar Law, the chancellor of the exchequer, announced in the House of Commons that a bill dealing with the incidence of infantile mortality is to be brought forward immediately, the measure not affecting in any way the larger portion of a Ministry of Health.

In addition to the regulations which I reported to you last week it has been decided that for the time being extra allowances of butter and margarine will be sanctioned only for invalids suffering from glycosuria, tuberculosis, celiac disease, or pancreatic insufficiency.

Not long ago a special committee appointed by the Obstetrical Section of the Royal Society of Medicine reported upon scopolamine narcosis in childbirth, in a careful and upon the whole not a condemnatory sense. But the medical profession in Great Britain were already confirmed in a general if vague district of a technique which, though it had received large support in good places in America, was of German origin, and relied for much of its good character upon opinions uttered by German eulogists. To some extent, however, the public has its medical treatment in its own hands, and many members of the public, believing that in "twilight sleep" there may be an easy and safe escape from the pangs of childbirth, insisted upon trials being made of the method. Tragedies have not followed, nor does the oligopnea appear to have been prejudicial to the infants, and in consequence medical practitioners have been more and more pressed by their clients to absorb this technique.

A debate this week before the Clinical Society upon the advantages and disadvantages attending

twilight sleep was consequently very timely, but in the result matters remain where they were. Dr. G. F. Blacker, obstetric physician to University College Hospital; Dr. Herbert Spencer, consulting obstetrician to the same institution, and Dr. Amand Routh, obstetric physician to Charing Cross Hospital, all spoke in a critical spirit. The first named, who initiated the debate, summarized the results recorded by various observers, as well as the report of the committee of the obstetrical section of the Royal Society of Medicine, and in dwelling upon such drawbacks as he enumerated admitted that he did this rather insistently because the public impression was that the method was accompanied by no dangers to mother or child. Dr. Routh, while allowing that twilight sleep had proved useful in the case of nervous and timid women, referred to the very ill consequences of a prolongation of the second state of labor and of uterine inertia. Dr. Spencer denounced the whole technique as perilous, and deceptive in that it promised to the mother benefits that it could not confer, and ridiculed in detail the statistical statements recently emanating from Freiburg. The question is not likely to rest here, as there are many practitioners in England who have experience of what they consider to be the good results achieved by twilight sleep in those nursing homes which make a specialty of this treatment of labor cases. Facts and figures will be brought forward in the near future, probably, from such centers of close observation, supporting some at least of the claims of those who practise the method; but such advocacy, it will be seen, points to a distinct revolution in English medical practice, for it will signify that the right place for a woman to be delivered is in an institution, and not in her own home.

A scheme for the training of discharged sailors and soldiers in dental mechanics has now been approved, and is in actual working in London, Manchester, Newcastle, and Swansea, while it is just coming into operation in Liverpool. None know better than these men how severely the systematic neglect of the teeth has told on (to say the least) the comfort of the British navy and army.

With conscription, the medical student ceased to exist, but already before the first year of the war had gone by, he had become a very rare individual, for his patriotism had taken him voluntarily into the ranks. At the time, warnings were raised by the General Medical Council, or the central body of medical education, by many individual teachers, by the *Lancet*, and by a certain number of parents whose boys had stopped short in their careers. All the warnings had the same message—namely, that a doctor, always a valuable citizen, bade fair to become a most precious object to the State; that it took five uninterrupted years of study to educate him; and that to direct some thousands of these young men from the career in which they had embarked was to cause an inevitable shortage in the medical profession in years to come—and this for the sake of adding to an immense army what, in relation to the massed figures, was only a handful of recruits. Concessions to this way of feeling were made promptly, in that senior students were allowed to resign their commission or retire from the ranks on the understanding that they returned to

their studies, and justified the privilege by proceeding to get qualified immediately, when they would, of course, be available for commission in the navy or army medical services, which were drawing on the depleted numbers of the civilian medical profession.

Under the latest National Service Instruction, which was issued in the latter half of March only, medical study at last becomes "a reserved subject" (i.e. a pursuit which exempts its followers from conscription) as prudent people said three years ago that it should be. Provided that a medical student has passed his first professional examination in chemistry, physics, and biology, shows reasonable diligence in passing the later examinations, and joins an Officers' Training Corps he will now not be called up for service, military or naval. The reference is actually also to students who have not yet passed the first professional examination, but who succeed in doing so in the coming summer tests; while all medical students whose classification under physical tests for recruiting comes low in the category are exempted. The position of every medical student in the country will be reviewed now, and again in six months' time.

Few medical men have been members of the British Parliament, fewer have made any mark there, and where they have raised themselves from the ruck their advance has been due to political efficiency and not to scientific reputation or achievement. At the close of the last century Sir Walter Foster, a provincial physician, became a minister and a peer, but entirely as a reward for services in party politics; simultaneously Sir Michael Foster, secretary of the Royal Society, one of the greatest British physiologists and representative of an important university constituency, failed to make any real impression upon his fellow legislators. In the present British government there are two men with the right to style themselves physicians, namely Sir Auckland Geddes, Director of Recruiting, and lately professor of anatomy in Montreal, and Dr. Christopher Addison, Minister of Reconstruction, and formerly lecturer on anatomy at St. Bartholomew's Hospital, London. Both of these are of real consequence to the country in their important posts, but the consequence lies entirely outside their scientific attainments. But the British House of Commons now contains a distinguished medical man, who has been accepted as a leader in its deliberations because he is a medical man, namely Sir Watson Cheyne, member for the University of Edinburgh and formerly president of the Royal College of Surgeons of England. Sir Watson Cheyne is a quiet, fearless, sensible speaker, and on two notable occasions has intervened in debate with marked success when stating the medical view. On the first occasion the House of Commons was discussing the granting of commissions in the army as medical men to certain unqualified persons, stated by grateful patients to be endowed with extraordinary medical skill. The House, many members of which had been no doubt approached on behalf of one or two of the best known of these unqualified practitioners, appeared to be willing to take the easy step of conceding to unscientific opinion, when Sir Watson Cheyne, then quite a new member, put the whole affair from the

scientific aspect, pointing out the enormous dangers that must be run by the army if the safeguards of medical standardization and qualification were removed for those who attended the sick and wounded soldiers. Sir Watson Cheyne's second notable intervention in debate occurred during the discussion upon the constitution of a special medical service for the British Air Force. Chairman of the committee which had drawn up a scheme for the creation of such a service, and which by its clear-speaking had brought about official recognition of the urgent physical and mental needs of the flying man, he delivered to the House of Commons what was nothing less than a clinical lecture on the effect of varying barometric pressures, thermometric altitudes, oxygen starvation, and nervous strain upon the human organization. He was listened to with the deepest attention, and his words are likely to have the valuable result that the new service, whose existing pattern is not wholly satisfactory, will be allowed to develop along lines free from any interference from other services, so that it will attract the very best material from the newly qualified medical men.

The death has occurred very suddenly in his sixty-fifth year of Dr. Fleming Mant Sandwith, a well-known authority on tropical diseases and a vigorous worker in behalf of the Red Cross. His association with military ambulance work dated from forty years ago, for in 1877 and the following years he served as surgeon to the National Aid Society's Ambulance in the Turko-Serbian War and to the Stafford House Ambulance in the Russo-Turkish War. He was for a time Vice-Director of the Egyptian Public Health Department and professor of medicine at the Cairo Medical School, on resigning which posts he was appointed Gresham Professor of Medicine in London. During the South African War he acted as physician to the Imperial Yeomanry Hospital, and at the time of his death he was consulting physician to the East Mediterranean Force. Truly a life spent in public service.

Progress of Medical Science.

The Boston Medical and Surgical Journal

March 21, 1918.

1. The Value of the Physician and of the Nurse in Social Service Work in Tuberculosis. John B. Hawes.
2. Spontaneous Pneumothorax. Philip H. Pierson.
3. Observations on Disabled Shoulders. Hilbert F. Day.
4. The Red Streak. Edward A. Tracy.
5. Welfare Insurance and the Factory. J. F. Curran.
6. The Control of Smallpox Epidemic by Vaccination. A. G. Gould.
7. Preoperative Diagnosis of Hair Cast of Stomach. Frederick W. O'Brien.

3. Observations on Disabled Shoulders.—Hilbert F. Day points out that in practically all cases of shoulder disability a history of trauma can be obtained. There is usually soreness which may subside and then develop into persistent and often very acute pain in the shoulder, accompanied by limitation of motion. An x-ray picture should be taken to clear up the diagnosis. Most of the cases that have come under Day's observation have been seen several days or weeks after the initial injury. The diagnoses of injuries have appeared in the following order: (1) Sub-acromial bursitis, (a) without further injury, (b) with tear of the supraspinatus tendon, (c) with calcareous deposit. (2) Injury of the supraspinatus tendon alone, which is probably caused by pressure on the sharp under edge of the acromion on the tendon, made during sudden, violent motion of the arm. (3) Fracture of the greater tuberosity of the

humerus. (4) Loose joint capsule causing some subluxation of the humerus. (5) Traumatic periostitis. (6) Disease of the head of the humerus, as syphilis, tuberculosis or neoplasm. (7) Brachial neuritis. The greatest number of cases were included under the sub-acromial bursitis group. The author states that *anatomically* the subacromial bursa embraces what is often spoken of as the subdeltoid bursa and that the latter division disappears when the arm is abducted; it is simply that portion of the subacromial bursa which lies under the deltoid muscle beyond the acromion process when the arm is adducted. The bursa is $2\frac{1}{2}$ to 3 inches in diameter. Its under surface is firmly attached to the tuberosity of the humerus and to the expansion of the supraspinatus tendon. Its upper surface is attached to the under surface of the acromion and coraco-acromial ligament, and to the under fibers of the deltoid muscle. With the arm adducted, the subdeltoid portion of the bursa is exposed to trauma. When the supraspinatus tendon is injured or lacerated, full abduction is impossible. The chief function of the deltoid muscle is to hold the head of the humerus firmly under the acromion and in the glenoid cavity. Day states that practically all cases of subacromial bursitis that have been under his observation long enough have recovered "despite treatment or the absence of it." In untreated cases the symptoms vary from six months to three years. A few patients who were willing to carry out ideal treatment recovered in two months. *Treatment*: In acute cases aspirin should be given for the pain and the patient should be put to bed in a semi-recumbent position, the affected arm abducted on a pillow and a muslin bandage lightly looped around the wrist and attached to the headpiece of the bed; or, as suggested by Codman, a splint may be bound to the back of the forearm and a cord run from either end of it to the head of the bed. The upper end of the bed is then raised and as the patient's body slides gradually down, the arm is drawn further and further up, and thus a shoulder that resists forcible efforts at abduction yields painlessly to a gradual countertraction. Immediate operation is advisable in cases of partial rupture of the supraspinatus tendon or in cases where adhesions have formed in the bursa. Subacute cases may be treated (a) by an operation, with the object of separating adhesions, and, if necessary, removing the bursal floor; (b) by forcible breaking up of adhesions with manipulations, the patient being anesthetized; (c) by gradual stretching, as is accomplished by nature without treatment, or more rapid gradual stretching by massage, passive motion, Zander treatment or active exercises. The treatment of chronic cases requires both patience and time. Baking and massage should be given at regular intervals, generally every other day, and should be followed by graded exercises which should be taken preferably at night, so that they may be succeeded by rest. The author believes that trauma is an essential cause of sub-acromial bursitis and that the condition is not caused by infection; secondary infection, however, may keep up the inflammation.

New York Medical Journal

March 23, 1918.

1. A Nauheim Method. N. Philip Norman.
2. Sympathy, Affection, Love, and Patients. Israel Bram.
3. The Static Labyrinth. George W. Stimson.
4. Thermotherapy in Gonorrhea. Burton Peter Thom.
5. A Treatment for Inebriety with the Quartz Ultraviolet Light. Donald McCaskey.
6. Lymphosarcoma. Julius A. Miller.
7. Dead Teeth. Josef Novitzky.

7. Dead Teeth.—Josef Novitzky defines any tooth whose pulp supply has been cut off as a dead tooth. He states that the various methods and medicaments employed to sterilize the dentine of a dead tooth serve merely to retard, and do not prevent decomposition. Root amputations, and the transplanting, replanting and implanting of teeth all fail as attempts to retain a dead tooth in the jaw with security against ill results. No matter whether extracted teeth are sewn into a cock's comb until needed or boiled before plantation, the roots of implanted teeth are absorbed. The primary and secondary lesions resulting from the retention of dead teeth in the jaws are well recognized, but two main points should be emphasized: (1) A microorganism, a poisonous protein, or a toxin introduced into the blood-

stream by way of cancellous bone would be more active than would be the same amount of it introduced into the stomach. (2) If it is introduced into the bloodstream in small amounts over a long period it may break down the body resistance. On account of ills resulting from the retention of dead teeth in the jaws and on account of the impossibility of rendering dead teeth permanently aseptic, it must be concluded that teeth should not be devitalized. In most cases in which exposed nerves were "killed" it would have been possible to retain the pulp alive by covering it with a zinc oxide creosote paste. The teeth, however, should not be "pulled," but should be dissected out according to a technic described by the author as follows: Under local anesthesia the gums and the periosteum may be cut loose and retracted along the entire side of the jaw if this is necessary in order to gain space for operating. If the gums are carefully sutured back in normal position against the teeth, reattachment will take place. Ordinarily it is sufficient to cut a triangular flap with the apex pointing to the gingival margin of the tooth to be removed. This flap is raised and held back. The buccal or labial wall of bone over the entire root length of the involved tooth or enough to give direct access to the apical region is removed with the chisel. The removal of the bone over the entire root length allows the roots to be used as a guide to apical pathology. Drainage points, no matter how minute they may be, are plainly seen. If bone is removed over only part of the root length, the tooth must be removed, of course, before the apical curettement can be done. The tooth may be hooked out sidewise either before or after the apical exploration and curettement, depending on whether or not the entire root length of the buccal plate has been removed. The external periosteum flap is pulled into the opening at completion of the operation with a suture. The removal of bone over the entire root length allows the falling in of the periosteal flap and rapid healing. Gauze packings are usually avoided. Novitzky states the advantages of this technic to be: (1) It avoids fractures which commonly result from attempts to "pull" ankylosed teeth. Dead teeth are usually partially ankylosed and very brittle. (2) It gives opportunity for complete curettement on account of the direct access to the affected parts. (3) It avoids the retention of septic bone and granulations which may result in systemic toxemias or bacteriemias. Infective thrombosis or embolism is particularly apt to follow the opening of facial veins. (4) It renders apparent any pathologic involvement of the nasal floor and any vents under the antral membrane or into the nasopalatine canals or into the dental canal of the mandible. (5) It avoids the low grade suppuration due to incomplete surgery, which causes extensive absorption of the alveolar process. The loss of bone on account of such absorption destroys the foundation necessary for an efficient plate.

Journal of the American Medical Association

March 23, 1918.

1. The Fundamental Requirements of Energy for Proper Nutrition. Graham Lusk.
2. The Principles or Treatment in Mercuric Chloride Poisoning: An Experimental Study. W. D. Sansum.
3. Systematic Therapeutic Exercises in the Management of the Paralysis in Hemiplegia. Robert Oden.
4. The Technic for Sealing Medication in the Urethral Canal. Edgar G. Ballenger and Omar F. Elder.
5. The Cause of Muscular Atrophy Following Nerve Section. H. C. Stevens.
6. Pneumococcus Type Determination by Avery's Cultural Method. Edith A. Beckler, Katherine Marden, and Helen H. Gillette.
7. Pain in Active Pathologic Processes in Stomach or Duodenum: Gastric and Duodenal Contractions as the Direct Cause. Leo L. J. Hardt.
8. Spontaneous Rupture of Cesarean Scar: Report of Two Cases. Joseph L. DeCourcy.
9. Neutral Solution of Chlorinated Soda (Dakin's Solution) in the Normal Peritoneal Cavity: An Experimental Study. F. C. Mann and W. G. Crumley.
10. Malposition of the Descending Colon: Report of Case. A. B. Cooke.

2. The Principle of Treatment in Mercuric Chloride Poisoning: An Experimental Study.—W. D. Sansum found that the minimum uniformly lethal dose of mercuric chloride in dogs was 4 mg. per kilogram of body weight (1:1000 solution injected uniformly during from fifteen to sixty minutes). This corresponds approxi-

mately to the smallest doses of mercuric chloride known to cause death in man. A dose of 5 mg. per kilogram was found necessary to produce anuria. In cases of anuria thus produced, all attempts to reestablish the flow of urine by intravenous administrations of strongly diuretic solutions failed. In animals which had received the minimum uniformly lethal dose of mercuric chloride, but in which the kidneys were still capable of functioning actively, efforts to save the dogs by copious systemic lavage by means of intravenous injections of highly diuretic sugar or salt and alkali solutions met with no success, and in fact usually shortened life. Intravenous injections of sodium acetate-sodium phosphate solutions were likewise of no value even when given immediately after the mercuric chloride and when the weights of sodium phosphite were from twenty to thirty-five times as great as the weights of the mercuric chloride administered. Dogs and rabbits that had received by vein the minimum uniformly lethal dose of mercuric chloride died in spite of the use of the best known forms of alimentary medication. Sansum draws the following conclusions: (1) There is no sound experimental basis for the belief that the promotion of free diuresis contributes materially to the chances of recovery in mercuric chloride poisoning, and this phase of treatment should not be permitted to obscure that which is more essential. (2) Combined treatments which involve sweating, diuresis and increased elimination from the bowel probably owe their value chiefly to the latter effort. (3) It would appear in the light of the present study that when 4 mg. or more of mercuric chloride per kilogram of body weight has entered the tissues at large, death regularly occurs, and that we have no adequate grounds for believing that death is preventable by any known form of treatment. Whereas, subsequent studies may add to our knowledge, it would appear that persons who have recovered from mercuric chloride poisoning owe their lives to the fact that a lethal dose has never gained access to the extraportal circulation. Practical therapeutic efforts should be directed frankly toward the accomplishment of two things: (a) Mechanical removal of the poison from the lumen of the alimentary tract; (b) antidoting the poison before it leaves the portal circuit, that is, particularly before absorption.

The Lancet

March 2, 1918.

1. A Clinical Address on Serum Sickness. E. W. Goodall.
2. Eye-strain: The Condition of Blepsopathia. Harold A. Des Voeux.
3. An Apparatus for Transfusion of Blood by the Citrate Method. A. E. Stansfeld.
4. Chronic Gonorrheal Infection of the Prostate: Notes on Its Persistence and Its Relation to Recurrent Iridocyclitis. A. S. Cobbledick.
5. The Ministry of Health. A. Mearns Fraser.

3. Eye-strain: The Condition of Blepsopathia.—Harold A. Des Voeux, from an analysis of 100 cases, including 35 males and 65 females, gives the following as the syndrome produced by eye-strain: fears and panics; depression of spirits and vitality; fits or attacks (including fainting); giddiness, dizziness and vertigo; fatigue; indigestion; disorders of sleep; train vomiting. If the surrounding conditions are favorable to their production the symptoms show themselves in a minor degree in childhood, and become quite manifest at about the age of 15 to 25. The greatest success in treatment is attained at this age. Whatever the actual cause of pain, the author states there can be little doubt that it is some physical alteration in the nerve cells, and that as years go on this alteration tends to become permanent and incurable. The general health of patients is often good and there is complete absence of true symptoms or signs of disease or disturbance of the liver. Some patients suffer from colitis, but in most cases the eye-strain preceded this disease. Heart disease is conspicuous by its absence. Des Voeux points out that it is the slight degrees of error of accommodation that do the harm, not the extreme degrees. In some cases the orbits of the eyes are not horizontal and in young patients twitching of the lower lid is very pathognomonic. His studies have been conducted from first hand observation only, unaided and unbiased by the writings of others, and he has reached the following conclusions:

(1) Eye-strain is very common among brain workers and town dwellers. (2) It is produced especially by the minor degrees of refraction. (3) It is uncommon with the higher degrees because the less a man can see the less he strains. (4) It is the quick, intelligent, educated eye that suffers. (5) Eye-strain leads by slow degrees to definite nervous symptoms and breakdown—a condition which he calls blepsopathia. (6) The disease shows its first signs in childhood or youth. (7) It is easily cured in youth, with more difficulty in older age. (8) It is useless to pay attention to the patient's report on his own eyesight.

British Medical Journal.

March 2, 1918.

1. Observation on the Nature and Symptoms of Cardiac Infection in Childhood. F. J. Poynton.
2. The Use of a Divided Mattress and Pelvic Elevator. Sir William Macewen.
3. Further Observation on the Hemagglutinin Reaction, With Special Reference to the Operation of Blood Transfusion and to Nephritis. Colonel C. J. Bond.
4. General Analgesia by Oral Administration. Captain James T. Gwathmey and Captain Howard T. Karsner.
5. The Effect of a Deep Held Inspiration on the Murmur of Slight Aortic Regurgitation in Young Subjects. W. Gordon.
6. The Conservative Surgery of the Hand as Illustrated by a Case of Tendon Grafting. Colonel A. W. Mayo-Robson.
7. Acute Intestinal Obstruction Due to Jackson's Membrane. Frederick C. Pybus.
8. Reduction En Masse of a Strangulated Direct Inguinal Hernia. Captain H. H. Rayner.
9. A Helpful Diagnostic Sign in Ruptured Digestive Ulcers. S. M. Hebblethwaite.
10. Prevention of Water-borne Disease in the Trenches. E. R. Grieson.

4. General Analgesia by Oral Administration.—Captains James T. Gwathmey and Howard T. Karsner state that the present report is in the nature of a preliminary communication based on animal experiments and a sufficient number of clinical cases to support the conclusions of the animal work. They found that general analgesia in which there is loss of sensation, with or without loss of consciousness, could be established for otherwise painful dressings or short operations, and they refer to the great value of such a procedure in military hospitals, particularly as it is not necessary to move the patient from his bed. These authors proved by means of experiments on rabbits that analgesia could be produced by the oral administration of proper agents. The best results were obtained by ether in olive oil, but its administration produced acute gastritis in these animals. It was found that olive oil alone also produced this condition. As olive oil is non-irritant to the human stomach, the investigations were proceeded with on man. It was thought, however, that some mineral oils might be less irritant and, accordingly, the menstruum was changed to liquid paraffin (albolene), or Russian mineral oil. Finally a 65 per cent. solution of ether in oil was used in many thousands of cases of oil ether colonic anesthesia without any sign of local irritation to rectum or colon. The authors point out that the physiology of "general anesthesia" by oral administration has not been subjected to an exhaustive investigation, but certain important facts should be borne in mind by those who contemplate using the method. The oil and ether mix perfectly, and do not separate into layers. Baskerville has shown the rate of evaporation from minute to minute to be constant, so as to form a straight oblique line when plotted out. This holds true with different percentages of ether in the oil, assuming a constant temperature and exposed surface, so that it is impossible for the patient to get either an overdose or an underdose. As the total amount is not absorbed at one time, a light analgesia is obtained which, for operative procedures, must usually be supplemented in some way. The surface for evaporation is greater in the stomach than in the case in the colonic method, and the absorption of ether more rapid. The total amount that may be given with safety by this method has not yet been determined. It is considered advisable for the present to supplement the method by local anesthesia or the administration of small amounts of anesthetic by inhalation. The safety of the method is apparent if it is remembered that a patient in the analgesic stage is separated from the

danger zone by the period of anesthesia. If the anesthetist, however, carries his patient to the "blear-eyed," snoring stage, he defeats the object for which this method was devised. If adopted, the method would release from the routine of administration of anesthetics a certain number of physicians who now, in military hospitals, devote their entire time to that work. It is felt that so far as one can do so in a preliminary communication of this sort, the following conclusions are justified: (1) General analgesia is safer than general anesthesia. (2) Fifty per cent. ether in liquid paraffin, or other bland oil, is probably the safest general analgesic, has apparently no deleterious effect upon the stomach, and is not followed by the nausea and vomiting that frequently accompany inhalation anesthesia. Its effect may be enhanced by the addition of a small amount of chloroform (fl5 ss to j). It may be given without unpleasant taste when "sandwiched" between mouthfuls of port wine. (3) The method is especially indicated during the dressing of painful wounds without taking the patient from his bed or ward, and, when supplemented, can be employed for surgical operations.

Berliner klinische Wochenschrift.

January 7, 1918.

This number is taken up with the proceedings of the Berlin Medical Society of December 5 and 12, 1917, during which meetings the question of medical interruption of pregnancy was discussed.

Bumm points out the modern tendency to enlarge the indications of induced abortion. The medical indications have still more been reinforced by social and economic consideration, without speaking of the pressure brought to bear on the medical man by the patient's relatives when pregnancies are too frequent. Bumm himself has witnessed a large number of patients pass through his clinic and nevertheless only fifty-nine induced abortions have been performed there in the lapse of five years. If the other Berlin gynecological clinics have produced ten times that number of induced abortions this total of some 132 cases per year only represents 1/100 per cent. of yearly abortions in the city of Berlin, if one can be guided by an approximate estimate. Bumm then offers the following figures as probably being near the reality: (A) Natural loss: Deficit from family sterility, 220,000 children; abortion following disease and fortuitous accidents, 55,000 children; dead born, of which 9,000 are due to syphilis, 9,000 to nephritis, mechanical or other disturbances during labor, 36,000 children, giving a total of 475,000. (B) Artificial loss: Mortality at the rate of 40 births per 1,000 inhabitants, therefore for 68,000,000 inhabitants of the German Empire, 2,720,000 births; actual number of births in 1914, 1,818,596 births, giving a deficit of 901,404 births, of which 800,000 are due to preventive measures against fecundation and 100,000 are due to induced abortion. The reason for this condition of affairs is due to a change in ethical ideas, and it is from this standpoint that a campaign should be made.

Münchener medizinische Wochenschrift.

January 8, 1918.

The Treatment of Pulmonary Tuberculosis with Partial Isolated Antigens and a Mixture of Partial Antigens.—W. Müller points out that subjects with pulmonary tuberculosis offer a decided decrease in lipolytic antibodies, but that on the other hand the antibodies reacting against the albumins of the tubercle bacillus are rather increased than otherwise. In opposition to Deycke-Iluch, who looks upon this as a nefarious phenomenon for the patient, Müller explains its occurrence by a change taking place in the specific bacillus under the influence of a defensive reaction of the organism, the change consisting in a decrease of the antigens of the lipid series. The question to be solved is whether or not the cases are to be treated with partial antigens or by a mixture of antigens, just as they are realized the residue of fractional extraction. Having experimented with both treatments, Müller concludes that the injection of bacterial residues containing the lipid antigens, the fatty antigens, and

the albumin antigens has more effect than the injection of lipoid antigen alone. He also produces a more marked reactivity of the organism against the fatty antigens. This fact the writer explains by the changes that the manipulations of extraction impose upon the antigens. However, Müller concludes that an exclusive treatment by these specific methods is inferior to a mixed treatment which is quite equal to radiotherapy.

Cutaneous Cicatrices Following Bullet Wounds; Their Sequelæ and Treatment.—A. Schoenbank remarks that the sequelæ to be feared are limitation of movement and ulcerative processes due to the effect of traction exercised by the muscles adherent to the cicatrix. Operative treatment alone is capable of correcting the disturbances observed. The skin must be separated from the underlying structures, the cicatricial tissue in the superficial aponeurosis excised (a small cutaneous cicatrix may be left alone), and the muscles covered by healthy aponeuroses. A secondary cutaneous suture is done several days later if the wound is free from suppuration. Secondary suture of the integuments is recommended on account of the great tendency to the formation of hematomata. If cicatricial tissue has to be excised from the muscles the latter should be sutured in order to avoid muscular cavities.

Deutsche medizinische Wochenschrift.

January 10, 1918.

The Treatment of Tuberculosis of the Lymphnodes in the Adult.—Mühlmann refers to the treatment by radiotherapy, which offers many advantages over operative treatment. Many persons will submit to radium treatment, but not to operative treatment, on account of the resulting scars, as well as certain sequelæ, such as fistulæ, cutaneous infections, or an extension of the process, as well as possible injury to the spinal nerve, an accident that the writer has thrice met with. Basing his remarks on his favorable results, the writer comes to the conclusion that tuberculous lymphnodes which have become caseous should not be removed by the knife, likewise those offering inflammatory phenomena. These should be treated by radium and only lymphnodes having a hyperplastic tendency should be operated on.

Should Patients Presenting Genital Ulcerations of a Doubtful Nature Be Placed Upon a Prophylactic Antisyphilitic Treatment?—Stürmer replies in the affirmative to this question, based upon the following considerations: The first period of luetic infection is the most favorable for abortive treatment, and when possible should be resorted to before a positive Wassermann is obtained. The risk of treating a nonsyphilitic venereal subject is less great than that of neglecting an early syphilis. In point of fact, Stürmer believes it possible to abort a syphilis in the beginning, whereas waiting, in order to make a positive diagnosis, exposes the patient to a treatment requiring several years, and which is often not properly carried out. It is bad practice to commence treatment with Hg., as this drug has an absolutely sterilizing action in regard to salvarsan. Patients treated early in their luetic process with salvarsan present a "spirochete fever," which is absent when they have first been treated with Hg. This fever corresponds to a "brutal destruction" of the parasites. The writer thought treatment with salvarsan should be immediately commenced in all cases of doubtful ulceration of the genitalia.

Wiener medizinische Wochenschrift.

January 12, 1918.

Post-Operative Treatment.—H. S. Spitzzy draws general conclusions from a personal experience of 18,000 cases. The larger number of cases are those of contractures, then come amputations, paralyses, and lastly shortening of limbs, etc. In spite of the intricate lesions offered by these different categories of cases, and the coexistence of several of these conditions in the same patient, Spitzzy has found it advantageous to specialize his medical and hospital personnel in the treatment of any one of these types. He even goes so far as to sort out the limbs involved and to group

them in wards by themselves. At the beginning the writer was hindered from the want of medical men possessing sufficient orthopedic knowledge so that he was obliged to remedy this condition of affairs by a course on the subject. However, even at present it would be a good thing to have consulting specialists, as exist in Germany, attached to each army corps. Passing to more special conditions, Spitzzy reviews the various surgical means for treating deformities, ankyloses, contractures, etc. He points out the utility of embedding the tendons in fat likewise in cases of musculo-osseous and aponeurotic adhesions. He is a partisan of primary suture in nerve injuries.

Experiences in Ophthalmology of Warfare.—A. Hönig has met with gonorrheal ophthalmia with relative frequency. This evidently is due to the multiplication of venereal disease in general, contamination usually being carried out by the patient himself. Hönig treated these cases by intraglutal milk injections (according to Müller's procedure). The results, although not demonstrating this treatment to be a specific of gonorrheal ophthalmia, have nevertheless proven the utility of this therapeutic measure, which is a useful adjuvant to local treatment. The same treatment used in two cases of iritis and one case of corneal abscess were crowned by success. There was a negative result in three other cases, one each of corneal ulcer, lacryocystitis, and trachoma.

El Siglo Médico.

January 10, 1918.

On a Focus of Endemic Goiter and Cretinism in the Province of Avila.—Goyanes refers to the incidence of these affections in two valleys in this province, described in an earlier number of *El Siglo*. The present contribution deals with goiter as it occurs in well-known localities in different parts of the world, and the author analyzes the various theories as to its nature. These are summed up as follows: Goiter and endemic cretinism appear to be the consequences of an infection. The cretin as a rule inherits his malady, but whether or not an infectious principle is handed down from mother to fetus can neither be affirmed nor denied. Sporadic goiter may be due to a variety of toxoinfectious causes. In Brazil the trypanum *Cruzi*, which causes Chagas's disease, can set up an infectious, hypertrophic thyroiditis as a result of the bite of an insect host, the *Conorrhinus megistus*. The geological argument in favor of a germ in certain soils cannot be narrowed down to particular formations, although the mountains, rather than the lowlands, furnish the cases. Good hygiene in all its forms always secures a rapid diminution in incidence. There is a certain connection of some sort between the drinking water and the disease. Crowding together, living with animals, and poverty in general are causal factors of importance, as shown by the fact that prosperity, removal from infected foci, etc., causes a notable falling off in cases. Not a few cases of goiter date from some infectious disease of childhood. Here the damage is permanent and the goiter remains as a stigma. It is subject throughout to exacerbations and remissions. Finally there is much evidence to suggest that the infectious principle is absorbed from the intestinal tract.

Case of Polyglobuly with Diminished Globular Resistance.—Jiménez Asua refers to splenectomized patients whose blood was studied before and after intervention. In one case cited the red cells numbered 6,500,000. The curve of globular resistance by May's method showed marked diminution. In this particular case operation was refused. The question of diagnosis in these cases is often very difficult as far as the precise splenic lesion is concerned. Polyglobuly, however, always arouses suspicion of tuberculosis of the spleen, although in the author's case this affection could probably be excluded. The great diminution in globular resistance which amounted in part to total hemolysis suggests hemolytic icterus, but this could be eliminated on several scores. Echinococcus of the spleen was suggested both by exclusion and by a positive Weinberg reaction and the diagnosis narrowed down to echinococcus and tuberculosis. In any case polyglobuly is believed to indicate destruction of the splenic parenchyma, from

whatever cause, by reason of its tendency to appear after splenectomy. It is then accompanied by nucleated erythrocytes and other evidences of hyperactivity of the medulla. But in splenectomized animals the resistance of the red cells may be increased, indicating regeneration, although in some researches fragility was a consequence. The problem is therefore very complicated and the author is forced to return to a consideration of his own case. The maximum resistance of the red cells was normal and the count showed no evidence of regeneration. The polyglobuly was therefore not compensatory. The minimum resistance touched total hemolysis, but only a small number of red cells were affected. In a large number major and minor resistance was normal. The author is forced to conclude that destruction of red cells was limited to old erythrocytes which were doomed to perish and which showed but slight resistance in May's test. The anemia in the author's case was of the chlorosis type, the hemoglobin showing from 65 to 70 per cent. This drop could perhaps be brought in relationship with the suppressed function of the spleen in connection with iron metabolism.

La Presse Médicale.

February 18, 1918.

Physiologic Mechanism of Muscular Tonus.—Piéron writes an introduction to the subject of contractures. Muscle tonus and clonus are, he states, quite different phenomena. Tonic contraction is a slow, persistent action, in which the temperature is actually lowered, there is no waste of energy, no subsequent fatigue. During the contraction creatine is formed. The active portion of the muscle is the sarcoplasm and the innervation is derived from the sympathetic system. In clonic contraction conditions are reversed. The temperature is raised, energy is squandered, there is fatigue poisoning. Metabolism does not concern protein, but carbohydrate substances. The functioning element is the muscle fibrilla and the innervation cerebrospinal. Hence, muscle function shows a pronounced dualism—static and dynamic. Rapid activity is obtained only through great loss of energy, while the tonus of a sphincter muscle is maintained without energy loss. Naturally the smooth muscle produces a majority of the static effects in the body, as we descend in the animal scale. In the vertebrate the striated muscle exerts both functions. In other words, it is a double muscle for the production of both static and dynamic effects and is in part innervated by the sympathetic. There are tonic impulses which proceed from the cord, and approximately we know the centers and paths for such impulses. The former are in the cerebellum, red nucleus, Deiter's nucleus, etc., and possibly there are spinal centers. Concerning the sympathetic fibers, we have little exact knowledge. The part played by the ganglionic chains along the spine is certainly small dealing only with a residual tone. Variable tonus is maintained only through reflex activity, but there are cerebellar and cortical components. Hyper-tonus, contracture, may originate through irritation of the sympathetic, and is then accompanied by vasoconstriction. In commotional syndromes we see both hyper- and hypotonia.

Orthostatic Tachycardia.—Leven writes of a type seen in dilated stomach which is curable by gastropexy. The symptom vanishes when the subject lies down. In dilated stomach many symptoms ascribed to auto-intoxication are more plausibly explained by reflex activities. The author enumerates orthostatic hypertension, pallor, lassitude, albuminuria, dilated pupil, etc., which he explains by traction upon the celiac plexus. In relating a case the author speaks of the pulse of 120 when erect, as compared with 60 when recumbent. When the prolapsed stomach was elevated with patient standing the pulse at once fell to 60. In this case the organ reached the level of the pubes. After medical treatment had proved a failure gastropexy was performed. Improvement slowly followed until after two months the pulse frequency on standing was 72 and on lying down 56.

Recent Literature of Asthma.—The old teaching of Laennec that asthma represented a bronchospasm still holds good in part to-day, and can be shown

on the screen where the lung and diaphragm remain quite passive. The sputum count is quite characteristic. Asthmatic paroxysms suggest an anaphylactic phenomenon, but a capital distinction must be made between true and symptomatic asthma. It has been shown abundantly that asthmatic paroxysms may mean masked tuberculosis, and in children a cuti-reaction should always be taken, while injections of tuberculin may provoke a paroxysm. Later work showed that such phenomena need not be due to specificity, but merely to foreign protein. Such reactions are peculiar to younger subjects, while clinically asthma begins in middle life. Horse asthma, so-called, is common in mankind, and is of the same nature. Since the vagus enters into asthmatic crises it is readily acted upon by certain drugs like adrenalin, hypophysis extract, and atropine.

Le Progrès Médical.

February 23, 1918.

Genital Complications of Typhoid Fever.—Cade, Vaucher, and Huchon include paratyphoid infection in their study. These complications are very rare, but since the beginning of the war quite a number of cases have been seen in soldiers. Giroux reported two of orchiepididymitis which supervened during the course of a typhoid or paratyphoid, and was soon followed by Raymond and Parisot with a case of orchitis and suppurative vaginalitis due to paratyphus B. Olmer and Voisin then reported a series of three cases of orchiepididymitis, two of which occurred in typhoid patients, while the other was a complication of a *B. coli* infection. Raymond reported a suppurative case of orchiepididymitis in a clinical typhoid. To these seven cases the present authors add five, collected from various sources; so that our knowledge of this rare accident can now be recast. The cases are given individually, with a full summary as follows: of the five cases two occurred in typhoid and three in paratyphoid fevers (in two of the latter the *B. form* was present). The condition was invariably an orchiepididymitis, and unilateral. In four of the five cases the affection appeared during convalescence. In two (both paratyphoid B.) suppuration occurred. Despite the fact that the bacteria are eliminated in the urine, these localizations doubtless represent a blood metastasis.

Urology and Psychotherapy.—Uteau and Sauvage describe two cases as follows: Female, 22, consulted one of the authors for burning in the urethra and bladder at the end of micturition, and for frequent micturition. The pains seemed worse when she held her water. There appeared to be crises which lasted four or five days, during which she urinated every ten minutes in the day time and rose from twenty to thirty times every night. The urine was always clear, free from sand and blood. Menstruation normal. The author was able to palpate the left kidney, which seemed to be normal. The bladder capacity was 275 c.c. Cystoscopic examination was negative, as were most of the other tests. The x-ray gave some doubtful shadows. Methylene blue eliminated slowly. It was decided that the right kidney was prolapsed, which justified an incision. The kidney was fixed in the usual manner. No other affection coexisted. All went well for fifteen months, when there was a complete return of symptoms. No treatment availed, and the case was adjudged psychogenic. After nine weeks of psychotherapy—rest, isolation, re-education—patient seemed well again. Later she developed a series of ailments, as bronchitis, pertussoid cough, hemoptysis, etc. There was a cavity at the left base of the lung, and the legs became swollen. The bladder symptoms also returned. It was now judged that the nephropexy had cured by suggestion only. The report of the case breaks off abruptly. The second case, also of bladder irritability, occurred in a woman of 30. She was married and had one healthy child. The only other pregnancy ended in miscarriage. She could get no relief from her bladder symptoms. With the first case in mind, the patient was hypnotized, and proved to be very suggestible. She was then psychoanalyzed, her sexual life being laid bare from childhood. Certain obsessions were put to flight, and patient has remained well to date, some five months.

Book Reviews.

PRINCIPLES OF DIAGNOSIS AND TREATMENT IN HEART AFFECTIONS. By Sir JAMES MACKENZIE, M.D., F.R.S., F.R.C.P., A.B. and Ed., F.R.C.P.I. (Hon.), Physician to the London Hospital (in Charge of the Cardiac Department), Consulting Physician to the Victoria Hospital, Burnley. Third Impression. Price, \$2.50. New York: Oxford University Press, American Branch, 1917.

THE contents of this little book by Sir James Mackenzie were intended to be delivered in the form of lectures, but as the outbreak of the war prevented their delivery, the matter was divided into chapters, while the colloquial form of expression was retained. The work was written with the view of showing the general practitioner how to recognize certain conditions, which have hitherto been revealed by mechanical aids, as the polygraph and the electrocardiograph, by employing ordinary methods of examination.

Heart failure is very carefully considered and set forth in so practical and easily comprehensible a manner that all the essential facts connected with it can be appreciated and readily applied in practice.

The book is throughout of an eminently practical character, is clearly and concisely written, and will prove undoubtedly of the greatest value to the practitioner and student. Indeed it has already so proved, for this is the third impression, the first having appeared not long after the beginning of the war. It is superfluous to say that to James Mackenzie is largely due the greater knowledge and conception of heart affections which have prevailed during recent years. The book is worthy of the author.

THE FUTURE OF THE DISABLED SOLDIER. By C. W. HUTT, M.A., M.D., Cantab., D.P.H. Oxford, Deputy Medical Officer of Health County Borough of Brighton; recently member of the Brighton War Pensions Committee; Temporary Lieutenant R. A. M. C. Illustrated. Price, \$2. New York: William Wood & Company, 1917.

THE re-education and rehabilitation as far as is possible of the disabled soldier is easily one of the most serious problems of the war. The problem, however, has been and is being grappled with more or less success in the European countries and in Canada, and steps have been taken in the same direction in this country. Dr. Hutt deals with the whole question in a very thorough manner and describes the methods employed in most of the countries at war. The book is of great value at the present time and may be read with profit and interest by medical man and layman.

BLOOD PICTURES: AN INTRODUCTION TO CLINICAL HAEMATOLOGY. By CECIL PRICE-JONES, M.B. (Lond.), Capt. R. A. M. C. (T. C.), Bacteriologist, British Expeditionary Force; formerly Assistant Pathologist Middlesex Hospital Cancer Research Laboratories; Assistant Bacteriologist Guy's Hospital, London, S.E.; Pathologist East London Hospital for Children. With 5 Colored Plates and 4 Illustrations in the Text. Price, \$2.00. New York: William Wood & Company, 1918.

THIS book is a brief but concise treatise on blood pictures as they are encountered in everyday clinical work. It is intended primarily to assist physicians in the interpretation of reports on blood counts. The book is divided into two parts with three appendices. The first part has to do with routine methods of blood examination, description of blood cells, and the normal blood picture. In connection with the technique of blood counting, the author recommends the Bürker hemocytometer as being superior to the old Thomas-Zeiss form, the particular advantage of the former instrument being the fact that two different bloods may be counted at the same time. This is a question largely of individual preference. The Haldane hemoglobinometer, an instrument quite popular in England, is used very little in this country. It has the disadvantage of requiring the use of coal gas to convert the bright hemoglobin into carboxyhemoglobin. The writer's statement in regard to the estimation of blood platelets being of little value is not in entire agreement with the newer researches on the coagulation of the blood,

hemophilia, purpura hemorrhagica and blood dyscrasias generally, in which conditions enumeration of these bodies is of decided value. The colored plates depicting normal and abnormal blood cells enhance the value of the context considerably. The second part takes up blood pictures in their relation to the diagnosis of disease. The influence of bacterial and protozoal infections on the blood is given in detail and is illustrated by selected type cases. The anemias and leucemias are next discussed. The reader obtains a clear conception of the significance and diagnostic criteria of these conditions without being burdened unnecessarily with academic dissertations. Blood changes in malignant disease conclude this part. The appendices are devoted to a short statement on the preparation of stains with their methods of application, the measurement of red corpuscles, and finally a chart on the origin of blood cells is inserted. Altogether the book forms a very useful contribution to the subject of clinical hematology, particularly on account of its lucidity and practical character.

A BRIEF INTRODUCTION TO THE GENERAL PRINCIPLES OF THERAPEUTICS. By FRANCIS H. MCCRUDDEN, S.B., M.D., Director of Laboratories, Robert B. Brigham Hospital, Boston, Assistant Professor of Applied Therapeutics, Tufts Medical School, Boston. Price, \$1.50. Boston: Gregory, 1917.

THIS is an elementary textbook dealing with the principles of therapeutics. But it is an elementary textbook founded upon a scientific basis and is adapted for the use of those who are learning the principles of therapeutics. The book treats of the subject as a branch of applied physiology, an excellent method of considering the matter which, up to the present, has been overlooked.

THE TREATMENT OF INFANTILE PARALYSIS. By ROBERT W. LOVETT, M.D., John B. and Buckminster Brown Professor of Orthopedic Surgery, Harvard Medical School. Second Edition, Revised and Enlarged, with 123 Illustrations. Price, \$1.75. Philadelphia: P. Blakiston's Son & Co., 1917.

SINCE the issue of the first edition of this excellent work, Dr. Lovett, owing to the widespread epidemic of poliomyelitis in this country, has had exceptional opportunities for close and protracted study of the disease. In New York State he was enabled by the courtesy of the State Department of Health to supervise an enterprise for public treatment in that State which embraced some 2500 cases.

Dr. Lovett believes and he emphasizes this point in his book that by taking the therapeutics of the convalescent and chronic stages of infantile paralysis more seriously and by ceasing to regard the affection as a more or less hopeless condition, a class of results will be obtained such as have not heretofore been reached.

MANUAL OF MEDICINE. By THOMAS KIRKPATRICK MONRO, M.A., M.D., Fellow of the Royal Faculty of Physicians and Surgeons, Glasgow; Regius Professor of Practice of Medicine in the University of Glasgow, and Physician to the Western Infirmary. Fourth Edition. Price, \$6.00. St. Louis: C. V. Mosby Company, 1917.

THIS, the fourth edition of Monro's well-known manual of medicine, has been thoroughly revised and altered. Among the changes made is the placing of acute poliomyelitis among the infections, while beri-beri has been removed from the infections, and together with scurvy removed from diseases of the blood included among constitutional diseases. Six polygraph tracings have been introduced which, in the words of the preface, when examined along with the descriptive legends, will enable the student to interpret the more common varieties of polygraph curves, and to understand how fruitful this mode of analysis of the cardiac action has been in the hands of Mackenzie and his followers. The diseases of the ductless glands have been considered in the light of the most recent investigations, and acromegaly has been placed among them. New short articles have been introduced on Vincent's Angina, Chronic Interstitial Enteritis, on Epidemic, on Trench Nephritis, and on Trench Foot. The manual is concise, but comprehensive, and should provide an excellent work of reference.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting Held March 7, 1918.

THE FIRST VICE-PRESIDENT, DR. GEORGE D. STEWART,
IN THE CHAIR.

THIS meeting was held under the auspices of the Public Health Committee of the Academy, the subject being "The Prevention of Disease in War Industries."

Extent and Importance of the Problem.—Dr. DAVID LINN EDSALL of Harvard University, in presenting this phase of the problem, stated that the first thing the clinician needed to do was to divorce his mind from the idea that industrial diseases meant only such diseases as poisoning by lead or by other substances used in the industries. A much greater number of factors than poisons were important in relation to health in industrial life. There was no way of knowing in this country in general how many cases of disease were due to conditions encountered in industrial life, because of the lack of any general reporting, recording, and investigating, of this class of diseases, nor could we tell to what extent such disease existed at any particular time in this country. In an investigation of the manufacture of explosives, in 1916, Dr. Alice Hamilton found that there were about 30,000 persons at one time exposed to poisoning in this work and over 2500 cases were found, confirmed by medical diagnosis, in which more or less serious poisoning had occurred in this kind of work. The number of cases of disease due to the new war industries was not really known, however. Dr. Hamilton pointed out that the number of cases recorded by no means represented all the cases of disease due to these causes. There was no question that the number of cases was much greater than Dr. Hamilton could find at that time and the number had unquestionably increased since then in consequence of the increase of war industries. But beside these definite war industries many others exposed to poisoning, an important one of such poisons being lead, which was responsible for a great many cases of poisoning in other industries as well as in the war industries. More persons were exposed to lead poisoning than to all the distinctive war poisons, and that there were a great many more cases of lead poisoning than we were accustomed to thinking was shown by studies made at the Industrial Clinic of the Massachusetts General Hospital where they had made a special study of this subject. They had been interested in studying this matter before the war. In order to investigate this subject, in every case admitted to the hospital a record was taken of the patient's occupation, whether he was admitted to the hospital wards or to the out-patient department. They listed both the industry in which the patient was engaged and the patient's occupation in that industry. They employed a social worker who was given a list of industries and of the diseases likely to be caused by each industry, and she soon was able to recognize the cases in which there was a likelihood of industrial disorder, and every case in which she thought there was a possibility of the existence of an industrial disease she sent to the industrial clinic for examination. In that way an approach was made to getting all the cases in which industry had anything to do with the disturbance of health. In the five years preceding the inauguration of this system, 146 cases of lead poisoning were found in the wards and out-patient department of the hospital. During the first year in which the industrial clinic was conducted, 148 cases of lead poisoning were recorded, more than during the preceding five year period. These cases of lead poisoning were determined by known exposure to risk of lead poisoning, by definite clinical evidence, and by looking for and finding lead in the urine and stools. That showed how much more frequent lead poisoning might be than we had supposed it to be. Hence we must believe that poisoning by lead and other substances used in industry was very important. But we must also recognize that other effects of industry were more important in their influence upon health. During this year mentioned above there were over 5100 patients sent to the industrial clinic in which the health disturbance might have had some relation to occupation.

In the great majority of these 5100 cases the hazard was recognized because of a little trained knowledge but would otherwise have been overlooked. There were nearly 500 cases in which it was shown that the industry in which the patient was engaged was the controlling factor in producing the disturbance of health, besides many more in which it was a partial factor.

In ordinary work, and particularly in hospitals, Dr. Edsall said, we were overlooking one of the most important causes of ill health, unless we adopted accurate methods of studying this question. There should be an accurate method of studying the relation of industry to health in every hospital where large groups of people were dealt with. Medical schools had neglected the opportunity of training students into a comprehension of this subject which was one of the most important etiological factors in medicine and one which hitherto had been given but casual mention. It had now become so much more important than formerly that he believed the medical schools, hospitals, and all medical organizations, should have some more definite method of instructing medical students and practitioners in the effects of industry on health and in carrying on investigations of this subject.

Aside from the specific hazards of injury there were many other factors involved such as general hygienic surroundings, toilet and washing facilities, proper light, ventilation, and various other factors, that must be investigated. Then there were a number of problems which were partly medical, but more largely social and economic. And in order to be able to secure proper care in respect to these various factors the public must be educated to their importance. The question of transportation did not impress one at first thought as a medical matter, but it was an important factor in connection with health conditions. In England, the rapid growth of munition plants made it necessary in some localities for the workers to travel even two hours daily each way in going to and coming from their work; this produced an additional fatigue that must be taken into account in connection with health problems. This same state of affairs as regards travel to and from work was rapidly coming to the foreground in this country. There was a variety of other questions which were emphasized by the Committee working on Industrial Fatigue. The workers in England came to work ill fed oftener than in this country, it being customary there to put in several hours work in the morning before having a meal, but they are frequently ill fed here. It must be recognized that fatigue was probably the most important factor in the production of ill health and all these things came within the scope of the problems of industrial health, and particularly hours of labor, rest periods, night and day work, and the like.

In recent years the question had come up of fitting the individual to his job, and no one, until he had undertaken to study the problem, realized what an intricate and important problem it was. Dr. Edsall referred in this connection to the work of such men as Dr. Clark of Worcester, who in very heavy work declined for physical reasons only about three per cent. of the applicants for work. He took individuals with organic heart disease and other conditions that off-hand seemed to unfit them for work and fitted them to do some work that they could do. By proper adaptation a large percentage of somewhat incapacitated people were actually improved by the work to which they were assigned. Dr. Edsall said that from what he had indicated it was evident that the problems involved were so numerous and so extensive that we could not attempt to bring about ideal conditions at the present time, but the question was "What is most important now?" Some persons argue that at the present time it would be very unwise to make changes, for such a move might have the effect of slowing up industry. We might perhaps argue that it was better to sacrifice some lives in industry as well as on the battlefield if that were necessary to win the war. But the prevalence of ill health among employees had the effect of greatly slowing up industry. Leading manufacturers had introduced methods of safeguarding their employees because they had found that losing skillful men interfered with production, so they protected their employees to save disorganization of the work.

Things that should especially be done were to devise

a method of establishing minimum regulations for industrial plants and then by a system of inspection to see that these regulations were carried out. These regulations should be Federal regulations and there should also be Federal supervision. In the states in which these things were well carried out under state law the Federal function might be advisory rather than supervisory, while in states in which they were not so well managed there should be Federal supervision. It might be well to put this work in the hands of the United States Public Health Service, though the place in which the authority was vested was not so important as that such a plan should be carried out. Provision should be made for the medical observation of people exposed to industrial hazards. We should also have a definite recognized body for carrying out investigations and for keeping a watch for and protecting workers from new dangers that might arise in connection with the activities incident to the war. Tetrachlorethane poisoning became frequent in England in the early years of the war. That form of poisoning was properly investigated and eliminated by eliminating the use of tetrachlorethane. Someone should have the responsibility of keeping a watch for other instances in which hitherto unrecognized hazards might be responsible for injury to the health of the workers. There were certain features in connection with the relation of industry to health in which not only certain special groups of physicians, but the entire profession should take an interest, namely: (1) The reporting of industrial diseases, keeping before the public the relationship of industry to health, giving these subjects more attention in the medical journals, and keeping the profession informed regarding cases seen; (2) Some medical men should be made more expert in these subjects. More medical men should be trained to recognize and deal skillfully with industrial diseases; (3) There should be men trained in the supervision and examination of employees.

In closing Dr. Edsall stated that if some plan of controlling industrial health were adopted many opportunities for individual physicians to be of service would develop. Industrial medicine was a technical specialty and required just as much special training as any other branch of medicine, in order that an individual might be adequately fitted for service. Should such suggestions be carried out there would be need for a number of men who could do the work adequately, and it would then perhaps be desirable as a war measure to establish centers for intensive study of industrial health just as there had been established schools for the study of surgery of the head, for the study of the treatment of pneumonia, for the study of orthopedic surgery, and of other branches in which many men with special training were required to meet the present demand.

New Poisons in War Industries.—Dr. W. GILMAN THOMPSON spoke briefly on this subject and gave a lantern slide demonstration illustrating conditions in different industries that were responsible for disturbances of health. He stated that the cases of poisoning met with in industry were most important and exceedingly interesting both from the economic and medical point of view. They were interesting from the economic standpoint because the men suffering from these conditions were incapacitated in many instances, in some efficiency was markedly impaired, and in others the poisoning resulted fatally. From the medical side these cases were important because they showed a new and interesting combination of symptoms. For the most part these symptoms were imperfectly known; they had not been definitely delineated until they were brought to notice by the conditions incident to the war. In the investigation of the diseases due to poisoning by substances used in the manufacture of munitions the first work was done in England and in a general way these diseases were classified as follows: (1) Those caused by the inhalation of gases, the fumes of which might gain access to rooms where the men were working. In most cases of poisoning caused by these volatile gases the onset of the symptoms was acute. (2) The second group of cases were those caused by handling certain nitro and amido compounds and especially by phenol, benzol, and toluol. These substances were all very poisonous. The nitro-compounds became progressively more and more poisonous the longer the

workman was exposed to them and constituted a menace not alone to the workman employed continuously where these compounds were used, who was taught to protect himself, but to the casual worker who comes in to perform a special piece of work, as, for instance, to clean out a retort or repair steam pipes. Dr. Alice Hamilton reported two cases which she investigated where the men went in to clean a tank. The poison acted promptly, one man became delirious and in attempting to get out plugged the opening of the tank, so that the second man got no air, and both were killed in a very short time. There had been many instances reported in which a casual worker had been overcome by gas because he was unwarned and unprotected from such a serious hazard. Sometimes in the second group of cases poisoning occurred from handling phenol, benzol, or toluol. These poisons produced definite symptoms affecting the central nervous system, such as dizziness, headache, transient excitement, depression and nausea, followed by coma. In mild cases the symptoms were like those of alcoholic intoxication. In fatal cases in which death had not ensued too rapidly the viscera had been found congested; there were hemorrhages and degenerative changes in the liver. Trinitrotoluol was one of the nitrite group which produced changes in the blood, destructive changes in the epithelium, and fat embolism. It gave rise to hemorrhages and to a marked lymphocytosis as pointed out by W. G. Hudson. The changes induced by this poison were most characteristic and this was fortunate as it made it possible to detect the condition early. It was not an acute condition, but one which it took a month or two to develop to an extent to which the patient became incapacitated. There were definite changes in the hemoglobin and in the bile and the patient presented a peculiar livid yellowish color as the disease progressed. Sometimes the additional symptoms of abdominal cramps, diarrhea, or constipation were present. The patient sometimes became unsteady, staggered, became delirious, and coma set in. In some instances there was edema of the legs. It might be seen from this summary of the symptoms that the condition was a serious one, acting mainly through the central nervous system and changes in the blood. If death occurred from trinitrotoluol the changes in the liver were similar to those found in acute yellow atrophy. The method of manufacture involved the problem of working with strong acids and washing the product to render it neutral. When this substance in a pasty condition was placed in the large shells it might spill on the outside of the shells where the men who handled them would come into contact with it. Several of the pictures showed men working without respirators, gloves, or special protection for other parts of the body. It was possible to make regulations requiring workers to wear these protectors, but it was a very difficult matter to make the men pay due attention to the use of such protectors. Dr. Thompson referred to the danger of pneumoconiosis in industries in which the workers were exposed to the dust of brass or other metals. He knew of some instances, however, in which men had been exposed to this hazard for a considerable period of time and seemed to have become immune to it. The problem was to prevent the hazards of industry and nearly all of them were preventable. It was exceedingly gratifying to know that when the manufacturers had their duty pointed out to them in respect to the protection of their employees they were usually ready to cooperate. They looked to the physician, however, to tell them how to bring about the results that were desirable. The physician should point out the advantages of adequate toilet and washing facilities, lunch-rooms, etc., in connection with industrial plants. The special committee of the Council on National Defense which has this work in charge has formulated health standards for munition workers, and at a recent conference of munitions industrial leaders the manufacturers were willing to adopt them voluntarily. If the necessary protection for the workers could be obtained through voluntary cooperation it is better than to legislate, for under present circumstances industrial conditions are changing all the time and legislation that was desirable at one time might soon fail to meet requirements.

Methods of Prevention and Control.—Dr. JOSEPH W. SCHERESCHEWSKY, Assistant Surgeon General, United

States Public Health Service, read this paper. (See p. 585.)

Aid from the Medical Profession.—Dr. ALFRED STENGEL of the University of Pennsylvania, Philadelphia, read this paper. (See p. 587.)

Resolutions.—Dr. CHARLES L. DANA, in behalf of the Public Health Committee of the Academy of Medicine presented the following resolutions: "1. That the matter of the need of instruction in the recognition, treatment and prevention of occupational diseases should be brought to the attention of the authorities of the medical schools of New York City, with a request that a special course be given through at least one term, with particular reference to the numerous poisonous substances used in industry and their deleterious effects. 2. That special clinics be organized under the auspices of the medical schools in order that occupational diseases may be studied and treated under competent guidance and supervision. 3. That consideration be given to the desirability of the establishment of special clinics, under the auspices of teaching institutions and health agencies, in the neighboring towns of New York City, where large manufacturing and munition plants are located, with a view to facilitating the utilization by the men and women employed in these factories of the thus established medical opportunities. 4. That the representatives of the large hospitals and dispensaries be impressed with the importance of accurately recording the details of occupation of all patients entering the institutions, and collecting data regarding them, and the need of providing adequate facilities for their treatment. 5. That the importance of early recognition of occupational poisons be brought to the attention of medical practitioners of this city, and that they be urged to report such cases promptly to the City Department of Health in order that better follow-up supervision may be provided. 6. That the medical press be requested to give more space to the discussion of occupational diseases than they have hitherto. 7. That proper educational facilities be established by the State Industrial Commission and the New York City Department of Health in order that the large number of men and women working in hazardous trades should understand the nature of the hazards and know how to avoid them, and to seek early medical advice when the first symptoms of poisoning appear. 8. That the excellent work done by the Bureau of Occupational Diseases of the New York City Department of Health be encouraged and means provided for its extension. 9. That the manufacturers be impressed with the importance of safeguarding the health of employees through adequate medical supervision, efficient factory sanitation, and the prevention of occupational diseases. 10. That the Federal Government, in the interest of the conservation of the health and efficiency of the workers, be requested to co-operate in the effective supervision over the conditions prevailing in factories producing munitions of war and other allied products, through the corps of experts associated with the United States Public Health Service." These resolutions were referred to the Council.

SECTION ON SURGERY.

Stated Meeting Held March 1, 1918.

DR. SETH M. MILLIKEN IN THE CHAIR.

Intussusception with Resection; Recovery.—Dr. EDWARD W. PETERSON presented two cases. He stated that his reason for bringing them before the Section was because of the infrequency of recovery after resection for irreducible or gangrenous intussusception in infants and young children. In a search of the literature he had found only ten or twelve cases in which recovery had taken place in infants when bowel resection was necessary.

CASE I.—This patient was a well nourished, breast-fed infant, eight months old, of Austrian-Hebrew parentage, admitted to the Post-Graduate Hospital on May 16, 1917, with a history of having been acutely ill since the day previous with severe attacks of abdominal pain intermittent in character, persistent vomiting, and mucohemorrhagic stools (two). When seen by the speaker the patient had a temperature of 101° F.,

pulse 160, and respiration 36. Abdominal palpation revealed an indefinite abdominal tumor on the right side. On this group of symptoms and signs a diagnosis of intussusception was made. The previous history of the patient showed that for some months the child had suffered from gastrointestinal upsets, with spasms of abdominal pain, and loose, green, undigested stools, about three in twenty-four hours. When about four months old he had such an attack, with blood in the stools, which was highly suggestive of intussusception with spontaneous disinvagination. For a week previous to his admission to the hospital he had suffered from the symptoms described above. At operation a right rectus incision was made and the intussusception was found at once. Owing to the edema, reduction was difficult. It was found that the ileo-cecal valve formed the apex of the invagination. The most interesting point was that the last two inches of ileum, not involved in the invagination, contained a soft tumor mass. Believing this to be the cause of the intussusception, and wishing to determine the nature of the growth, the ileum was opened. The new growth, for such it was regarded at the time, had the appearance of a papillary angioma, being purplish in color, soft, and cauliflower-like in appearance. A resection seemed to be indicated. The lower ileum and the cecum were removed, followed by an end to end anastomosis between the ileum and ascending colon with a small Murphy button. The patient had a stormy convalescence, a rather troublesome enteritis developing, but at no time was he critically ill. The Murphy button was found in the rectum on the sixth day, and was removed under light anesthesia. The patient was discharged from the hospital on the fourteenth day. Dr. Peterson presented the specimen removed, together with the pathological report. The specimen consisted in a section of gut taken from the ileocecal valve and measuring 6 cm. in length. Just anterior to the ileocecal valve was a definitely outlined mass raised 5 cm. from the surrounding mucosa, having a corrugated area and covering an area of 6 sq. cm. It was soft in consistency. The microscopic examination showed the entire mucosa and submucosa of the gut markedly congested, edematous, and hemorrhagic along the surface. One portion of it projected outward in folds, was eroded at the surface, and consisted of large numbers of greatly hyperplastic lymph follicles with a few mucous glands intermixed. The condition appeared as if it had resulted from a previous intussusception with the consequent congestion, hemorrhage, and inflammation. It was highly probable that this portion of the mucosa had been within the ring of an intussusception and that the constriction upon it was the principal cause of the peculiar appearance of the condition in the gross.

CASE II.—Dr. Peterson stated that this patient, a boy four and one-half years of age, was seen, in consultation with Dr. Alperin and Dr. Dennett, on December 26, 1917. The previous history was unimportant. During the past three months the patient had suffered with two mild attacks of pain in the right lower abdomen. He had had measles three weeks before and was just recovering from this illness. On December 22, 1917, he was seized with severe abdominal pain, paroxysmal in character, and vomiting. During the five days of illness, before admission to the hospital, the bowels never moved satisfactorily, although some flatus was expelled when stimulating enemata was given. At no time was there any blood passed. An enema given at the hospital was returned without gas, blood, or feces. (On December 25 a prominent consultant had ruled out intestinal obstruction as a cause of the illness and had made a diagnosis of "tuberculous meningitis.") When examined by Dr. Peterson the patient's general condition did not appear critical. The abdomen was considerably distended, visible peristalsis was present, and tumefaction could be made out on the right side. A diagnosis of intestinal obstruction was made, but intussusception was not thought to be the variety of obstruction present. When the abdomen was opened, through a right rectus incision, the much distended small intestine crowded out of the wound. The cause of the bowel obstruction was found to be a double intussusception (ileo-ileocolic). A Meckels diverticulum, about 25 inches above the ileo-cecal valve, was the causative factor. It was found that the ileum was gangrenous, and rupture at several points occurred when reduction of

the invaginated small bowel was attempted. Beginning about 10 inches above the ileo-cecal valve, and going well above the diverticulum, a resection of the damaged gut was performed, followed by an end-to-end suture anastomosis. Following operation the boy was profoundly toxic for several days, with temperature 104.8° F., pulse 172, great abdominal distention, and persistent fecal vomiting. Systematic lavage of the stomach, the use of pituitrin and stimulating enemata, and the administration of fluids by proctoclysis, hypodermoclysis, and intravenous infusion finally brought the patient through the critical period, and three weeks later he was able to leave the hospital cured. In looking over the literature of intussusception in early life, Dr. Peterson stated, in addition to his own successful case of resection of a gangrenous intussusception, reported in detail in the *MEDICAL RECORD* in 1905, that he could find but one other recorded success, the operation in this instance having been performed by Dr. W. S. Schley of New York. Dr. Peterson would be glad to learn of other successful cases, if such had escaped his notice.

Dr. CHARLES E. FARR congratulated Dr. Peterson on the fortunate outcome of his cases of intussusception with resection. He said that he had never seen any cases similar to these in which recovery took place; all died.

Dr. ALEXIS V. MOSCHCOWITZ said he voiced the sentiments of Dr. Farr; in all cases similar to those reported by Dr. Peterson in which he had attempted resection the outcome had been fatal. He thought there were two reasons why these cases usually terminated fatally. In the first place, the patients usually came in very bad condition, and, in the second place, they occurred in very young children. One of Dr. Peterson's cases was four and one-half years old and in good condition to withstand the operation, and that is one reason why his patient recovered. A further point that interested him was that the boy had a temperature of 104° F. after the operation. It had been his experience that even when the operation was successful and the case had come to operation fairly early, so that the intussusception could be reduced and the abdomen closed, there would be a very marked temperature reaction to 104° or 105° F. This was probably due to some form of toxin that was liberated from the invaginated gut.

Dr. CHARLES R. L. PUTNAM cited two instances in which he had operated for intussusception in which gangrene was present and the patients recovered. One of these intussusceptions occurred in the ileocecal region and the other in the ileocolic region. In one instance the intestine was so thickened, so hemorrhagic, and so friable that the entire lumen was involved and the gut had to be resected. In these cases the toxic symptoms usually occurred within twenty-four hours after operation, but after the lumen of the intestine was opened up again they passed over.

Dr. PETERSON, in closing, emphasized the point that these two cases *did recover after a resection*, and that such an outcome was exceptional. If these cases were seen early he thought one might expect success, but in late cases, after gangrene had set in, it was most remarkable to get a recovery, as proved by the fact that there were only three cases on record. He had had a case in which he did a simple reduction of an intussusception and the patient's temperature went to 107.8° F. afterwards. There seemed in these cases to be some damage to the mucosa which resulted in the development of a biochemical toxin, causing the profound toxemia, according to Dr. Draper. Dr. Kerley said that the patients were so dehydrated and the lower gut so starved out, that it readily absorbed the toxins set free, and that this accounted for the violent rise in temperature that one saw in these cases after reduction of the invagination.

Tuberculous Glands of the Neck Treated by X-Rays.

—Dr. JAMES A. CORSCADEN presented this patient, a young woman. He stated that he was not presenting her as a case of tuberculous glands "cured by the x-ray," as he was trying to eliminate that expression from the nomenclature, but rather to call for discussion as to the value of the x-ray treatment in these cases. The history of the patient showed that her trouble began in 1911 with painful swelling in the right side of the neck. This went on for several weeks and finally

was incised. The patient then went along until the speaker first saw her, in 1917, having a continuous series of open sinuses in her neck. These had been treated by simple local cleansing and some attempt at general hygiene directed to the cure of the tuberculosis. She had twenty to thirty sinuses from 1 to 2 cm. deep, and there was more or less tuberculosis of the skin in the area involved. All who saw the patient agreed that it would be very difficult to excise all the glands that were involved; it would have required too extensive an excision of the skin and cause almost certain sloughing. The patient was then started on local x-ray treatment, after her teeth had been extracted and her head cleansed. The x-ray dosage was given on the theory of the cure of tuberculosis by the excitation of a local inflammatory reaction. The x-ray treatment was given at two or three week intervals, the amount administered being one-fourth the erythematous dose. This was kept up until July, 1917, when she was doing so well that further treatment was stopped. The last sinus healed in August, 1917. In January, 1918, the patient was seen by Dr. Hanford when there seemed to be a slight recurrence of the trouble.

Dr. Corscaden emphasized the fact that he was bringing this patient before the Section merely in order to attempt to get a true estimate of the position of the x-ray treatment of these glands. The question that now presented itself in connection with this patient was merely the academic one of whether to excise the affected glands or to apply the x-ray treatment. The antagonism that existed between surgeons and users of x-ray in the treatment of tuberculous glands was most unfortunate, and he thought it would be interesting to get the ideas of the members of the section on all the methods of treating tuberculous glands of the neck in order to properly apply each. In this instance the glands involved were all superficial cervical glands and the foci of infection that could be found had been removed from the teeth and the hair.

Dr. ROBERT T. MORRIS expressed the opinion that many more cases of tuberculous cervical glands treated by the x-ray should be reported than were being heard from. He stated that he had sent a great many cases of tuberculous cervical glands to the roentgenologists and he knew of many cases that did nicely under this treatment. He did not at the present time recall any cases in which the involvement was as extensive as in the patient presented this evening. For a number of years he had not been operating on tuberculous cervical glands unless they were broken down. He had tried many methods of treating these glands and found that with the Dollinger method of injecting iodoform emulsion, but it was a troublesome method, a number of these patients recovered. The x-ray was curative in a good many cases. Another procedure that he had employed included Bier's hyperemia principle. A hyperemia was brought about by having the patient lie with the neck against an icebag and against a hot-water bag alternately for a while every day, thus producing a hyperemia which would result in a condition inimical to tubercle bacilli. Dr. Morris emphasized the importance of eliminating any focus of infection that might be present in the tonsils or elsewhere. His experience had been such that he seldom operated on tuberculous glands of the neck now, although he once operated frequently.

He also emphasized the importance of carrying out the general treatment for tuberculosis in patients having tuberculous glands of the neck. The employment of tuberculin and of the best medical resources would often prove to be curative without any surgery at all.

Dr. EDWARD W. PETERSON said that where one had a large mass of tuberculous glands, and Hodgkin's disease and syphilis could be excluded, they should be taken out. Where such glands were broken down he thought it might be advisable to use the x-ray. He had found that many cases treated early by the x-ray did not respond to this treatment and when this happened and it became necessary to operate later on, the operation was likely to be much more difficult, because there was a fibrosis following the x-ray treatment that made dissection difficult. If there was a focus of infection in the tonsils or elsewhere, that of course should be eliminated. It was estimated that in frank tuberculosis of the cervical glands the tonsils were the seat of tuber-

culous infection in 50 per cent. of the cases, indeed one authority placed this estimate at 75 per cent. If one got these cases early and removed the tonsils either at the time the glands were removed, or else did the two-stage operation, the results were likely to be more permanent than when they were treated by the x-ray alone. Following operation Dr. Peterson advocated the use of the x-ray and tuberculin as prophylactic measures against recurrence.

Dr. CHARLES E. FARR asked how any one of those present would feel if he had tuberculous glands of the neck, whether he would be willing to delay while x-ray treatment was given if he knew the glands could easily be removed by operation.

Dr. CHARLES R. L. PUTNAM said he would not feel like submitting to an operation for tuberculous glands of the neck—that he felt very much as Dr. Morris did on the subject. He would have the foci of infection removed, would employ the general hygienic treatment for tuberculosis, and would use tuberculin. It was true that if there were broken down glands it might be well to excise them. He would try to protect the patient from further dissemination of the infection and then treat him for one or two years with tuberculin. He had employed this procedure over and over again with success even in patients in whom the glands were red and broken down and the patients had been able to go about their usual occupation during the time they were under treatment, and they got well.

Dr. ALEXIS V. MOSCHCOWITZ said the situation in regard to the treatment of tuberculous glands of the neck was somewhat confused. In the literature it was stated that the proper treatment, if not the only one, for this condition at the present time was the x-ray. He had given the subject a very careful tryout, and had mapped out the following routine at Mt. Sinai Hospital, where all cases of this nature were admitted to his service. The first thing he did with these patients was to examine the teeth, tonsils, and adenoids, and as a result of this examination they had found that in cases in which the glands were involved on one side only, the teeth or tonsils on that same side would harbor the focus of infection. In cases in which there was a bilateral involvement of the cervical glands, it was found that the adenoids were the focus of infection, as practically only in this way could a bilateral infection be accounted for. Also at the time of admission the physician in charge of the x-ray therapeutic department, Dr. Stern, was notified, and if he thought they were suitable cases for x-ray treatment, they were turned over to him for that treatment. Dr. Moschcowitz had agreed to operate on some cases which were pronounced as cured, but he still found a large amount of tuberculous material present. In addition Dr. Moschcowitz also found that the operation was decidedly more difficult on account of the fibrosis induced by the x-ray. In answer to Dr. Farr's question Dr. Moschcowitz would say that if he had tuberculous glands he would prefer to have them excised.

Dr. ELLIS BONIME referred to his experience in the treatment of tuberculosis by tuberculin, and expressed the opinion that this was the ideal treatment for tuberculous glands, especially in children. A course of tuberculin was the first treatment indicated. Some of the glands treated in this way healed by cicatrization and so shrunk and only partially disappeared, offering an ideal condition for removal. The cases suitable for surgery were those in which a tumor had been left after treatment with tuberculin. On the other hand the vast majority of tuberculous glands disappeared during the course of the tuberculin treatment. A large percentage of cases recurred after surgical operations of the most radical nature and after repeated operations either on the same area or over new areas, only to find the infection spread to the mediastinal glands. The tuberculin, on the other hand, exerted its influence on every nidus of infection.

Dr. ISAAC LEVIN stated that he had had some experience with tuberculous cervical glands in the course of thirty years of practice. Some years ago we did not know as much about the portal of entry of the tubercle bacilli as we did now and we saw many more of these cases of tuberculous glands than we did to-day. He had seen many cases both in his former home in Petrograd and in this country, the condition being very common

both among the Italians and the Jewish population on both sides of the Atlantic. Formerly tuberculous glands of the neck were considered purely a surgical condition, but it was well known that operation was followed by many recurrences. Surgery was not such a panacea that it was unnecessary to look for any other method of treatment for tuberculous glands. The x-ray cured tuberculous glands just as it cured cancer by diminishing the size of the foci, but it left a nidus of either cancer or tuberculosis surrounded by good stroma and new connective tissue, thus encapsulating the focus where it might be left alone or operated upon. Operation opened up the lymph channels allowing the infection to spread, while a small area of tuberculosis encapsulated in the lungs or elsewhere might remain for years without causing trouble, and the patient presented practically a clinical cure. In the speaker's opinion it was a perfectly correct policy to treat tuberculous glands of the neck by radiation which would diminish their size until they became merely shot-like nodes. Such nodes it was better to leave severely alone without operation. It was true that there were cases which were not cured by radiation and there might be a little central abscess following for which surgery was a perfectly correct treatment. Where there was a central focus one might begin with radiation first, and if that did not effect a cure one might then resort to operation.

Dr. CORSCADEN, in closing the discussion, emphasized that he had merely shown the case to obtain an expression of opinion. As yet we did not know the letters of the alphabet so far as x-ray treatment was concerned. We were dealing with an agent the fundamentals of whose action rested in the realm of physical chemistry, we knew little about its physics and less about its chemistry. For that reason he would hesitate to express a final judgment. He hoped that the discussion would stimulate them to study the subject more carefully so that they might reach some decision as to which of the many ways of treating tuberculous cervical glands was of the greatest value. The excision of tuberculous glands was not a cure; it was simply removing that part of the body in which the disease happened to lie. In the use of the x-ray in the treatment of tuberculous glands one was following along the lines found effective in the cure of tuberculosis by other methods by exciting inflammation about the focus or by passive congestion and fibrous tissue formation. A complete series of blood counts was not made in this case, but counts were made covering several days after some of the exposures and during that time there was no change in the blood count. The form of x-ray treatment to which Dr. Levin referred would be 100 to 150 times as severe as that administered to this girl; she had only one-fourth the erythematous dose at long intervals for six months. There was no scar tissue formed by a dose of that strength; the x-ray in the amount given simply stimulated the surrounding tissue to resistance. The Wassermann test was given and was negative in this case.

Surgery in Associated Stigmata of Decline.—Dr. ROBERT T. MORRIS delivered this address. (See p. 589.)

Dr. MOSCHCOWITZ agreed with Dr. Morris that there was a class of patients who presented these various stigmata and who were the bane of the surgeon. Surgery never cured them, but they sought relief and the surgeon lacked the courage to refuse to make an effort to help them even though he felt that it would be futile.

Stereoscopic Radiographs of the Pelvic Blood-Vessels.—Dr. HENRY DAWSON FURNISS presented stereoscopic radiographs illustrating a study undertaken to show: (1) the degree of anemia that could be produced by the ligation of certain vessels or groups of vessels, (2) the most effective methods of producing anemia for surgical operations; (3) the minimal amount of blood supply compatible with adequate tissue nutrition. The study was conducted by injecting into the arterial system a mixture of red lead and alcohol, after the ligation of certain vessels; after the removal of certain ligatures further injections were made and other radiographs taken. This was continued until all the ligatures were removed. The results of the study demonstrated: 1. That with ligation of the common iliacs and the ovarian arteries, the only vessel filled in the pelvis was the superior mesenteric. 2. Release

of the ligature on the external iliac made little or no difference in the filling of the pelvic vessels. 3. The internal iliacs could be filled through only one ovarian and the ovarian through only one internal iliac. 4. No experiment was made with the ovarian and iliac tied, but this would be done in subsequent studies to determine if any of the pelvic vessels could thus be filled.

Improvisation of Hospital Apparatus.—Captain JOHN C. A. GERSTER, M.R.C., sent illustrations and a brief description of improvised hospital apparatus, which were presented by Dr. Milliken. Among the articles was a dressing cart, a food car, a wheel stretcher, an apparatus for elevating the front or back castors of a bed, etc. They were all constructed of wood and could be made in camp at a nominal cost, thus saving space in the shipping and the cost of labor.

PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting Held February 27, 1918.

A Case of Congenital Syringomyelia (?)—Dr. MILTON K. MEYERS presented this patient, a girl, 18 years old, who had diminutive hands and forearms, with muscular weakness and want of muscular control in the upper extremities, together with absence of tactile, painful and thermal sensibility in the hands and in parts of the trunk corresponding to the distribution of the fourth and ninth dorsal nerves. While the patient had little of the ordinary use of the upper extremities she could write well and she had advanced to the second year of the high school. The reflexes in the lower extremity were preserved, but not increased. Labor had been prolonged, delivery was instrumental and the child appeared asphyxiated at birth and was with difficulty resuscitated. The conditions noted had been observed from earliest infancy.

Left-Sided Paralysis of the Extraocular and Intraocular Muscles, with Atrophy of the Left Optic Nerve.—Dr. FRANCIS X. DERCUM presented this patient. The case occurred in a married woman, 35 years old, who, following an attack of influenza, had occasional pain in the face and headache, with ptosis and immobility and some protrusion of the left eye and loss of vision on the same side. The Wassermann reaction was negative, and x-ray examination failed to disclose a lesion, as did also careful intranasal study. Slight improvement followed ascending doses of potassium iodide. The condition was thought possibly due to a retrobulbar lesion, although the long duration of the symptoms was difficult to explain. The possibility of thrombosis of the cavernous sinus also was considered.

Dr. JAMES HENDRIE LLOYD presented the brain obtained from the body of a patient who had been presented at an earlier meeting as one of sensory aphasia of traumatic origin. The patient was a man who was reported to have been run down on the street by a motor truck, suffering in consequence an injury over the left brow, and in whom x-ray examination disclosed the presence of a fracture of the basilar plate of the frontal bone on the same side. The man appeared to be word-deaf and word-blind, and he exhibited agraphia, astereognosis and right lateral hemianopsia. There was no motor aphasia, but an improper use of words, a form of paraphasia. At the outset there was no hemiplegia, but in the course of the disease right-sided motor weakness developed, while, later, stupor set in, and death took place. At post-mortem examination a new-growth, exhibiting the histologic characters of an endothelioma, was found in the white matter of the occipital lobe, and in the frontal lobe a second lesion suggestive of hemorrhagic softening. It seemed likely that the patient, seeing badly as a result of his hemianopsia from the new-growth in the occipital lobe, had been struck by the motor truck, the results of the injury thus produced consisting in the fracture at the base of the skull and the lesion in the frontal lobe.

Ocular Palsies of Apoplectiform Nature During an Attack of Severe Coughing.—Dr. ALFRED GORDON presented this case. The patient was a child about five years old, who at the age of three months, following a violent paroxysm of coughing, in an attack said to be bronchitis, developed paralysis of both external ocular recti muscles and of the left internal rectus. The eyes were crossed and there were also nystagmiform move-

ments. Although the Wassermann reaction was negative, improvement followed on administration of potassium iodid and went on to almost complete disappearance of the abnormal manifestations. It was supposed that as a result of the violence of the cough during an illness that might have been whooping-cough hemorrhage took place in the brain, perhaps in the region of the corpora quadrigemina.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

POCKET FORMULARY. By E. QUIN THORNTON. 292 pages. Price, \$2.00. Published by Lea & Febiger, 706 Sansom Street, Philadelphia.

LECTURES ON MEDICINE. A Handbook for Nurses. By CHALMERS WATSON, M.D., F.R.C.P.E. 295 pages. Price, \$1.75. Published by William Wood & Company, New York, 1918.

MAN AND WOMAN. By HAVELOCK ELLIS. 563 pages. Illustrated. Price, \$7.77. Published by the Walter Scott Publishing Company, Ltd., London, E.C., and Charles Scribner's Sons, New York.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL AND CLINICAL ASSOCIATION FOR THE YEAR 1917. Volume XXXIII. 212 pages. Illustrated. Published by the New Era Printing Company, Lancaster, Pa.

DIABETIC COOKERY RECIPES AND MENUS. By REBECCA W. OPPENHEIMER. 156 pages. Price, \$2.00. Published by E. P. Dutton & Company, 681 Fifth Avenue, New York.

STATE OF NEW YORK, STATE HOSPITAL COMMISSION, TWENTY-EIGHTH ANNUAL REPORT, October 1, 1915, to June 30, 1916. 593 pages. Published by J. B. Lyon Company, Printers, Albany.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. Edited by JOHN F. BINNIE, M.D. Volume XXXV. 616 pages. Published by William J. Dornan, Philadelphia.

THE TREATMENT OF SYPHILIS. By L. W. HARRISON, D.S.O. 74 pages. Price, \$1.00. Published by Oxford University Press, American Branch, New York.

DETAILS OF MILITARY MEDICAL ADMINISTRATION. By JOSEPH H. FORD, B.S., A.M., M.D. 741 pages. Illustrated. Price, \$5.00 net. Published by P. Blakiston's Son & Co., Philadelphia.

PRINCIPLES OF DIAGNOSIS AND TREATMENT IN HEART AFFECTIONS. By Sir JAMES MACKENZIE, M.D., F.R.C.P. 264 pages. Price, \$2.50. Published by the Oxford University Press, American Branch, New York.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Edited by OSCAR M. SCHLOSS, M.D. Volume XXIX. 255 pages. Illustrated. Published by Howard Childs Carpenter, M.D., Philadelphia, Pa.

THE A-B-C OF SANITARY HOUSE DRAINAGE. By Dr. WM. PAUL GERHARD. 19 pages. Illustrated. Price, 20 cents. Published by the Baker & Taylor Company, New York City.

THE DIAGNOSIS AND TREATMENT OF HEART DISEASE. By E. M. BROCKBANK, M.D. 147 pages. Illustrated. Price, \$1.50. Published by Paul B. Hoeber, New York.

ELECTRO-THERAPY IN GYNAECOLOGY. By SAMUEL SLOAN, M.D. 298 pages. Illustrated. Price, \$4.00. Published by Paul B. Hoeber, New York.

A MANUAL OF CLINICAL DIAGNOSIS. By CHAS. E. SIMON, B.A., M.D. 851 pages. Illustrated. Price, \$6.00. Published by Lea & Febiger, Philadelphia and New York.

LEÇONS PRATIQUES D'ALIMENTATION RAISONNÉE. Par ARMOND HEMMERDINGER. 130 pages. Price, 1 fr. 25. Published by Masson et Cie., Paris.

LES BLESSURES DU CERVEAU. Par CHARLES CHATELIN. 200 pages. Illustrated. Price, 4 fr. Published by Masson et Cie., Paris.

PREMIÈRES HEURES DU BLESSÉ DE GUERRE. Par P. BERTIN et A. NIMIER. 144 pages. Illustrated. Price, 4 fr. Published by Masson et Cie., Paris.

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THE RELATION OF DRESS TO HEALTH, WITH SPECIAL REFERENCE TO THE ARMY UNIFORMS.

BY WALTER B. JAMES, M.D.,

NEW YORK.

THERE has been so much discussion and criticism of the various modern army uniforms that the writer is led to offer the present very modest contribution to the subject of dress, solely from the point of view of the physician, and from the belief that the importance of dress in its relation to health has never been fully appreciated either by the general public or by the medical profession.

We seem to be approaching, or even to have reached, a period when the conventions and traditions that have held us in so firm a grasp are being broken through; and when freedom of thought and freedom of speech, and common sense, and, above all, science, which after all is only knowledge, are more and more determining men's actions.

It is only a little while ago and within the recollection of most of us that a woman who appeared in trousers was liable to arrest, and even the modest bloomer attracted a hooting crowd. Today, in Europe, women, when it suits the requirements of their labor, wear the garb of men without attracting the slightest notice.

If the conventions of dress are to be broken down, and especially the conventions of military dress, it is wise that men should be guided by all the experience of the past as well as everything that modern science can teach. The book of clinical or practical experience is one of the hardest of all to read, and can be read correctly only when it is seen from many different angles, and the following few practical observations are presented, hoping that they may throw a little light on some of the phases of this difficult subject.

In his interesting and valuable book, "Civilization and Climate," Ellsworth Huntington proves that the general impression that people who live in so-called "even climates" are inefficient is justified by the facts, and by a long series of studies in anthropology he demonstrates that the effectiveness and general productiveness of a race is proportionate to the storminess of the climate in which it dwells.

The writer ventures to suggest the following physiological explanation of this fact:

The blood may be regarded as the immediate source from which comes the body's energy. In other words, it contains the fuel supply. The vasomotor nervous system, with its universally extending nerve fibers regulating the caliber of every

artery in the body and controlled from a central point, may be thought of as the operating department which determines the amount of blood that shall be in any organ or structure at any given time, so that it corresponds very closely to the operating department of any manufacturing or transportation system in commercial life.

The blood contains not only all the sources of energy, but also all of those agents by means of which the body combats the infections which produce so many of its diseases. Thus, both for the greatest energy and effectiveness of any organ, as well as for its successful resistance to disease, it is necessary that this operating department be maintained at its maximum of vigor and efficiency.

Changes of atmospheric temperature are met by corresponding alterations in the distribution of blood in the body, so that there shall always be a state of balance between each part of the body and the air which is in contact with it, and this is brought about and controlled solely by the vasomotor system. Just as an army can be kept efficient only by constant and continued drilling, and just as ocean travel can be kept safe only by the faithful performance of boat and fire drills, exercises that must be carried out almost daily during periods of great danger, so the human vasomotor system can be kept quickly and accurately responsive to call only by constant exercise and training.

The importance of congestion as preceding or forming the first stage of inflammation has long been recognized. It is at least possible, and indeed it seems likely, that congestion of a structure, a mucus membrane for instance, may render it susceptible to an attack of microorganisms previously existing there but unable to produce an inflammation as long as the circulation was normal.

Many years ago it was proved that a healthy peritoneum withstood an injection of bacteria which in the presence of a previously inflicted injury resulted in active peritonitis.

It seems fair to assume that with sudden atmospheric changes, and with the accompanying rapid changes in the distribution of the blood, it is the vasomotor system that must be relied upon chiefly to prevent local congestions.

It is by exposure of the surface of the body to changes of temperature that this vasomotor system can best be exercised, and this probably is the explanation of the value of hydrotherapeutics, especially the use of the Scotch douche, or rapidly alternating jets of hot and cold water to the spine. It is also probable that it is at least in part the reason for the usefulness of the so-called "sun cure" for tuberculosis at Leysin, for the Kneipp cure with its barefoot walking in the wet grass, and putting on thin linen underwear after a cold bath, without drying the body, for the open-air

treatment of tuberculosis, for the value of wet packs, and for the general invigorating effects of the cold bath.

Man had his origin in an environment that subjected him to frequent, rapid, and extreme changes from heat to cold, and from dryness to dampness; and from a study of his anatomy and physiology as well as from the teaching of the Law of Weismann, we know that we modern men are equipped with the same body device as were our Cromagnon progenitors. Weismann's Law is to the effect that acquired characters are not transmitted and its corollary is equally true, that unused or abused characters are not lost, so that we may think of all congenital characteristics, whether good or bad, as being entailed, and, as far as the race is concerned, as being permanent.

This explains why Helen Keller, the deaf and blind mute, was able to distinguish the colors of flowers by touch and why certain individuals when called upon in the course of their daily needs, discover rather than develop a sense of touch, of smell, or of taste rivaling that of the keenest scented animals.

Modern man is rarely if ever called upon for his protection to use a delicate sense of smell or of hearing, or even fleetness of foot, so that the failure to keep these in a state of training for immediate use is fraught with little if any danger. It is quite different, however, when we consider the protection from sudden temperature change through the operation of the vasomotor system, for while we can, as a rule, avoid such changes by artificial means, by clothing, and heated houses, for instance, yet a sudden alteration in environment nevertheless will occasionally occur, and then it finds nature's protecting apparatus napping.

A somewhat similar condition exists in food and diet. Modern methods of preparing and serving food secure the elimination of as much as possible of the rough and indigestible elements, as in the case of fine white flour, purees, creaming of spinach, and removing the skins of vegetables and fruits.

But the digestive organs of the man of today are the same as those of the cave man, and to preserve good digestion and good health insoluble materials are artificially added to the food, and the numerous advertisements of bran foods and other similar articles testify to the almost universally felt though not understood instinct to return towards the culinary conditions of our remote ancestors.

There is some reason for believing that the refinement of modern so-called civilized dress having its origin in tailors has somewhat the same bearing upon catching cold and other respiratory diseases that modern methods of preparing food and originating with cooks have upon the so-prevalent indigestion and constipation.

By living in an even climate, by living in overheated houses protected from drafts or temperature variations, and by protecting the skin from the air by close-fitting garments, one secures a maximum of sluggishness and inefficiency on the part of the vasomotor system and hence inefficiency on the part of the circulation generally.

Herein lie the dangers of the prevailing custom of overheated American homes, to which is added the peril of the various mechanical devices to se-

cure an unvarying temperature within doors. Nowhere is this better shown than in the prevailing overheating of railroad cars, especially Pullman cars and dining cars, where the regulation of ventilation and temperature is left to one whose origin in the Dark Continent renders him especially unfit to decide such questions for Caucasians. It is interesting to note that Ellsworth Huntington discovered that the efficiency of piece workers in factories in Bridgeport as measured by their output was directly proportionate to the violence of the temperature changes to which they were subjected. Benjamin Franklin ascribed much of his vigor to the air bath which he was in the habit of taking as part of his toilet.

There is little doubt, so far as health and body vigor go, and leaving all other considerations out of account, that the best modern costume for men ever designed by a civilized people is the Highlander's kilt, with its bare knees and thin trews.

It is a familiar observation in almost every family that most of the colds occur among the male members. There are few families in which the father has not preached into unwilling and entirely unresponsive ears that women by their so-called "irrational" methods of dress were risking their health and lives.

Women's dress takes no note of season, time of the day, or climate.

The question whether thin slippers or high boots, thick stockings or openwork, a cloth or a chiffon dress, high neck with a feather boa and close fit wrists or low neck and bare arms, fur or cloth hat or bareheaded; all of these questions are decided solely by the occasion and never by the season or the weather. The fact is, it is a familiar observation that women are superior to weather, while men are its slaves.

In spite of the claimed absurdness of women's dress, colds and catarrhs are for the most part maladies of the other sex, and pneumonia and bronchitis are certainly no less common, and indeed are probably more common, in men than in women; that in every family it is the men and not the women who make whatever disagreeable throat and nose noises are heard about the house; and that the cuspidor is masculine and not feminine. It is only necessary to note the size and character of the woman's pocket handkerchief, as compared with the man's, and the woman's scanty need of it, except as a trinket, as compared with her husband's slavish dependence upon it, to convince one that as far as the upper respiratory tract goes the so-called irrational dress of women has few if any apologies to make.

The present fashion of abbreviated skirts has been attended with no increase in throat maladies among its devotees, and there is good reason to believe that as the daytime dress of the sex approaches more and more closely to that of the Scotch Highlanders so will they in their bodily vigor and resistance to the weather approach more and more closely to that most hearty and vigorous of all people. Indeed, on the ground both of practical experience and the teachings of physiology it is to be hoped that as women come to take over more and more of the activities that man has heretofore monopolized they will not slavishly adopt his entirely irrational costume, but will, if they find it

necessary to make a change, adopt one devised on the ground of modern science and not selected for them by dressmakers and tailors, and that they will secure at least as free an exposure of the skin to the air as they are enjoying at present.

So irrational are the dictates of convention that the writer has heard on the tennis court objections raised to a male player's opening the first button or two of his silk shirt on the score of indecency by women who a few hours later after nightfall would appear in dress that left but little of the trunk unseen, so illogical are the dictates that have determined our dress, and in spite of the fact that there is so close a relation between dress and body health.

It is by no means a rationally thought out desire for health that determines women's dress, but purely a desire for admiration.

"Give unto me strange beauty, cried the young maid,

"More fair than all to be,

"So I anoint my body and go forth

"To draw men's souls to me."

It is chance, therefore, that has given to modern women the healthiest of all costumes, and it is to be hoped that apish imitation of men will not lead the other sex to adopt their irrational and unhygienic mode of dress.

There can be no doubt that a considerable part in the improvement in infant mortality statistics in modern times has come from more rational views of infant dress. The change from the swaddling clothes of a century or more ago to today's pleasing picture of the infant from birth on kicking its bare feet and legs free in the air has had great value in increased bodily vigor and resistance to disease in early life.

The father of Edward Gibbons, the historian, found it necessary to give to each one of five successive sons born to him the name of Edward in order to secure the transmission of that family patronymic, and Anne, Queen of England, was unable to leave an heir to the throne although she had given birth to either eighteen or nineteen children.

The fact that all insurance companies regard the expectation of life, after the age of 50, as better in women than in men, and that they base their rates upon this, would not encourage the view that women's dress was less hygienic than men's.

Only slavish subservience to the dictates of an entirely uninformed and unthinking group of tradesmen in whose hands rests the absolute decision of what men and women shall wear, brings it about that upon reaching a certain age we males must return towards the swaddling clothes of an earlier period while our sisters are permitted to go on for the rest of their lives with rational bodily covering.

The importance of the relation of the skin to the surrounding air is borne out by what we have learned in recent years of the principles of ventilation. We now know that the lassitude, headache, and depression that result from being in a poorly ventilated room are caused, not by breathing poisoned air, but through the influence of such an atmosphere upon the surface of the body. The principal factors that make for good ventilation are dryness, motion, and coolness of the atmosphere, while it is stillness, moisture, and heat exerted upon

the skin that produce the above uncomfortable symptoms. These same elements are probably those that are most effective in climate, together with variations of temperature.

But nowhere is the irrational in dress more striking than in military life. In private life, excepting for fashion and modern police requirements, every man is at liberty to dress as he wishes. In the army his dress is determined for him without any choice on his part. It might therefore be thought that here a broad view would be taken of the matter and the plain teachings of practical experience as well as the dictates of modern science would be given consideration. Such, however, as far as the civilian observer can see has not been the case. Military tradition and a desire to look different from other armies seem to have been the determining factors.

The chief points in the army uniform that seem not to be in accord with the principles before demonstrated and which prevent free contact between the skin and the air, which is necessary for health, resistance to disease, and for efficiency, are the closefitting woolen and often padded coat which must always be kept closely buttoned; the high closefitting collar; the woolen puttees resembling the bands in which the legs of infants were swaddled in a former and more barbaric age; and the regulation which necessitates the constant wearing of the hat or cap when out of doors. The modern soldier is almost hermetically sealed from the soles of his feet to his chin.

It is a question whether the raggedness and unkemptness of Washington's heroic little army during that melancholy winter at Valley Forge was not a better preparation for the spring encounter with an enemy more numerous and better equipped than themselves than would have been a cosy winter in a steam heated cantonment clad in the swaddling clothes of the modern fighting man.

From the point of view of modern science the clothing of the navy is far more rational than is that of the army, at least as far as the man of the line is concerned. It would be interesting to know whether the health of the former is less good than that of the army. The open front blouse and the bell-bottom trousers flapping in the wind secure at least a moderate exposure of some part of the body.

These thoughts suggest the old familiar and probably apocryphal reply of the Indian to the white man, that he did not catch cold in his nakedness because "Indian was all face."

An infectious disease requires for its development two elements, first the infecting agent and second a suitable soil, that is, a body or an organ with inadequate resistance. Is it not possible that in the endeavor to discover the origin of the numerous cases of pneumonia and other respiratory diseases that have occurred in the various army cantonments during the past winter too much attention has been paid to the infecting agents and too little heed has been given to the more common and obvious feature of the resisting powers of the men?

We have taken thousands of young men from civil costume and have swathed their limbs in puttees, clothed their bodies in closefitting woolen jackets, close buttoned to the chin, and so, changed completely the relation of their skin to the outside

air. In this respect we have made their dress differ even more than in civil life from the dress of woman.

We have put them into garments from which any doctor with wide experience and common sense would remove a young person as the very first step towards overcoming a tendency to catch cold.

Benjamin Franklin knew the value of a cold air bath night and morning, and the boys of our schools and colleges all know the delights and the health inspiration that come of going bareheaded and scantily clad in the coldest winter weather.

The Romans put their fighting men into a short tunic with bare legs, and this, although their operations were carried on in Spain, Germany, and Britain, and during centuries when, as shown both by physiography and geology the climate of southern Europe was a far stormier and more rugged one than at present.

The writer fully realizes that there are other and more important considerations that must be heeded in the army besides health, but he feels that the selection of the uniform has generally been made without a broad study of all the points bearing upon it, and the present modest contribution to the study of dress is offered only in the hope that it may direct attention to one of the little things that make for the health, comfort and efficiency of our soldiery.

7 EAST 70TH STREET.

THE TERATOLOGICAL COLLECTION OF THE ARMY MEDICAL MUSEUM *

By R. W. SHUFELDT, C.M.Z.S.,

MAJOR, MEDICAL CORPS, U. S. ARMY.

WASHINGTON, D. C.

CONSIDERING the little practical value that a knowledge of teratology has for the surgeon or the physician, it is certainly very remarkable what an enormous literature there is upon the subject, including its more or less nearly related branches. This applies to the medical and surgical literature of all nations; and the reason that it is so, seems to be based on the fact, that those of the profession, of every country, possess the trait common to all writers—the unquenchable desire to dwell upon and describe the unusual and the marvelous in nature.

As far back as we may delve into medical literature, we meet with an endless array of titles in our library catalogues of books, papers, and monographs devoted to descriptions of the various forms of monsters, and to the supposed causes of the monstrosities they present. Then, too, not only are these abnormalities to be met with in our own species; they occur in the case of all organic forms, as well as throughout the vegetable world. In the case of the latter, examples may be seen in flowers, leaves, seeds, and seed-pods, and similar structures, and frequently these are very remarkable. As in the vertebrate series, plants present deformities having the nature of suppression of parts, as well as of distortion and duplication. The malformations of plants, however, and the various causes producing them, form a very large subject—one not to be touched upon in the

present article. This applies, too, to such cases of teratology as have been discovered among the invertebrata—for instance among mollusks, insects, crustaceans, spiders, and other groups. As an example among thousands of others, the double claws of lobsters and crabs may be mentioned.

In so far as the Vertebrata are concerned, teratological deformities are of many kinds. Notwithstanding this, it would seem that, up to the present time, a fitting descriptive term has been given to each and all of them. Where the vice of conformation is very marked, exhibiting deformities of an extraordinary nature, the individual has, in the vernacular, been designated a "monster." Thus teratology is a science that takes into consideration the study of monsters and the causes leading to their production. In the opinion of some, the field, thus limited, would not include such departures from the normal as we find in hermaphroditism, for example, or in polydactylism; it is claimed that individuals presenting such peculiarities are not "monsters." In the main, however, it would seem to be more practical and less confusing to include, within the sphere of description of monstrosities,



FIG. 1. *Thoracopagus parasiticus* (Path. series, No. 8894). Female; 5 months old. Cast.

all forms of life, whether animal or vegetable, and to have the term teratology designate the science as a whole.

Several theories have been advanced to explain how these departures from the normal forms are produced—that is, what causes them. Perhaps of all these theories, the most widely accepted is, that each and any one of them has come about through some accidental change, which change has affected the fetus, with greater or less profundity, at some time during its existence *in utero*. There are still a few who entertain the opinion that, prior to birth, vertebrate animals—the human fetus included—are the victims of mental shocks of various kinds, shocks which are primarily received by the mother during the period of gestation, and which produce the several kinds of malformations we find in the young at birth. Classed among such disturbances of the mind of the mother, we find perversions of the imagination; frights of various kinds and degree; profound sexual excitation, and the like. Many interesting instances might be cited, apparently sustaining such a theory. Finally, the opinion has been advanced that all such monstrosities,

*Read at a meeting of the Biological Society of Washington, Jan. 26, 1918.

in so far as the vertebrata are concerned, are due to some primitive defect in the germ or ovum. Researchers in this difficult field of enquiry meet with no end of perplexing questions, in the matter of correctly demonstrating exactly the mode of action



FIG. 2. Thoracopagus. Lamb; male. (Path. series, No. 12965.)

of the aforesaid "accidental changes"; the nature of the "primitive defects," and the maternal mental disturbances.

Finding it difficult to attribute polydactylism—or the presence of supernumerary fingers or toes, or both—to any of the above causes, it has been held, and is still so held by many, that such abnormalities are primarily due to an excess of formative action in the parts so affected; but why such an excess takes place, in any individual case, is an extremely difficult question to answer.

Such deviations from the normal are now classified under the term *diplogenesi*s,—that is, where there happens to be a duplication of parts, or, in extreme cases, of entire individuals, the latter being classed under "double monsters" of the Siamese twins variety. These are explained through the theory of fusion—that is, two duly impregnated germs have become fused. As development proceeds, it results in one of the many forms described and referred to the diplogenic group of monsters.

As to the terminology used in the description of the various so-called monsters or other teratological types, it has become quite extensive; only such parts of it as are required in describing the specimens in hand will be employed or defined here.

With these few prefatory remarks, we may proceed to notice such teratological specimens as now form the collection of material of that class in the Army Medical Museum of this city. Many years have passed since the initial specimens of this collection were first placed in the exhibition cases in the old Ford's Theatre building on Tenth Street—a structure long known after the War of the Rebellion as the Army Medical Museum, and which, during that time, harbored the priceless medical library of the Surgeon General's Office. When the present Army Medical Museum was completed and ready for occupation, the museum and library was moved into it, the specimens constituting the former being cased and otherwise placed on exhibition in the hall designed for that purpose. In passing, it may be said, that this exhibition hall, and one or

two other small exhibition-rooms in the building, have, years ago, been stocked with the material constituting the collections of this institution to their utmost capacity, so that a more or less static condition of affairs has prevailed there for nearly a quarter of a century,' during which period hardly any material of a teratological nature has enhanced that section of the museum. Up to within a few years, little or nothing had been published about the specimens here to be noticed, when Dr. D. S. Lamb gave us his excellent brochure on the subject, with its illustrations.' As that appeared only five or six years ago, it is not likely that any startling additions have been made since its publication. In one of its leading paragraphs it is stated that the purpose of the contribution is to "present for consideration a summary of the malformations assembled in the Army Medical Museum. It will be interesting to know that there is so large a collection of malformations in a museum in this city,



FIG. 3. Dicephalus dibrachius. Male fetus. (Path. series, No. 14621.)

nearly 400 specimens, and that about one-third of these have been contributed by members of the Medical Society of the District of Columbia. These specimens, taken together, include nearly all possible forms. They are arranged according to the

well recognized classification of Foerster, as partly modified by Hirst and Piersol" (p. 35).

It would appear that there are no examples of *Situs transversus* in this collection, nor one of true human *hermaphroditism*—a condition that Doctor



FIG. 4. Hydrocephalus in a calf. (Path. series, No. 9923.) Cow died during parturition.

Lamb seems to question. A year after his paper appeared, however, such a case came to light, and an account of it was duly published.³ Partial *hermaphroditism*, however, has been met with in the vertebrata below man, and one such case at least is to be found in this collection. This is of a ten-months-old pig, wherein the external genitalia are female, all but the testes, which latter are present. The vagina and uterus are absent.⁴ We also find in this collection valuable and interesting specimens, in fine state of preservation, of *phocomelus*, of *sympodia*, *sirenomelus*, *celosoma*, *craniorachischisis*; and, in the case of the last malformation, we find specimens of *anencephalusism*, *pseudencephalusism*, and *exencephalusism*—that is, cases wherein the skull alone is involved in the deformity, the spinal cord and spine being normal. With respect to the specimen here shown in Fig. 7, both



FIG. 5. Hydrocephalus in an infant. (Path. series, No. 14481.) Skull, right lateral view.

skull and spine were involved. In other words, this fetus was not only *anencephalic*, but in addition presented a marked case of *spina bifida*. The physiognomy has a peculiar simian aspect about it—in so far as the skull bears it out. This malformation

is occasionally met with among vertebrates far down in the scale; this is exemplified in the case of an iguana in the museum's collection. Occasionally an adult may be normal in all respects, and a single azygos organ bifid. Possibly there may be such examples in the collection now being described.⁵

With respect to specimens exhibiting *hydrocephalus* in its various forms and at different times of life, from the earliest recognizable stages of fetal existence to individuals past middle life, there is to be found in this collection a very valuable series of specimens of our own species as well as of animals lower in the scale, especially of calves (*Bos*) of the



FIG. 6. Fetus at term. (Path. series, No. 9066.) Celosoma, hydrocephalus, agnathus, perobranchius, club-foot, displaced and adherent ribs; also thoracic-abdominal eventration. Lived a few seconds.

domestic cow. Some of these examples are very remarkable, and their histories, so far as known, quite unique (Figs. 4 and 5). In the case of the calf here shown, the cow died during parturition,* and

*This seems to be the usual outcome among domesticated cattle. Many years ago, while out hunting on the plains of Wyoming, near Fort Laramie, I came across a cow in labor. Examination disclosed the fact that the calf had a double head, and all my attempts at delivery failed. There is every reason to believe that the animal died that night, and I was not able to return to the place until three days thereafter. The wolves and coyotes had done their work, and the double head that I very much desired to secure was gone.

this may be the unhappy ending in mothers of our own kind.

We also have in this collection instructive examples of *meningocoele*, *meningo-encephalocoele*, and *hydroencephalocoele*, which are conditions generally con-

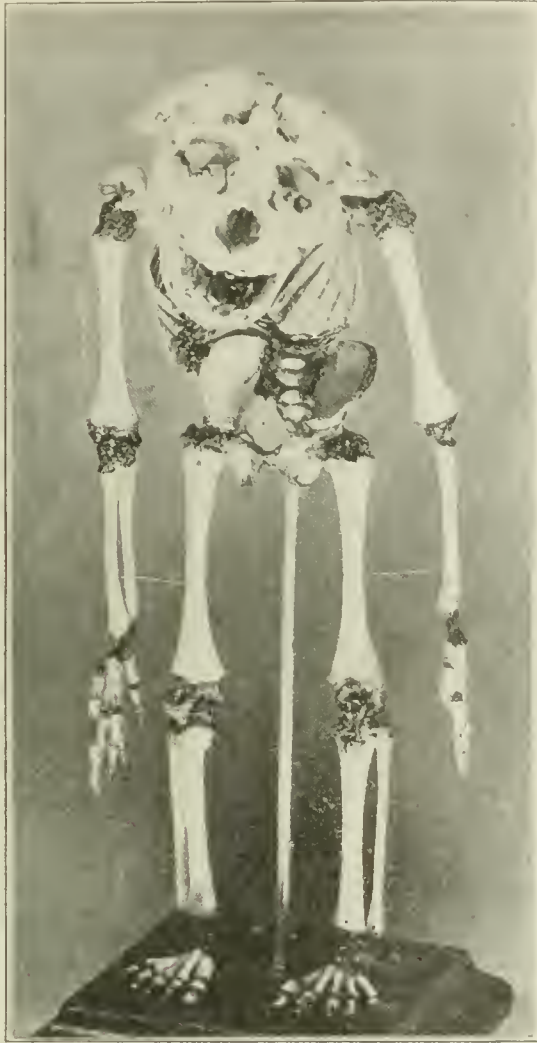


FIG. 7. Six months' fetus; anencephalus and spina bifida. (Path. series, No. 14478.)

sidered as falling in the category of teratological specimens.

A remarkable case is here shown in Fig. 6, it having been contributed to the collection by Dr. Geo. A. Hardin, of Sault-Sainte Marie, Michigan. When presented, the specimen was given the number of 9065, it being a human female infant with a large head, "eyes widely separated; ears likewise. Congenital fissure of anterior wall of thorax and abdomen, left side, with protrusion of left lung, heart, stomach, most of the intestines, and spleen. Right lung and liver and urinogenital organs normal in character and position. Left upper limb stunted and ending in 3 digits. Right foot shows talipes equinovarus." The skeleton was taken from this specimen (No. 9066, Fig. 6); in it "ribs are curved downwards, forwards, and inwards, lying almost flat against the spine; some are deformed in thickness and breadth, and two are united at their borders. First four ribs of right side united at their borders. The usual anomalies of hydro-

cephalus in the skull." Other deformities of skull are plainly shown in the figure. "Parents healthy and no deformity. Mother, Irish, age about 20."

Spina bifida is elegantly illustrated by numerous and varying examples, including those in which *hydrorhachis* is involved. These conditions are frequently associated with club-foot, harelip, and so on; and in these days, where the deformity is not too great, surgery does much towards rectifying it and saving the child. This subject will be touched upon in a future contribution.

Many of these malformations must have been well known to the ancients, among them the one-eyed monster, to which we now apply the name of *cyclops*. In fabulous history there is also a *cyclops*, one of the deities of Greek mythology; he was a great giant and supposed to possess a single, circular eye in the middle of his forehead. Among the fables of Norway we also have the single-eyed giant—there called a "troll"—and he was supposed to be able to remove it from its socket in the forehead. This eye was also luminous, and when it fell out through accident, the finder could use it to light his way in the dark forest."

The teratological specimens designated as *cyclops* technically belong in the class of *cyclocephalous* monsters, of which a fine example is given in Figure 2. (Wax Model.) There are many forms and variations of them, and the series is splendidly illustrated with rare specimens in the Army Medical Museum collection. This malformation varies in degree, from the well set single eye in the forehead, through several stages of great deformity; most of these have had terms applied to them designating the nature of the malformation."

Doctor Lamb states (*loc. cit.* p. 42) that "The eye is not always single; there are all degrees of approximation and fusion; the bones that separate the orbits are wanting. Of course the nose is absent, or there is only an apology for one in the shape of a tag of skin on the forehead [Fig. 12]. The explanation of the malformation is partly in the failure of the fronto-nasal process of embryonic life to develop and unite as it should do with the maxillary process. If this failure involves the structure of

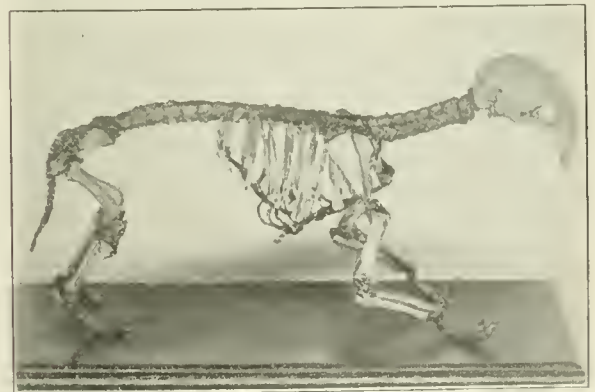


FIG. 8. Skeleton of a canine puppy. Agnathus or absence of lower jaw; nasal bones and maxillae form a proboscis-like snout. (Comp. Anat. series, No. 2153.)

the face lower down, then the jaw is affected, either rudimentary or absent. In all these cases the ears are brought near each other and towards the lower part of the face."

Cyclocephalus also occurs in animals below man,

and this collection contains a number of interesting examples of it. Indeed, the student of this condition in general will find here much material to illustrate his researches.

At this writing there are three specimens in the



FIG. 9. Canine puppies exhibiting congenital absence of forelimbs,—that is, both are abrachia. Lived six weeks. (Path. series, No. 13200.)

collection exemplifying the condition as *omphalosite*. These are usually twin births, with one fetus receiving its blood supply through the normal maternal circulation, while the other has it from its twin by anastomoses of the umbilical and placental vessels. At birth, this latter fetus dies immediately; and is, as a matter of fact, terribly deformed and lacking in parts either wholly or partially. Such twins are known as *omphalosites* and *autosites*—the terms being self-explanatory.

Occasionally, the monstrosity met with is of much less extent, and when this is the case, the subjects are classed as *hemitera*; of these an extensive series exists in the collection, and they are seen to vary in several ways and in different degrees. (Figs. 8 and 9.) Their study is one of great interest, as they often explain the more complicated departures from the normal form. Should any of these types live to become of age, and the mental faculties are unimpaired, the deformity, from a medicolegal standpoint, in no way militates against any of the individual's rights as a citizen. For example, a man might be a marked hydrocephile; possess a multiplicity of digits on his hands and feet; his heart might be on the right side instead of on the left; he might have a harelip and clubfeet, together with a double uvula and like deformities—yet such a person would in no way be debarred from exercising any of his legal rights, such as are enjoyed by any normally constituted citizen at all times. In the case of such adult twins as the Siamese twins, the matter becomes more complicated, especially if they be so ligatured that death would follow the surgical attempt to separate them. In such a case, one twin might commit a murder, and be duly convicted in court; but to carry out the death sentence would result in deliberate murder of an innocent individual—the other twin. It would be interesting to know how a trial judge would decide under such circumstances. When such joinings are of the female sex, and they live to become of age, as did the Hungarian sisters, Helen and

Judith, equally interesting complications might easily arise, though of a different nature.

In this collection there is an extensive series of fine specimens illustrating the minor, or at least less grave malformations, and the victims do not legitimately belong in the monster class. Reference is made to such cases as absence of the pharynx, anomalies of the stomach and esophagus, also the intestines, which latter sometimes show diverticula, as Meckel's and so on; absence of the anal opening, of the liver and gall-bladder—there being absence of the latter in one specimen. Lobulation of the spleen is also exemplified in one or two specimens, and quite a long series of cases of accessory spleens—a condition by no means uncommon among negroes; one example presents no fewer than eight spleens. Doctor Lamb, in his long and extensive experience and practice, claims never to have met with a case where the spleen was entirely absent.

Anomalies of the heart are very numerous, and frequently interesting as well as important subjects for study. There is a remarkable collection of them in this museum, and they present nearly every phase of departure from the normal in the case of that organ. It is needless to state that it is never absent, though one of the lungs may be, as shown in the case of a seven months' fetus.

Owing to their marked frequency of occurrence, only the rarer examples illustrating anomalies of the veins and arteries, as well as the lymphatic vessels, have been placed on exhibition; but these are ample for the purposes of demonstration.*

*Dr. Samuel Busey, of Washington, paid in his life-time especial attention to the anomalies and physiology of the lymphatics (*Amer. Jour. Obstetrics*, Vol. X., p. 8, 1877). During the summer of 1875 I had the pleasure of assisting him in a long series of experi-



FIG. 10. Domestic fowl (*Gallus domesticus*). Case of dipygus. (Comp. Anat. series, No. 1139.) Dipygus parasiticus.

ments on dogs, wherein he cut off the lymph supply through ligation of the lymphatic duct at its termination. He added to the collection being described a remarkable specimen exhibiting congenital occlusion and dilatating of the lymph channels, which he described in the above cited article.

Space limitations prevent my mentioning, much less enumerating, the extraordinary series of specimens which offer examples of the anomalies of the urinary organs, the genitalia, the organs of respiration, of the nervous system, and many of those



FIG. 11. Ischiopagus tripus. Harelip. Female; junction by sacrum. One set of external genitals. (Path. series, No. 10059.)

of the skeleton, as for example the presence of cervical ribs, and so on. These are not only illustrated by valuable and interesting specimens as they occur in man, but likewise by a wonderful series of specimens chosen from all the other groups of the vertebrata, as fishes, reptiles,⁸ birds, and mammals.

Some of the most extraordinary examples of teratology are those referable to the class termed *terata catadidyma*, or where the monster exhibits a duplication of the superior moiety of the body, including the head; for the inferior half termed *terata anadidyma*. Where complete duplication occurs, we designate the resulting anomaly or monster as a case of *terata anacatydidyma*. As we know, there are subdivisions of all three of these classes, and one or both of the subjects may offer any number of the minor deformities, as club-feet, polydactylism, harelip, and the like, or even one or more of the major ones.

One of the most typical examples of *dicephalus dibrachius* is here shown in Figure 3. The subject is a male fetus at term, and it possesses a double head, double neck, and two arms. This monster was born about the 16th of November, 1914. It was a foot presentation, and lived only five minutes after delivery. Father and mother are Italians and residents of this country.

Double-headedness, with duplication of limbs and tail, is not particularly rare among the lower animals, even including fishes.* (Fig. 2.).

*Sometimes where lizards (and perhaps snakes) have their tails fractured off in some way, a double one will grow out to replace it. Such cases are distinct from teratological ones, and must not be confused with them.

This *diprosopus* is not uncommon in the calf of the domestic cow, and inclined to be still more frequent among cats. The museum has many specimens of it, as it is seen to occur in different animals.⁹ Sometimes the two heads of an animal, including man, are so differentiated that the cervical division of the spine, or even somewhat lower down the column, is duplicated (*dicephalus*). In rare instances, the duplicature is carried down to include the lumbar vertebræ as far as the sacrum.

"Some of these monsters," says Doctor Lamb, "live to adult age, as the Scotch brothers who lived 28 years, and the Tocci brothers who may still be living. The malformation is relatively common; the sex is twice female to once male. But the two individuals of each monster are always of the same sex." (*loc. cit.*, pp. 51, 52).

While the museum has two specimens of *ischiopagus* (Fig. 11), it does not possess a single example of the very rare malformation known as *pygopagus*. In the latter the sacrum and coccygeal vertebræ are joined. They are usually females; their mode of union holds them back to back, and they may—and usually do—live to a good age. The Bohemian, the North Carolina twins, and the Hungarian sisters, Judith and Helen, are all cases well known to the profession at large.

In the group *terata anadidyma*, the collection presents many deformed birds of the *dipygus* type, also of fish, dogs, and kittens (Fig. 10), but none



FIG. 12. Cyclocephalus. A cyclops. (One eye.) Path. series, No. 10098.)

of *Homo*. *Syncephalus* is more or less common, and consequently we find that the museum has some twenty-four specimens of it, four of which are human. Where the entire body is split upward to the head, it is designated as *craniopagus*; there are

some remarkable examples of it in this rich collection.

Equally interesting and instructive are the specimens exemplifying the assemblage called *terata anacatadidyma*. We find four specimens of the extremely rare monster designated as *prospothoracopagus*—that is, one joined to another by face and thorax; with the exception of the cervical region, which is broad, the vertebral columns are individualized. These monsters invariably die at birth.

Thoracopagus is by no means rare, and in them we find duplication of external as well as internal organs. (Fig. 2).

With respect to *dipygus parasiticus*, the collection contains a model of John Baptist dos Santos, and a photograph of the case of Louisa L. This latter individual had, attached to her pubic bone, a rudimentary pelvis, with two imperfect lower limbs. Curiously enough, she married and became the mother of two physically perfect children.

There are two examples of *thoracopagus parasiticus* in this museum, one being a male fetus which had gone to term. In it the exposed portions consist of an imperfect nose and ear, external to which there are the limbs, together with the shoulder, back, and pelvis. This parasite was attached to the anterior wall of the chest.* Another remarkable case of this character occurs in the collection as a fine cast in plaster (Fig. 1); it was originally in the Jeffries Wyman collection. It is of a female infant, nearly five months old, and perfectly normal—apart from the attached parasite. It was brought on exhibition from Canada to New York in 1858, being fatally attacked by pneumonia on the trip. It was a bright and vigorous child; and, through modern surgical methods, the parasite might possibly have been successfully removed. It is stated that the adventitious limbs possessed the power of movement. It was "joined apparently on the right of the sternum (but the deep junction is probably at the sternum). The head, neck, and most of the trunk of the parasite are absent; right shoulder and arm present, but the forearm is absent, and there are but three digits; below the waist all is as perfect and well developed as the host, except that the sex is not defined."

There is a limited series of unclassified specimens in the collection; but they do not all appear to be cases of true teratology.

Polydactylism, or multiplicity of the digits of manus and pes, are fairly well represented in this collection—for man as well as for other vertebrates. This condition is frequently hereditary, and in some instances may be attributed to reversion, as in the case of small lateral toes appearing in any of the *Equidæ*. In certain dogs, when these super-

*A number of years ago I examined a living case of this character; it was being exhibited in one of the side-shows of a circus at Washington, D. C. The victim was a man of about 25 years of age, handsome, and very dark skinned. He appeared to be an Indian (from India?), and was dressed as such. The parasite was entirely external, all but the head and upper part of the neck. It was as large as a child of 6 years, and perfectly formed. To the best of my recollection it was a male, and had the movements of a child in health. It was dark skinned, and rested on the man's lap. This case I described at a regular meeting of the Biological Society of Washington on the 24th of November, 1917. According to Doctor Lamb, Collaredo was a case of *thoracopagus parasiticus* (*loc. cit.*, p. 55).

fluous digits are removed, they will reproduce themselves."

A rare form of human polydactylism is here shown in Fig. 13; it is that of a double thumb. When a young man (in 1872), I met with a case exactly similar to this one in an Irish laborer. The thumbs were functional to the extent of having a pincer-like movement. Later, at an examination in physiology at Cornell University (Burt G. Wilder, Class of 1874), I drew such a hand to illustrate the question of polydactylism. At that time Professor Wilder claimed that no such case was known, neither "could there be such a case." He gave it as his opinion that I must be mistaken. The man had been under my observation for two years."

This brief account will give a fair idea of the animal abnormalities, monsters, and anomalies in the Army Medical Museum at the present writing.



FIG. 13. Polydactylus. (Double thumb.) (Path series, No. 8317.) Plaster cast from life.

To the student of such subjects as well to biologists, physicians, and general anatomists, it will be evident that examples of nearly every type of such departures from the normal may be examined here. They stand, however, sadly in need of scientific labeling and arrangement. The cases in which they are contained are out of date and crowded to the very limit of their capacity.¹² These deficiencies are not likely to be rectified until the New Army Medical Museum becomes an accomplished fact. As the plans for this latter are now finished, and the site for the building in Washington selected, it but remains for Congress to appropriate the sum necessary to proceed with the good work. The unrivaled library associated with this outgrown medical museum in the same building, demands more distinctly *immediate aid* than the latter. In it there is a superb collection of works on teratology.

REFERENCES.

1. Shufeldt, R. W.: "The Army Medical Museums." *MEDICAL RECORD*, Oct. 20, 1917.
2. Lamb, D. S.: "Malformations and Monstrosities in the Army Medical Museum." *Washington Medical Annals*, Vol. XI, No. 1, Washington, D. C., March, 1912, pp. 34-56, Figs. 1-3. Read before the Medical Society of the District of Columbia, Feb. 15, 1911. Reprinted, with a few alterations, from *The Military Surgeon*, October, 1911, p. 374. This very valuable contribution to teratological science, having appeared in journals of limited circulation, comparatively speaking, has not been made known to the profession at large nearly so fully as its importance warrants; so that this opportunity to invite further attention to its merits may be regarded as a good word in the right place.
3. Shufeldt, R. W.: "Hermaphroditism in the Human Species." *The Alienist and Neurologist*, Vol. 37, No. 3, August, 1916. Reprint, pp. 1-3, Figs. 1, 2.
- Howard, William Lee: "Opposite Sex Twins in One Body?" *New York Medical Journal*, Oct. 23, 1915, pp. 843-845, Figs. 1-3.
- De Forest, Henry Pelouze: "Hermaphroditism, with a Remarkable Case." *The Medical Council*, March, 1909, pp. 105, 106.
4. Shufeldt, R. W.: "Case of Canine Hermaphroditism." *The Alienist and Neurologist*, Vol. XXVII, No. 2, St. Louis, Mo., May, 1907, pp. 189-192; 2 cuts in text.
5. Shufeldt, R. W.: "Two Uvulae in a Man." *New York Medical Journal*, Vol. XLI, No. 26, New York, June 27, 1885, p. 723. One figure in text.
6. Dr. and Mrs. R. W. Shufeldt: "Norwegian Folk and Huldre Tales," (Trans.). By P. Ch. Asbjørnsen, (From the original.) Published in *The Northland Magazine*, Vol. 2, No. 4. Minneapolis, Minn. January, 1899, et seq. Two instalments published, Part III, in MS., in which latter Part the Trolde are described.
7. Shufeldt, R. W.: "Studies of the Human Form," Philadelphia, Pa., 1908, p. 601, Fig. 405. Various other abnormalities are figured and described in this work, as multiple breasts in women, polydactylism, etc.
8. Shufeldt, R. W.: "The Supernumerary Molar," *Science*, Vol. XII, No. 305, New York, Dec. 7, 1888, p. 280; "Remarkable Deformity in a Pond Turtle." *The Guide to Nature*, Vol. VI, No. 6. Sound Beach, Conn., October, 1913, pp. 142-143. Figs. 1-3.
9. Shufeldt, R. W.: "Double-headed Animals." *Western Field*, Vol. 8, No. 2. San Francisco, Cal., March, 1906, p. 117. Giving an illustration of a double-headed Box tortoise (*Cistudo carolina*). This specimen is now in the collection of the Army Medical Museum. "Doppelköpfige Erscheinungen im Tierreich." *Natur und Haus*. Jahr. XIV, Heft 11. Berlin, March 1, 1906, pp. 165-166.
10. Shufeldt, R. W.: "Notes on the Reproduction of Rudimentary Toes in Greyhounds." *Nature*, Vol. 38, No. 3, London, May 17, 1888, p. 173. These dogs lost their "dew-claws" while racing after jack rabbits through the stiff, coarse sage-brush (*Artemesia*).
11. Shufeldt, R. W.: "Polydactylism." *Science*, Vol. VIII, No. 194. New York, Oct. 22, 1886, pp. 367-368. Figs. 1-3. The hand above referred to is here shown.
12. Shufeldt, R. W.: "Outlines for a Museum of Anatomy." *Bulletin*, The Bureau of Education, Dept. of the Interior, 65 pp., and 6 cuts in text. Washington, Government Printing Office, 1885. Several hundred acknowledgments were received from the recipients of copies of this publication, the majority being persons of prominence connected with museums in various parts of the world. The plan suggested was adopted and introduced in the case of a number of public museums in the United States.

Analogies Between Hydrophobia and Tetanus.—Remlinger shows that experiment brings out various analogies between these affections. When the latter are transmitted by means other than hypodermic and intramuscular injections, there is a period of latency with a sudden generalized development *d'emblée*. Both viruses may be swallowed with impunity. Autopsy lesions are similar in the two affections and in both death often occurs as a result of arrest of the heart's action.—*La Presse Médicale*.

SURGICAL HISTOLOGY AND ANATOMY OF THE BREAST.*

BY PARKER SYMS, M.D., F.A.C.S.

NEW YORK.

WHILE I have nothing new to add to the subject, it has seemed to me that a good deal of diversity of expression exists, and that I may be able to clarify certain points in a manner which will be of assistance.

A proper knowledge of the anatomy of the breast defining its dimensions and its relations to other structures is absolutely essential to the surgeon. Without it he cannot properly plan his operative procedure.

The same thing is true as to the histology of the breast; it is impossible for one to make a satisfactory study of the pathology of an organ unless one has very accurate knowledge concerning its normal structure. In no other organ of the body is this so essential as it is in the breast. The breast has such a variable existence and presents itself to us under such manifold conditions that it is necessary for us to have a thorough knowledge of its variations so that we may be able to judge when normality ceases



FIG. 1.—Section through normal breast illustrating nitric acid process of demonstrating breast tissue. Note corpus mammae; compact stroma; parenchyma consists of small branching ducts; peripheral processes ending in ligaments of Cooper; intramammary fat lobules; subcutaneous fat; submammary fat. (Harold Stiles.)

and just when abnormality begins. As far as the anatomy of the breast is concerned, we shall confine our considerations to the adult breast. As far as the histology is concerned we must study the breast during the period of the embryo, at birth, at puberty, during pregnancy, during lactation, in the resting state after lactation, and during the period after the menopause. We must study the evolutions which take place from one period to another and the involutions which take place from one period back to another, and of course the involution which takes



FIG. 2.—Cancer nodule in breast; nitric acid shows the epithelium of the cancer just as it shows the epithelium of the breast. (Stiles.)

place after the menopause when the active function of the gland has ceased.

Anatomy: Harold Stiles of Edinburgh has given

*Read at the meeting of the Medical Society of the State of New York, April, 1917.

us what I consider to be the best description of the surgical anatomy of the breast, therefore I shall follow his text very largely. By means of his nitric acid test he made important discoveries which changed our previous conceptions as to the outlines and dimensions of the breast.

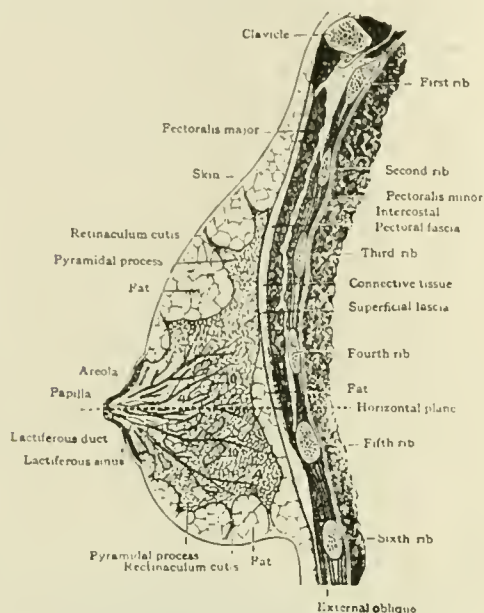


FIG. 3.—Sagittal section of the right mamma of a woman twenty-two years old. (Morris, after Testut.)

Treating the breast with 5 per cent. nitric acid as described by him brings out its component parts in strong contrast to one another, so that the parenchyma, the stroma, and the fat show very distinctly as tissue entities. By means of this test Stiles was able to show that breast tissue can be found far beyond the limits to which the organ was formerly supposed to be confined.

The breasts are two glands situated on either side of the sternum on the anterior aspect of the thorax. They are composed of the following elements:

1. Parenchyma.
2. Stroma, or connective tissue frame-work.
3. Fat, and of course, lymphatics, blood vessels, nerves, etc. The relative proportion of these elements will vary according to the individual, accord-

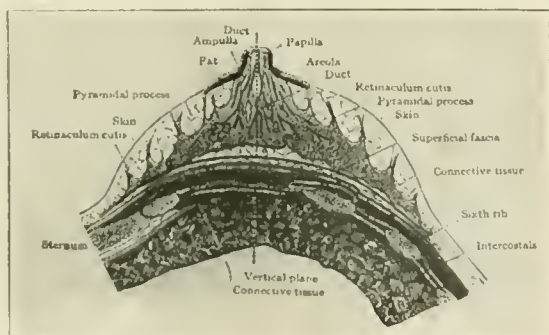


FIG. 4.—Cross section of the breast.

ing to her age, and according to whether or not the breast is functioning. We shall assume for our description the gland of an adult nullipara. The breast consists of (a) Corpus Mammæ, (b) Peripheral processes. These peripheral processes extend in

every direction. During the resting period they are insignificant, but during pregnancy and during the period of lactation they become fully developed, and compose a very important part of the organ.

Of course, these peripheral processes vary greatly in different individuals. There are three or four that extend toward the sternum; there is one that extends from the upper and outer quadrant of the gland along the axillary fold. This is usually the largest of them and has been called the mammary tail. Sometimes it develops in such a manner as to appear like a separate (supplementary) gland, but it is usually truly a peripheral process. A knowledge of these peripheral processes is of the utmost importance to the surgeon, and Stiles' description of them had a very great influence in developing the radical operation. These various processes are connected with one another toward their extremities by smaller processes which thus form a net-work. In the quiescent state these meshes are filled with fat lobules, but when evolution and development of the gland during pregnancy take place, the parenchyma increases at the expense of the fat which is absorbed,

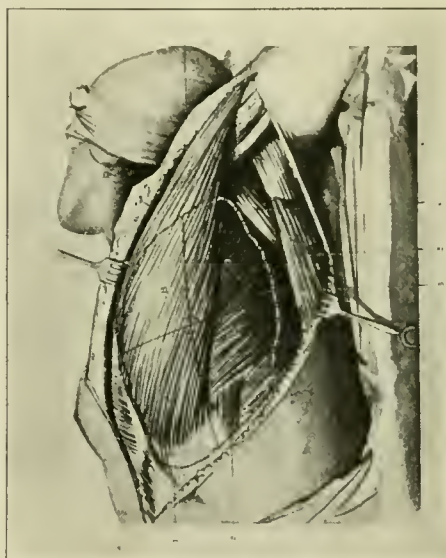


FIG. 5.—Diagram showing dimensions of breast and relations to muscles. (Harold Stiles.)

so these peripheral processes add greatly to the size of the organ.

The corpus mammæ is variable in size, but in general terms it may be stated to extend from the second or third rib down to the sixth costal cartilage. At the level with the nipple it is about five inches in width, extending outward from near the border of the sternum. Two thirds of the body lie over the pectoralis major muscle. The outer and lower third lies over the serratus magnus muscle and some of the digitations of the external oblique.

The two breasts are never symmetrical in size and after the first pregnancy they never return to the virgin condition. With each evolution the structures of the fibrous frame work become stretched, its spaces become enlarged and the breasts become more and more pendulous so that a deep sulcus is formed under the lower margin. (The virgin breasts are compact and pyramidal, and have no such sulcus). Depending upon the individual, there is more or less

over production of fat. Sometimes the breasts become very large and prominent, but except in cases of true hypertrophy this is not due to an increase in glandular structure but of lobules of fat. Of course, when senile involution takes place the breasts become atrophic and shrunken in various degrees, according to the individual case.

Nerves: The nerves of the breast are derived from the 4th, 5th and 6th intercostal nerves. Sympathetic filaments from the thoracic cord pass to the breast along the intercostal nerves.

The arteries supplying the mammary gland are derived from the long thoracic branches of the axillary artery, and branches from the intercostal arteries and from numerous perforating branches of the internal mammary artery.

The veins form an anastomotic circle around the base of the nipple, called the plexus of Haller. The veins of the breast empty into the axillary and internal mammary veins.

In performing a modern operation for cancer of the breast, the surgeon is not much concerned with the intimate bloodvessels of the gland itself; the bloodvessels he is most interested in are those which supply the region and which are ligated and divided at their origin as near the axillary artery as possible. These are: the superior thoracic, the acromial thoracic, the alar thoracic, and the sub-scapular. The perforating branches of the internal mammary give one but little concern, and are not divided until the final ablation takes place.

Lymphatics: The lymphatics of the breast are too small to permit of dissection or of demonstration in their normal condition, and they are usually collapsed so they cannot be satisfactorily studied unless they are artificially or naturally injected. Langhans succeeded in injecting the lymphatics by means of a puncture in the interlobular connective tissue, by this means he distended a system of lymph channels forming a network in the stroma and enclosing one or more ultimate gland lobules in each mesh. This net-work receives lymph from the spaces between the acini and is continuous with lymphatics occupying the adventitious walls of the ducts which run parallel with these ducts toward the areola where they enter a plexus of larger lymphatics in the loose connective tissue surrounding the ampullæ or sinuses. This forms the subareola plexus of Sappey which communicates freely with the lymphatics of the nipple and of the surrounding skin. Much useful information as to the anatomical arrangement of the lymphatics has been gained by making a special study of these channels in cancer cases. Often one can gain a more satisfactory idea of the structure and arrangement in this way than by means of artificial injection. It was this kind of investigation which made the work of Handley of such great value.

Beside the lymphatics which are closely related to the parenchyma (the perilobular and periductal lymphatics) there are others which are more closely associated in their distribution with the blood vessels. These latter freely anastomose with the former. The larger bloodvessels are accompanied by two or more lymphatics occupying their sheaths.

As pointed out by Stiles, examination of a large number of breast cancers has shown the invasion of the lymphatic spaces by cancer cells, particularly:

"(A) In the connective tissue processes radiating from the tumor into the surrounding breast, or into the circummammary fat.

"(B) In the breast tissue remote from, as well as close to the tumor.

"(C) In the connective tissue septa which separate the circummammary fat lobules.

"(D) In the ligaments of Cooper, where they even convey cancer cells to the corium; and in the retromammary tissue and pectoral fascia.

"In the last named situation they are large and generally accompany the bloodvessels which pass to and from the deep surface of the gland. According to Sappey the lymphatics of the breast consist of: (A) A superficial or cutaneous set. (B) A deep or glandular set. He claims that all the trunks springing from the glandular system pass from the posterior surface and from the body of the gland toward the areola, where they form the subareola plexus which is made up of vessels of remarkably large size. From this subareola plexus pass two or three large trunks which empty themselves directly into the glands of the axilla."

Stiles does not agree with Sappey's contention that the two or three large trunks leading from the subareola plexus are the ultimate and only channels for the receipt of lymph from all parts of the gland.

According to Stiles, there are "Five sets of lymphatic vessels which communicate freely with one another. 1. A superficial or cutaneous set including those of the nipple, areola, and surrounding skin. 2. The subareola plexus of Sappey. 3. The intramammary lymphatics. 4. The lymphatics of the circummammary fat. 5. The retromammary lymphatics.

"The cutaneous and intramammary lymphatics in part open into the subareola plexus which connects these two systems. The lymphatics of the circummammary fat constitute a part of the general superficial lymphatic system of the thorax. They represent on the one hand, the lymphatics of the true skin and on the other hand the efferent lymphatics from the anterior surface and circumference of the mamma. These lymphatics of the circummammary fat open into the larger and deeper lymphatics placed between the layers of the deep fascia. Lastly, from the lymphatics of the deep fascia large trunks pierce its deep surface and constitute the well defined vessels with thin but muscular walls which pass to the lymphatic glands as their efferent vessels. The retromammary lymphatics, including those of the pectoral fascia, receive all the efferent mammary lymphatics which leave the posterior surface of the gland. In this way, therefore, the efferent lymphatics of the corpus mammæ, of the fat around it, and of the nipple, areola, and skin over it, open either directly or indirectly into the lymphatics of the deep fascia, which latter accompany the bloodvessels of the gland, pierce the deep fascia along with them, and so reach the lymphatic glands which lie in a group or chain alongside them. The lymphatics from the inner part of the mammæ accompany the perforating branches of the internal mammary artery to join the sternal glands placed along its trunk. The greater number, however, accompany the mammary branches of the acromiothoracic, the long thoracic, and the external mammary branches

of the axillary artery to open into the axillary glands."

There is also a communication between the lymphatics of the two breasts through a median anastomosis of both the superficial and of the retro-



FIG. 6.—Section through normal breast of still-born infant showing all the characteristics of an adult functioning breast. (Syms.)

mammary lymphatics. The main lymphatic trunks of the axilla run for the most part along the blood vessels.

The axillary glands after Quaine. "The Axillary glands are generally twelve or more, they vary much, however, in number as well as in their size in different individuals. From four to six are placed along the axillary vessels and receive the lymphatics

which ascend from the limb; four or five small pectoral glands lie further forward on the serratus magnus near the long thoracic artery, at the lower border of the pectoral muscles, and receive the lymphatics from the mammae and front chest, while three or four subscapular glands are situated at the back of the axilla along the subscapular vessels, and are joined by the lymphatics from the back. One or two small infraclavicular glands are also found immediately below the clavicle in the hollow between the pectoralis major and the deltoid muscles. They receive some lymphatics from outside the arm and shoulder and are connected above with the inferior cervical glands, below with the axillary glands. The efferent vessels of the axillary glands ascend with the subclavian vein, and form by their union in some cases a single trunk (axillary lymphatic trunk) in others two or three large vessels which terminate on the left side in the thoracic duct, and on the right side in the right lymphatic duct. Sometimes they open separately into the subclavian vein near its termination."

As a matter of fact, the description of these axillary glands as given in works on anatomy is neither accurate nor adequate from the standpoint of the surgeon. Stiles made a very illuminating study of this phase of the subject and pointed out the fact that in cancer cases one may find a great many more glands than the anatomies give account of, so that one may find twenty or thirty or even more. He showed that there are a great many glands so minute that they may be called latent until they spring into active existence, and he also showed that lobules of fat may often be transformed into lymphatic glands.

Before describing the minute structure of the breast, a word must be said about its life history,

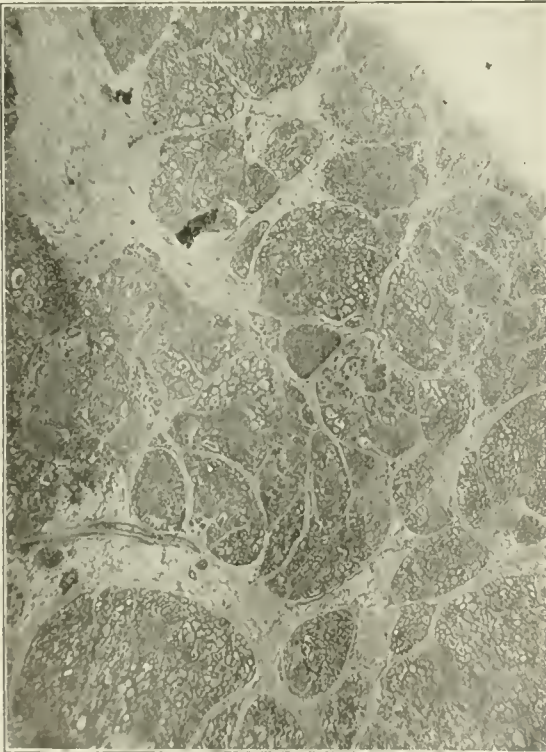


FIG. 7.—Section through normal lactating breast; gland nodules are seen everywhere and fully developed. (Syms.)

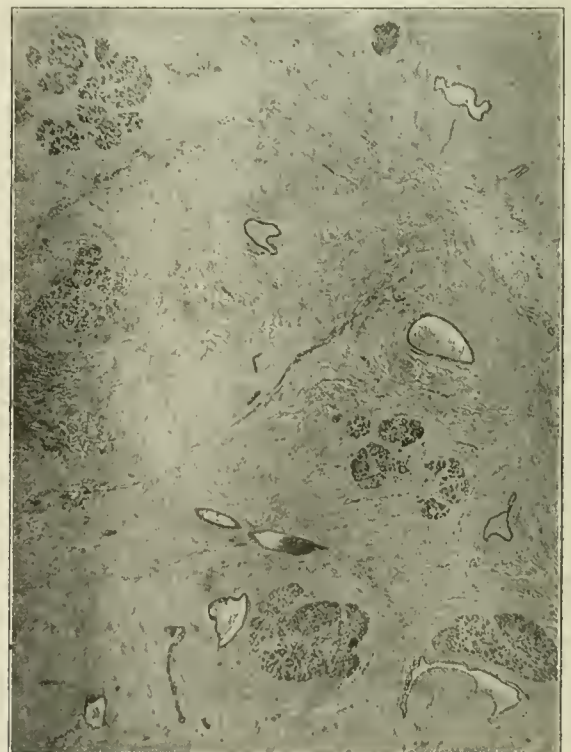


FIG. 8.—Section through a normal adult inactive breast; gland nodules are few in number and small in size. (Syms.)

for this organ varies greatly in structure and in function during different periods of life of the individual. Throughout life it is the subject of constantly recurring evolutions and involutions.

At birth, strange to say, the breast is an active

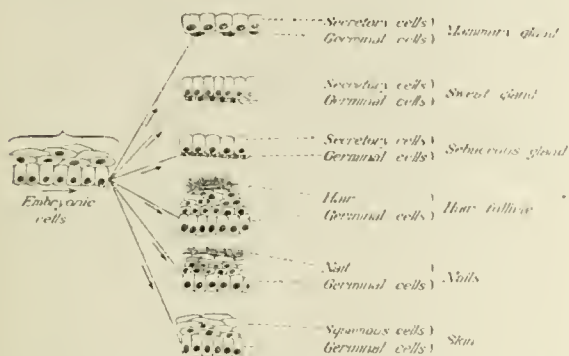


FIG. 9.—Diagram illustrating William MacCarty's theory concerning mammary gland cells.

functionating gland, secreting milk. Within a few days, however, it relapses to the condition of a rudimentary organ; during childhood it simply grows as does the rest of the body; at puberty it takes on active but limited development; during adult life it changes but little until pregnancy occurs. It is only during the period of pregnancy that the gland becomes fully developed, and it is only during the period of lactation that the gland has an active function, and therefore a full development. After each lactation involution sets in and the gland returns to the resting state. After the menopause, the gland having ceased to have a use, the final involution sets in and the gland becomes atrophied in a manner peculiar to itself.

The breast is really an inverted portion of skin which has become highly differentiated into the formation of an active organ whose function is the secretion of milk. As this function is only called for after the completion of pregnancy, the gland naturally has a variable, and it might be said, transient existence.

Without going too deeply into the embryology of the breast, suffice it to say that the first anlage appears as a thickening of the narrow linear ectoderm which extends from the root of the anterior limb to the root of the posterior limb on each side of the body. In human embryos of 10 mm. on either side of the trunk is an epithelial thickening which extends from the root of the anterior limb to the root of the posterior limb. This is the mammary strand. The middle of this strand is known as the mammary crest. Posteriorly the mammary crest becomes obliterated, fading into a mammary band which finally disappears in the caudocranial direction. The mammary crest becomes shortened into the shape of a club or nodule which is designated as the primitive mammary bud (in an embryo of 23 mm. Bronha). The primitive mammary bud next plunges more deeply into the chorion which becomes condensed toward it in the form of a mesenchymatous nodule. The integument which surrounds the primitive mammary body undergoes at the same time a slight circular invagination which constitutes the anlage of the areola of the nipple. (Demonstrable in embryo at second month.) Later the mammary body becomes enlarged forming the glandular field

(Huss). From its deep aspect (5th or 6th month) sprout 20 to 25 epithelial outgrowths which are cylindrical or pear-shaped terminating in a club-shaped enlargement (anlagen of milk ducts, Bronha). These gradually become provided with lumen. At this stage the proliferation of connective tissue which surrounds the mammary bud terminates in the elevation of a prominent anlage, namely, the nipple. The result is the formation of a gland of very irregular type, which strongly suggests the general morphology and structure of the sweat glands.

When finally evolved the breast consists of an organ composed of a delicate fibrous frame work whose loose meshes separate and support the various structures of the gland. Beginning at the nipple there are the orifices of from 12 to 20 or more milk ducts or channels. In the neighborhood of the areola, these channels are expanded into ampullæ or reservoirs (milk sinuses). These milk ducts divide dichotomously until they terminate in flask shaped extensions which constitute the acini or secretory part of the gland. This gland is made up of lobules which grouped together form lobes, each series belonging to its own set and terminating in its own proper milk duct. The canals and the acini are surrounded by a definite basement membrane. On this membrane rest epithelial cells which are the true gland cells. In the larger ducts this epithelium is cylindrical but in the smaller ducts and acini it is cuboidal, and consists of a single layer. Besides these cuboidal epithelial cells there are to be found a few flattened cells between them and the basement membrane of irregular shape, and it is these latter cells which are the subject of a good deal of controversy, or at least of a good deal of difference of opinion. According to some authorities these are the basket cells, and according to some they are connective tissue cells. According to others they are muscle cells derived from the minute blood vessels.

MacCarty of Rochester has very decided opinions regarding these cells. He claims that they are really

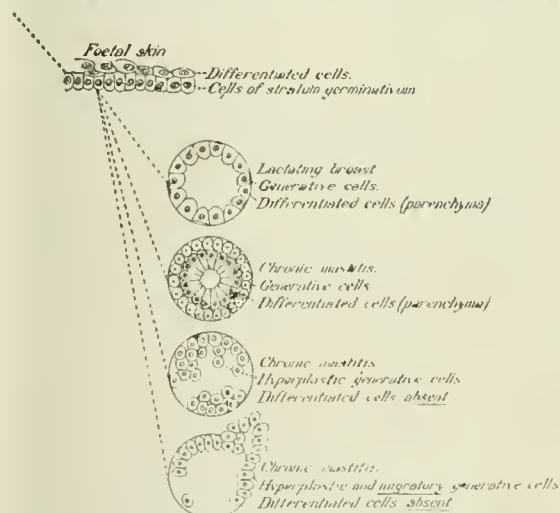


FIG. 10.—Diagram illustrating William MacCarty's hypothesis as to the differentiated cells, and the cells of the stratum germinativum.

undifferentiated epithelial cells analogous to the basal cells of the skin. Under certain conditions, he claims, these cells take on a form of hyperplasia, displacing and replacing the true epithelial cells of the gland, and that it is these cells which become the

cancer cells when they take on a form of migratory hyperplasia.

Of course, besides the ducts and their acini (the parenchyma of the gland), there are the nerves, lymphatics, and the minute bloodvessels surrounding the ducts and the acini, and arranged into regular systems; there is the connective tissue frame work of the organ; there are nodules of fat everywhere except under the areola; there are undeveloped sweat glands and sebaceous glands, the glands of Montgomery. In the areola and nipple are some muscular fibres which give the nipple an erectile function.

The histology of the breast varies throughout life according to certain conditions. At the time of birth and continuing for five or six days the breast is capable of lactation, having been activated by the corpus luteum at the same time that the mother's breast was. Immediately thereafter the breast is found to be a rudimentary organ. The parenchyma which consists merely of branching cylindrical tubes embodied in an insignificant amount of fat. There are an undeveloped areola and nipple; the breast scarcely exists.

Throughout the years of childhood but little change takes place. At the time of puberty a decided change takes place in the breasts of both sexes. In the female this change is progressive and lasting. The milk spaces are amplified, distension takes place at the end of some of the ducts with the formation of acini. These are grouped in the formation of a lobule. This group of acini with their ducts are joined in the final milk canal and constitutes a glandular unit. With the occurrence of the first pregnancy evolution takes place, and the gland becomes an active organ. There is a great increase in the parenchyma by formation of a tremendous number of acini. These are formed by a process of budding and expansion. The lobules of fat which constituted most of the breast are absorbed and disappear, and the breast consists of an actively developed group of glandular units capable of great activity.

After lactation has ceased involution sets in with a diminution of the size and number of acini and with the rehabilitation of fat. With each pregnancy a similar cycle ensues.

With the occurrence of the menopause comes the final involution or atrophy. There is a diminution not only in the size, but in the number of the acini and ducts. In other words, there is a great reduction in the number of gland units. It is very essential that this should be fully understood. Concerning this there has been much misunderstanding and much misstatement.

This final involution of the breast normally consists of an atrophy of all the essential elements of the breast. One element may be more atrophied than another so that there may be a disproportion but there is no productive proliferation of any essential element of the breast. Such proliferation would constitute a pathic process—it would belong to the domain of pathology and not histology.

BIBLIOGRAPHY.

- Bailey and Miller: Textbook on Embryology, 1916, p. 442.
Coen, E.: Zeigler's Beitr. z. Path. Anat. u. z. allg. Path., II, 1888, 2. p. 83.

Cornil, V.: Les Tumeurs du Sein, Paris, 1908.

Deaver: Surgical Anatomy.

Gray: Anatomy.

Handley, W. Sampson: Cancer of the Breast and Its Operative Treatment.

Krause: Kursus der normalen Histologie, 1911, plate 98, Figs. 207-208, p. 4271.

Kurn, H.: *Deutsch. Ztschr. f. Chir.* 1909, 98, 415.

MacCarty, William: Collected papers of the Mayo Clinic, 1915, 903-919.

Prenant, Bonin & Maillard: Histologie et Anatomie Microscopique, 1904, 2, p. 642.

Quaine: Anatomy.

Rodman, W. L.: Diseases of the Breast, etc., 1908.

Stiles, H. J.: Tr. Edinburgh Med. Chir. Soc., 1892.

—: Burghard's System of Operative Surgery, Vol. VIII, p. 655.

Stohr, P.: Lehrbuch der Histologie, Ed. 16, Jena, 1915, p. 405.

Talma, S.: *Arch. f. Microscop. Anatomie*, 1882, 20, 135.

361 PARK AVENUE.

IS THE DIAGNOSIS OF THE PRECANCEROUS STAGE POSSIBLE IN UTERINE DISEASE?

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THIRTY years ago, after an earnest conference with an old and valued teacher concerning the prevalence and the deadliness of uterine cancer, I formed the resolution to devote my best thought and energies to the solution of one of the most difficult and vexatious problems within the whole range of practical surgery. It is no pleasing thing to have to record a long series of utter failures, and if pleasure were the only motive prompting the presentation of a medical paper the present writing would not be undertaken.

Not that I lament the years spent in devoted study and reflection, for, while not attaining the summit of the stately range I set out to surmount, I have at least arrived at some practical conclusions in the saving of human life and the prevention of human suffering.

There is really no such condition in practical life as a precancerous stage in uterine disease any more than there is a prefracture stage for a broken collar bone. Wedges of scar tissue in the uterine cervix, acrid discharges from the canal of that organ, prolonged engorgement of the tissues of that region are without question recognized to be dangerous factors in the development of malignancy, so often are they found to be associated with it, precisely as icy sidewalks, slippery streets, and a collection of ice skates bring to the mind fractured bones, but it is out of all reason to base the art of surgery upon speculative possibilities to the exclusion of a scientific groundwork. At one time, discouraged by a steadily rising death rate, I concluded that in every suspected case a section of the uterine cervix ought to be removed for microscopic verification, but this visionary and dangerous theory was never put into practice for the substantial reason that it was soon exploded by the luminous rays of unexpected experience of a most practical and overwhelming character.

Within a few months of one another two women, both between forty and fifty years of age, appeared at my clinic in Chicago, and were oper-

ated on for the correction of lacerations of the uterine cervix. So far as I now recollect neither patient presented anything material at variance with hundreds of other cases of the kind. In both patients the union of the wounded tissues was prompt and for a time all went well; but in both there developed within a year unmistakable indications of malignant growths. It is practically certain that I wounded cancerous areas without being conscious of what I was doing, and that the operative work in both cases hastened the development of irremediable complications; but it is also perfectly clear that in the light of later and decisive clinical experience, both patients ought to have been subjected to what would have been an early hysterectomy, which might have saved both lives, or at least greatly prolonged them. I do not know that I was greatly if at all to blame for the loss of these patients; I followed the usual practice, gained an apparent temporary success, and, I might add, reaped in the end precisely the result that is generally to be expected from piecemeal surgery. So strong is the influence of early teaching that it took me many years to learn, despite repeated warnings, that many so-called lacerations of the cervix are not confined to the limits of the cervix at all, but frequently invade the body of the womb in a most surprising manner. Long ago I learned that all rational uterine operations must be based, not upon some technical formula, but upon clear scientific principles, namely, the attempt aimed at the correction or removal of whatever pathological conditions may be found to exist. If troublesome or dangerous conditions are demonstrated to be limited to the area of the cervix and do not extend beyond that area, there is no rational ground for further operative invasion; but the surgeon must set up no fanciful landmarks to supplant the indications of sound pathological teaching. If the uterus itself is found to be damaged beyond hope of repair its removal ought to follow as a matter of course. During the month of June, 1905, while spending a day in intimate private conversation with the lamented Nicholas Senn I brought up the subject of uterine surgery as related to cancer, when that illustrious man remarked, "It is a most discouraging field because of the failure of early diagnosis."

It would be of deep interest to learn how many men of lesser fame than Dr. Senn have reaped discouraging results from their invasions of the field of uterine surgery without ever making an earnest and steadfast effort to analyze the causes of their failures.

As discouraging as it may sound, it may well be questioned whether a great deal of progress is possible in the realm of early diagnosis and for the plainest and most conclusive of reasons. Well women and those supposedly well certainly do not seek medical advice, and of those who present themselves with what all recognize as the classical symptoms of that disease in how deplorably small a number are we able to extend any well-founded hopes of ultimate cure, even following the most prompt and radical surgical measures. Nor can it be denied that many women who live in dread of cancer, dread still more the announce-

ment of the fact that the condition exists, and appear more determined to resist rational efforts for its cure than to offer the slightest resistance to the progress of the disease. One woman, the representative of a very large class, it must be confessed, calmly assured me that she supposed that she might live a year or so with the growth rather than take the small risk involved in an early and perhaps a life-saving surgical operation. Then, too, there are many abject simpletons who declare with calm exterior that, as they came into the world with a uterus, so do they feel it a moral duty to take it with them to their grave! Nonsense based upon this precious theory might be extended almost without limit. Even superficial students of history must have learned that millions of the human race have met with trouble, disaster, and even total ruin after the severing of their umbilical cords, and it would require the most reckless statistician alive to estimate even roughly the numbers who have perished from strangulation by the same ropy tissue without breathing a single time. Foolishness of this sort deserves nothing but contempt from thoughtful minds, but the more thoughtful the mind the more certain it is that its conclusions will be scornfully rejected by those who prefer folly to wisdom. And it must be remembered that countless laymen, even those who are gifted with a fair degree of general intelligence, universally associate the very name of cancer with certain death, so little do they know, or care to know, concerning the modern rational treatment of that disease. My own operative death rate from a long series of vaginal hysterectomies, many of them carried out for the relief of cancer, has been below 1 per cent., but in the minds of many a single death in a hundred serious operations only proves the immediate dangers of surgery and proves to them nothing else. Operated on and died, death from operation for appendicitis, dies after operation, and operation fails to save life, are some of the phrases more or less familiar for the past thirty years. Hundreds of years added to life, hundreds of years of useful existence prolonged, hundreds of years of suffering prevented, are all forgotten the moment some pitiable victim of intestinal cancer dies after a desperate midnight attempt is made to prolong a life in comparative ease when no degree of human skill could effect any result that could be called curative. But, in the face of all discouragements, the medical profession has but a single path before it and that path leads to incessant labor for improvement, both as to methods of diagnosis and the betterment of operative procedure, regardless of all that obstructs the progress of scientific truth. All intelligent Kentuckians of today glorify the works and fame of Ephraim McDowell, but the attempt of the Boyle County grand jury to indict him for performing what Sir Frederick Treves happily styles the "First deliberate abdominal operation in the world," is nearly or quite forgotten. McDowell lived, and lives, as did his patient live, and who, thanks to the undying fame of the illustrious surgeon, will always live as the woman who said, "I am ready, Dr. McDowell, you may go ahead!"

My conclusion is that a uterus that is neither more nor less than useless ought to be left alone by the surgeon; but that a uterus that adds distress and danger to uselessness, ought to be removed under proper conditions at the earliest practicable moment.

MOUTH SURGERY, WITH SPECIAL REFERENCE TO CYSTS OF THE JAWS.*

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MODERN mouth surgery developed with the introduction of local anesthesia. Previously, operations on the jaws or soft tissues of the mouth had to be performed mostly under a general anesthetic, the administration of which repeatedly interrupted the surgeon's work. The flow of blood obstructed the operator's view, and the necessary frequent sponging prolonged the duration of his work unduly. In this country especially, nitrous oxide in combination with oxygen has been most frequently employed of late in this branch of surgery. It does not permit the operator to perform his duty with as much ease and pleasure as one is used to when operating under local anesthesia. With the improvement of the technique of injection the technique of the different operations for the surgical diseases of the mouth has been modernized, mainly due to the fact that the cooperation of the patient and also the bloodless field of operation permit the surgeon to observe clearly, step by step, the progress of his work. The employment of local anesthesia for this work is so general at the present time that one need not go any further into detail as to its merits. The type of local anesthesia used is of the conductive variety ("nerve-blocking"), the method of which can be studied in previous articles on the subject written by the author. Practically all the surgical diseases hereafter mentioned can be operated on under conductive anesthesia.

A subject frequently heard of during the last few years is that of apical infections. Under so-called apical infections we understand the thickening of the apical peridental membrane, caused in nearly all cases by death and infection of the dental pulp. While in cases of systemic diseases it may be advisable to remove the offending teeth, and, of course, curet the apical areas, it is possible in a large number of cases to save the tooth by performing a root amputation, consisting of the removal of the apex of the tooth and the curetage of the apical area by an incision made through the gum tissue. Whenever possible, the root canal should be well filled before one proceeds with the surgical treatment. The success of the operation will depend upon the selection of the cases.

The chronic thickening of the apical peridental membrane may continue until, either through lack of blood supply or through pressure, the center of this so-called "granuloma" breaks down. If now

*Read at a meeting of the German Medical Society of the City of New York, February 4, 1918.

the cavity becomes lined with epithelial cells derived from the peridental membrane (glands of Serres), we are dealing with a radicular cyst, a cyst originating from a diseased root. These hollow tumors may continue to grow until they occupy the whole jaw, displacing important structures like the antrum in the maxilla or the contents of the inferior dental canal in the mandible. The cyst wall is made up of a fibrous capsule, and lined, as said before, with epithelial cells. The cavity may be empty, or filled with a serous fluid, cheesy material, calcareous concretions, pus, or serous fluid rich in cholesterin crystals. The contents of a cyst are usually sterile, except when through some external interference a secondary infection takes place and pus is formed.

Radicular cysts occur most frequently between the twentieth and thirtieth years. They are apparently more frequent in the maxilla. One of the most important symptoms is the parchmentlike crepitation elicited upon pressure over the thinned out and distended outer plate of bone forming the outer wall of the cyst. The condition is diagnosed without a doubt by means of the x-ray. The treatment is, of course, surgical—conservative or radical. The radical procedure consists of the entire removal of the cyst membrane, which can easily be peeled off the surrounding bone with a curet or periosteal elevator. The sharp edges of bone and the overhanging soft tissues are smoothed down and the wound painted with iodine, and then packed with novocain, orthoform, an iodoform gauze. The healing takes much longer than in the conservative treatment, which differs in the following: After making an incision through the buccal soft tissues the flap is retracted and the outer half of the cyst membrane, including the overlying bone, is removed in such a manner that only a shallow inner cyst-half (including the cyst membrane) remains. In this way a circular wound is left to granulate, and even part of this wound may be covered by suturing the periosteum and overlying soft tissues to the membranous cyst wall. The wound is packed a few times with iodoform gauze, and thereafter taken care of by the patient, who syringes the cavity after meals. Finally it flattens out entirely and is hardly noticeable. The cyst membrane changes into one which is practically identical with the mucous membrane of the mouth. (Partsch.)

The follicular cyst is one originating from a tooth follicle. In it is found, therefore, an unerupted tooth or tooth germ. It occurs most frequently between the twelfth and sixteenth years. In symptoms and treatment it does not differ otherwise from the radicular cyst. Another important cyst formation is the so-called multilocular cyst. Its treatment must be absolutely radical because it is made up of many small cysts, each one of which may continue to grow if left in the jaw.

Of the solid tumors we find practically all varieties in the oral cavity. The treatment of all tumors, whether benign or malignant, is radical, meaning not only the early removal but also the extirpation of the same by making the incision well out into sound tissue without conservation of healthy neighboring teeth or bone. The operation for tumors of doubtful or malignant character should always be followed by x-ray or radium treatment. Good re-

sults have oftentimes been reported by treatment of inoperable cases with the above agents. The lymph glands draining malignant neoplasms must naturally be dissected out unless the case is seen very early.

A specimen for microscopic examination should not be taken before the operation, for fear that tumor cells may be carried at the time to different parts of the body (Bloodgood). The microscopic examination and diagnosis should be made by one familiar with oral pathology to avoid mistakes.

The odontoma, a benign solid tumor, found only in the jaws, must be mentioned here. It is made up of dental tissues—enamel, dentin, or cementum. They may be simple or composite.

Most of the bone infections of the jaws are caused by diseased teeth. Their treatment consists in free evacuation of the pus and the removal of the source of infection. In severe cases sequestra are formed, in the removal of which conservatism should prevail. A retained sequestrum will often prevent a pathological fracture or act as a splint until enough new bone is formed. Osteomyelitis is also found in children, following exanthematous fevers.

Of fractures, those of the mandible are by far the most frequent. They do not differ much in any respect from those in other regions of the body, except in treatment. The peculiar relation of the mandible to the maxilla allows us very often to use the maxilla as a splint for the mandible, and vice versa. The fixation of the fragments can be accomplished in an emergency with an ordinary bandage (Barton's), while later on wires, interdental, maxillomandibular splints, etc., may be employed. The most modern treatment, when applicable, consists of a sliding joint (Gleitschiene of Schroeder) attached to the maxilla and mandible, permitting the opening and closing of the jaws without any lateral motion. With this appliance the parts can easily be inspected, while the fractured ends receive that small amount of irritation which causes enough stimulation to hasten callous formation.

Wisdom teeth often play a very important part as etiological factors. Nervous disorders, local or reflex pains, trismus, etc., have been traced to unerupted, partly erupted, and infected wisdom teeth. Their removal can be performed under conductive anesthesia with comparative ease, and in practically all cases without the loss of the second molar.

Obstruction of the ducts of the submaxillary or sublingual glands causes a tumor in the floor of the mouth, which is known as ranula, and really is a cyst. Extensive cases are successfully operated on by employing the conservative treatment of cysts as described above. Salivary calculi, which sometimes are responsible for the formation of ranulae, may lodge in the gland structure itself or in the duct; their removal is, of course, necessary.

It is said that about two-thirds of all infections of the antrum are due to diseases of the teeth or surrounding tissues. In this instance the source of infection must be entirely removed, and the treatment in most cases carried on through the oral cavity. At times the infection may travel into the maxillary sinus without there being any direct communication between it and the diseased area, when, after removing the pathological tissue, the antrum can be washed out through the nose until the infec-

tion has disappeared. The odor of pus forming in the antrum through diseased teeth is, as a rule, more marked and foul than that caused by nasal infections.

The main object of this paper is to interest the medical practitioner in the possibilities of mouth surgery and to show the necessity of the existence of this specialty, as the treatment of surgical diseases of the mouth requires a knowledge of the special pathology of the oral cavity, not, as a rule, familiar to the general surgeon.

AUTHOR'S BIBLIOGRAPHY.

"Roentgen Rays in Dentistry," *Penn Dental Journal*, 1909.

"Causes and Surgical Treatment of Trifacial Neuralgia," *The Therapeutic Gazette*, July 15, 1911.

"Local Anesthesia," *Dental Items of Interest*, March, 1914.

"The Technic of Conductive Anesthesia," *Dental Summary*, February, 1915.

"Mandibular Anesthesia," *Dental Cosmos*, January, 1916.

"Oral Surgery with Special Reference to Difficult Extractions," *Dental Items of Interest*, 1916.

"Notes on Conductive Anesthesia," *Journal of the National Dental Association*, October, 1917.

140 WEST FIFTY-SEVENTH STREET.

ABRAMS' METHOD OF TREATMENT OF ANEURYSM.

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DR. ALBERT ABRAMS of San Francisco first directed attention to his method of treatment of aneurysms in his work on Spondylotherapy.¹ Later, he reported in the *British Medical Journal*² and *La Presse Médicale*³ forty cases in his own practice of thoracic and abdominal aneurysm symptomatically cured within a few weeks by his treatment, with absolutely no other adjuvant measure, not even rest.

Snow,⁴ Jarvis,⁵ and others, show by a series of radiograms variations in volume of aneurysms superinduced by the elicitation of the aortic reflex of contraction (concussion of the seventh cervical spine). The Minerbis of Italy, Houlié in France, and other foreign writers, have also contributed to the literature on the subject.

Abrams' most recent observation respecting his treatment is as follows:⁶ "After the lapse of years, the enthusiasm of my early reports enables me now to conclude that in early cases the Abrams method is practically a specific, but in late cases all that can be achieved is a relief of symptoms, and that can be done more rapidly than by any other known method." His method has been fully described in his book on the subject.

My individual experience with the method is given in the report of eleven cases in my translation of Abrams' book into the Japanese language (1918). I shall briefly report these cases, together with others in this communication. The diagnoses in the following cases were confirmed by the x-rays, and the treatment consisted of concussion of the seventh cervical spine.

CASE I.—Cook, aged 61 years. Syphilitic anamnesis, negative. Symptoms during a period of two years; asthmatic, severe dyspnea on exertion, spasmodic cough. Aneurysm of the arcus aortae. All the symptoms disappeared within a few days after commencement of treatment and the patient has resumed his work.

CASE II.—Hotel proprietor, aged 49 years. Pains in the arm radiating to the neck with symptoms suggesting asthma. Asthmatic symptoms can be evoked at will by singing the Japanese song, "Utai" (which demands prolonged expiration). Diagnosis: aneurysm of the descending aorta. Results of treatment were not definite owing to the fact that the symptoms often abated without treatment.

CASE III.—Expressman, aged 49 years. History of syphilis at age of 26 years. Extremely dyspneic. Diagnosis at the University Hospital of aneurysm, but no improvement following treatment, he was discharged as incurable. My diagnosis was an aneurysm of the ascending aorta. Within a week, pulsations and dyspnea practically disappeared. The dullness corresponding to the site of the aneurysm was much diminished and the only subjective symptom remaining was a slight pain in the back contiguous to the scapula. Patient resumed his work and now comes from Yokohama for treatment once in two weeks to prevent a recurrence of symptoms.

CASE IV.—Tailor, aged 56 years. Aneurysm of the abdominal aorta. Had been treated for carcinoma ventriculi. During the x-ray inspection, compression at the 10th dorsal spine enlarged the shadow 2 cm., Dr. Abrams shows that stimulation at this paravertebral area will elicit the aortic reflex of dilatation. Duration of treatment, two months. It brought about a disappearance of all symptoms up to the present time of writing (1½ years) and patient was able to resume his work.

CASE V.—Housewife, aged 47. Recurrent pains in the back and abdomen necessitating the use of morphine. Aneurysm of the abdominal aorta. Symptomatically cured after treatment lasting three weeks.

CASE VI.—Banker, aged 45 years. Aneurysm of the abdominal aorta. All the symptoms practically abated after fifty treatments. Results were apparent after the first treatment. Slight occasional pain in the back is the only symptom which has persisted and at the present time of writing, he is symptomatically cured.

CASE VII.—Housewife, aged 49. Aneurysm of the descending aorta complicated by exophthalmic goiter. All the symptoms of both conditions disappeared under this treatment by concussion, which is also practically a specific in exophthalmic goiter as Dr. Abrams has shown.

CASE VIII.—Farmer, aged 40 years. The diagnosis of aneurysm was made in 1913. Four years later, the aneurysm was visible by direct inspection and measured four inches in the transverse diameter. Against the advice of his physicians, he traveled 100 miles to visit me in Tokio. Aneurysm of the ascending aorta was diagnosed. After the first treatment, the area of the protruding aneurysm was reduced fully one-third.

CASE IX.—Soldier, aged 38 years. Was discharged from the army during the Russo-Japanese war on account of an aneurysm of the ascending aorta. Dyspnea intense. After the first treatment, pulse was reduced in frequency from 90 to 70. Is now symptomatically well.

CASE X.—Miner, aged 48 years. The most pronounced symptoms of thoracic aneurysm. Diagnosis at the University Hospital of aneurysm. No relief from treatment. Began treatment at my hospital in December, 1916. He has resumed his occupation although there is some dysphonia and the Oliver-Cardarelli sign persists.

CASE XI.—Housewife, aged 52 years. Most pronounced symptom was dysphagia. Aneurysm of the thoracic aorta was discovered on examination. The dysphagia disappeared after the tenth treatment.

REFERENCES.

1. Abrams: Spondylotherapy, 1918.
2. ———: *British Medical Journal*, July 8, 1911.
3. ———: *La Presse Médicale*, Oct. 4, 1911.
4. Snow: *International Clinics*, Vol. 4, 23d series, 1913.
5. Jarvis: *International Clinics*, Vol. 1, 23d series, 1913.
6. Abrams: *Reference Handbook of the Medical Sciences*, Vol. 7, third edition.
7. ———: *International Clinics*, Vol. 4, 22nd series, 1912.

In addition to the foregoing, the following summary is presented of other cases of aneurysm which have come under my observation.

Name.	Age.	Chief Symptoms.	Result.
1. Mishikawa...	60	Dyspnea.	Symptomatically cured in two weeks.
2. Saito.....	47	Cough and pains.	Symptomatically cured in three weeks.
3. Nemot.....	36	Abdominal pains.	No results.
4. Suzuki.....	55	Dysphagia.	Improvement.
5. Nakayama...	57	Dyspnea and gastric symptoms.	Improvement.
6. Suzuki.....	48	Dyspnea and dysphagia.	Improvement.
7. Arai.....	73	Pains.	Symptomatically cured.
8. Yoshimura...	47	Dyspnea and pains.	Symptomatically cured.
9. Ito.....	72	Dysphagia.	Symptomatically cured.
10. Furuga.....	42	Dysphagia and dysphonia.	Too late for treatment.
11. Sato.....	50	Dyspnea.	Improvement.
12. Chilia.....	55	Dyspnea and pains.	Improvement.
13. Ito.....	45	Anginoid pains.	Cured.
14. Hozaki.....	42	Anginoid pains and dyspnea.	Symptomatically cured.
15. Suzuki.....	55	Anginoid pains.....	Partial recovery.
16. Matsusaki...	48	Gastric pains.	Symptomatically cured.
17. Suzuki.....	38	Dyspnea and dysphagia.	Almost symptom-free.
18. Suzuki.....	27	Dyspnea and palpitation....	Improvement.
19. Shiraiishi...	56	Paralysis of vocal cords.	Improvement.
20. Ota.....	42	Cervico-occipital pains.	Cured.
21. Moriyama...	56	Cough and orthopnea.....	Improvement.
22. Takahashi...	34	Pains and twitching (unilateral).	Cured.
23. Suzuki.....	36	Extreme dysphagia.	Too late for treatment.
24. Tarumi.....	51	Anginoid pains.	Temporary improvement only. Too late for treatment.
25. Yamamoto...	44	Anginoid pains and dyspnea.	Symptomatically cured.
26. Sakurai.....	45	Complicated by tuberculosis.	No treatment.
27. Takenoto...	42	Pains and palpitation.	Practically well.
28. Kitabayashi...	39	Palpitation.	Symptomatically cured.
29. Ota.....	56	Dyspnea.	Recovered.
30. Niesuma.....	50	Epigastralgia.	No improvement.
31. Iwabaki.....	69	No subjective symptoms of an abdominal aneurysm.	Reduction in size one-half.
32. Pakeda.....	38	Paresthesia in throat.	No improvement.
33. Muri.....	61	Paresthesia right hand.	Improved.
34. Nakada.....	54	Dyspnea.	Practically cured.

Medicolegal Notes.

False Statement to Medical Examiner as to Use of Liquor.—The Iowa Supreme Court holds that inquiries, in an application for life insurance, as to whether the applicant had ever used liquor, and in what quantities presently and in the past, inhered in the report of the insurer's medical examiner, so that false answers as to past use, in the absence of fraud on the examiner, were no defense to the insurer, under Iowa Code § 1812, providing that when the medical examiner of any life insurer shall issue a certificate of health, or declare the applicant a fit subject for insurance, or so report to the insurer or its agent, the insurer shall be estopped from setting up that the assured was not in the condition of health required by the policy. A report on an applicant for life insurance, made by the insurer's medical examiner by answers to questions as to the applicant's physical condition in numerous specified respects, is held to be such a report as is contemplated by the statute. The court quoted with approval from the holding of the Court of Appeals of Kentucky in *Mutual Life Insurance Co. vs. Thomson*, 94 Ky. 253, 22 S.W. 89, as follows:

"It is of vital importance for an insurance company to know, before issuing a life policy, whether the applicant is then temperate in his habits, for obviously he would not be a fit subject for insurance, nor could a company prudently issue to him a life policy, if he were not then temperate in his habits of drinking intoxicating liquors; and, consequently, if he had made a false statement in that particular, it would be no answer to say that the habits were not such as to impair his health, because insurers have a right to protect themselves by guarding against the risk of pernicious habits. (May on Ins. § 290.) But it seems to us an inquiry in regard to previous habits of drinking intoxicating liquors is not material unless they existed to such an extent as to affect the health or physical condition of the applicant, and thereby render him an unsatisfactory subject for life insurance."—*Boulting vs. New York Life Ins. Co. (Iowa)*, 166 N.W. 278.

Military Medicine.

Abdominal Wounds in War.—Dr. Joseph Rilus Eastman, writing in the *Journal of the Indiana State Medical Association* for November, 1917, classifies gunshot injuries of the abdomen as follows: (1) Slight superficial wounds: (a) Contusion; (b) Tangential gunshot of skin and fat; (c) Injury of musculature of abdomen, flank, back, and buttocks; (d) Injury of the peritoneum without penetration of abdomen. (2) Deep and serious wounds: (a) Extraperitoneal injury of hollow viscera, rectum, bladder, and colon; (b) Extraperitoneal injury of parenchymatous organs, for example the kidney; (c) Intraperitoneal injury of hollow viscera by missile; (d) Intraperitoneal injury of parenchymatous organs by missile; (e) Intraperitoneal injury of blood vessels; (f) Complicated intraperitoneal injuries, for example, simultaneous wounding of hollow viscera, parenchymatous organs and vessels; (g) Rare injuries, for example, those in which an intraperitoneal hollow viscera or parenchymatous organ is wounded by the impact of a missile against the peritoneum without penetration of the latter; (h) Injuries of intraperitoneal viscera as the result of the explosive force of missiles striking the pelvis or chest or of blunt objects striking the abdomen, for example, rupture of the intestine from a high velocity bullet traversing the pelvis without entering the peritoneal cavity, or rupture of a gut filled with gas or fluid as the result of a blow on the abdomen; (i) Wounds of the abdominal viscera complicated with wounds of the chest.

Hemorrhage in penetrating, nonperforating abdominal wounds may be due to: (1) Injury of the vessels of the omentum or mesentery; (2) Injury of the vessels of the folds of the peritoneum; (3) Injury of the liver, spleen, pancreas, or kidney; (4) Incomplete nonperforating injury of the stomach or intestine; (5) Various combinations of these injuries.

The general symptoms and signs of abdominal wounds with perforation are: (1) Site of aperture of entrance, presumptive sign if in anterior abdominal wall; (2) Pain-gripping or colicky about the umbilicus, later radiating to chest and groins; (3) Vomiting; if blood is vomited, stomach is probably perforated; (4) Hiccoughing; (5) Costal breathing; (6) Syndrome of shock, may also be due to hemorrhage without perforation; (7) Tympany; marked over upper abdomen when the patient is in the dorsal recumbent position and most marked over left hypochondrium when the patient lies upon the right side; (8) Board-like rigidity of abdominal muscles, reflex; (9) Abdominal tenderness; (10) Emphysema of the cellular tissue of the abdominal wall, occurring after wounds of the colon from *Bacillus coli* infection; (11) Elevation of temperature and other phenomena of perforation peritonitis.

There are three signs which, as stated by La Garde, may be regarded as positive evidence of intestinal perforation: (1) Escape of intestinal gas, feces, or intestinal worms from the wound of entrance or exit; (2) Protrusion of perforated gut at the wound; (3) Passing of the missile or passing of blood by the anus, red blood indicating

perforations of the colon or rectum, dark, bloody stools suggesting lesion of the small intestine.

The treatment of wounds involving the abdominal coverings is that of superficial wounds elsewhere. In penetrating and perforating wounds the diagnosis should be established and celiotomy done within the first five hours, if conditions are favorable for a skillful and aseptic operation.

Gunshot wounds of the *stomach* are of frequent incidence. Little value attaches to the symptom of hematemesis, as it is rarely present. Wounds of the anterior wall are, as a rule, easily found and readily closed. The wound on the posterior wall is not always easy to find nor is it easy to close by suture. When such a wound cannot be brought into view for closure by suture, drainage without suture is safer than blind and awkward attempts to repair the wound, but an experienced surgeon will not often be driven to forego the suture of any stomach wound.

The *small intestine* is of all hollow viscera the most frequently perforated. There may be wounds of entrance and exit in each wounded coil of gut or a simple opening may be present, the result of a tangential shot. As a rule the openings are present in pairs, the wound of exit being the larger and accompanied by more marked extension of mucosa. One should operate if the patient is not in a hopeless condition and if a skillful aseptic operation is possible. To make sure that no injury is overlooked the entire intestine should be examined at the ligament of Treitz. Small round perforations are closed with a single purse-string suture of silk or linen. In larger ragged wounds of the gut a running suture is efficient in securing accurate closure of the serosa over the defect. In extensive tangential lacerations the application of the running Lembert suture should be preceded by closure of the wound with a simple running suture traversing the entire thickness of the gut wall. In wounds of the intestine at the mesenteric border care must be taken that the perforation in the muscular coat of the intestine itself is closed. With this in mind the edges of the wound of the mesentery should be separated to allow a good view of the opening into the intestine. After turning in the muscularis and mucosa of the gut at the site of perforation with Lembert sutures, the opening in the mesentery is closed with a simple running suture. Injuries causing complete division of the gut require circular suture anastomosis or invagination of the ends with lateral anastomosis. The latter is the safer and amounts eventually to circular suture since the gut at the site of lateral anastomosis straightens out and assumes a nearly normal conformation.

La Garde states that gunshot wounds of the *large intestine* covered by peritoneum, except those of the transverse colon, are never so fatal as those of the small intestine. The interesting point is that wounds of the small intestine higher up are more likely to be associated with injuries of other and vital organs than are wounds of the large gut. Extraperitoneal injuries of the rectum nearly always recover. On the other hand, all injuries of the rectum which establish communication with the peritoneal cavity are serious.

Owing to the small size of the organs wounds of the *kidneys* are not common. They are usually complicated by wounds of other important viscera. There is nearly always saturation of the fatty capsule and surrounding tissues with blood. Wounds of the kidney, are, as a rule, accompanied by injuries of the intestines. If there is no evidence of perforation of the gut, the kidney injury should be treated conservatively. If the renal vessels are divided or great destruction of the kidney has occurred, nephrectomy is required. As a rule, however, it may be stated that rifle bullet wounds of the kidney are best treated by rest and opium.

Wounds of the *bladder* rarely produce dangerous hemorrhage. The urine is normally not infectious, but if emptied into the peritoneal cavity causes more or less chemical irritation. Obviously extraperitoneal wounds of the bladder are less serious than those which involve the peritoneal cavity. Hemorrhage into the bladder suggests an extraperitoneal injury of the bladder. An empty bladder suggests intraperitoneal injury of the bladder with escape of urine into the peritoneal cavity. Intraperitoneal wounds demand abdominal operation if conditions are favorable. If not, a retention catheter should be introduced promptly. Extraperitoneal wounds are best treated by continuous catheterization or by perineal section.

A clear-cut wound of the *liver* is rare and lacerations are the rule. Hemorrhage is always present, the degree depending upon the size of the vessels involved. Fortunately, the liver tends to tear and give way between the large vessels. Near the hilus, however, the danger of injury to large vessels is great. Liver hemorrhage often subsides spontaneously. Blood pressure in the liver is low and the bleeding may be controlled nearly always by pressure with gauze pads. In wounds of the liver communicating with the chest, hemorrhage is into the chest cavity rather than into the abdomen, since intraabdominal pressure is greater than intrathoracic pressure. If there be extensive laceration of the diaphragm the liver tissue may be extended into the chest. Uncomplicated gunshot wounds of the liver require no surgical treatment unless there is serious hemorrhage, and this hemorrhage may be controlled in nearly all cases by gauze packing, which is left protruding at the abdominal wound. For liver suture a blunt needle and large-sized catgut are used. The ends of the catgut on each side of the wound should be passed through or around gauze strips of several thicknesses to prevent cutting out.

Injuries of the *spleen* are comparatively rare. Uncomplicated wounds of the spleen are rarely seen. It is believed that injuries of the spleen at some distance from the hilus often heal spontaneously. The blood pressure is low and hemorrhage may not be serious. Treatment consists in control of bleeding by gauze pack, suture with a blunt needle, or splenectomy.

Pancreas wounds are usually complicated. The hemorrhage is usually great and the prognosis is bad. The surgical indications are control of bleeding by suture or gauze pack with lumbar drainage.

The Petty Cardiac.—Lian refers to a form of cardiac disorder of toxi-infectious origin which occurs in young soldiers with the expression of effort dyspnea and palpitation and is functional throughout, as far as valvular lesions are concerned. These patients have been ranked among pseudocardiacs, but the author believes that petty cardiac is a more suitable term, regarding the probability that the myocardium is directly acted upon by some toxi-infectious principle. Of 350 cardiacs examined 70, or 20 per cent., were placed under this head. As a rule there is a history of some cardiac disturbance before the war expressed as effort dyspnea, palpitation, and precordial distress. The degree varies extremely. During the war the infantry soldier when on the march may suffer a crisis of dyspnea which forces him to step out of the ranks. As a rule, when he recovers, he is able to catch up with the command. But his troubles become worse. There is a general tremor, palpitation, throbbing of the carotids, confusion, vertigo; and, if he persists, syncope. If one of these soldiers is examined recumbent, as a rule, nothing whatever is found, although upon standing the pulse beat is usually accelerated. There is, however, a tachycardiac type and an arrhythmic type. Most of the cases are seen in the chronic stage, but there is an acute period in which fever is present. In two-thirds of all cases the condition to which the cardiac lesion is secondary is acute articular rheumatism. The other third is due to other infections—typhoid, scarlatina, grippe, pneumonia, etc., etc. In other words, these petty cardiacs should be readily isolated by the history of an infection. In the rheumatic as well as septic cases there is a sharp distinction between simple myocarditis and endocarditis; for a subject with the latter case can hardly be termed a petty cardiac even if the valvular lesion is latent. In both endo- and peri-carditis the myocardium usually participates. The existence of simple myocarditis in these cases in troops has not yet been confirmed by autopsy, and the intimate nature of the process can only be surmised. The author believes that the so-called sinus region is chiefly involved. His views are not solitary in regard to the cases in question for several experts have described a "toxi-infectious palpitation"—among others Mackenzie and Vaquer. That is to say, palpitations are often seen in the wake of some infection. When a soldier reports with effort dyspnea and palpitation he should always be interrogated as to possible past infection. The latter need not be recent, but, as a rule, the first history of either symptom should extend back to an attack of acute rheumatism or other accident of the sort. Another point brought out in the history should be hardships before the aggravated appearance of the symptoms. This chain of events—infection, slight cardiac disorders, forced march, etc., and aggravation of symptoms should serve to isolate these cases from a number of other types of affected heart—the false cardiac included—not only those of mild character, but others dependent upon organic disease. Of other kinds of heart without valvular lesion to be borne in mind in diagnosis are hyperthyroid heart, simple dilatation and hypertrophy from functional abuse, the irritable soldiers' heart of the English

and Americans, the palpitations of tuberculosis, the reflex heart, etc. Of 350 cases studied by the author the chief categories were as follows: toxic infectious myocarditis, 70; so-called constitutional inadequacy of the circulation, 46; "war heart" (corresponding to soldier's heart), 43; valvular lesions, 35; simple hypertension, 32; disorders secondary to affections of the lungs, stomach, nervous system, etc., 59.—*La Presse Medicale*, January 10, 1918.

The Stethoscope an Aid in the Early Diagnosis of Gas Gangrene.—Capt. B. C. Maybury, R.A.M.C., writes in the *Journal of the Royal Army Medical Corps*, January, 1918, as follows concerning the stethoscope as an aid in the early diagnosis of gas gangrene. Many wounds exhibit a varying degree of swelling of the surrounding parts within twenty-four hours of their infliction. In a certain proportion of these cases, especially if the wounds are not drained, and the swelling increases and the part becomes infected with gaseous cellulitis, which is recognized clinically by well-known signs, e.g. resonant muscle, characteristic odor, etc. In the remainder gaseous cellulitis does not develop and the swelling gradually subsides under ordinary treatment. Crepitations can be detected by auscultation with a stethoscope of the portion of the limb infected with gaseous cellulitis. While this sign is present in a well-established case with "dummy muscles," its importance lies in the fact that it is present in a number of cases before the muscle becomes resonant to percussion, and it is therefore useful in distinguishing between the first group of cases mentioned above and the second. The sign is produced by placing the stethoscope on the swollen part and then alternately increasing and decreasing the amount of pressure applied to the chest-piece; this produces the necessary movement of the underlying muscle. Another method is to press the swollen part in several places with the finger, while the chest-piece is firmly placed on the center of the swollen area. The crepitations thus produced vary in intensity and number. In the early cases they resemble those heard in the lungs affected with chronic tubercle and may be few in number; in the later cases they are more numerous. In cases where subcutaneous gas is present they are much louder and are similar to those heard in ordinary subcutaneous surgical emphysema. The crepitations may disappear temporarily from a given area, if that area has been manipulated for a short time. Care should be taken to avoid mistaking the sounds produced by gas from those due to the pressure of blood clot and from those due to friction between the skin or hair and the stethoscope. The detection of these audible crepitations may be of use in two ways. 1. In cases in which they are present the wound should be more freely opened up than otherwise would be done, and if necessary secondary incisions with free transverse division of the deep fascia should be made into the muscle over which the crepitations have been heard. 2. During active operations when owing to the large number of cases admitted to the clearing stations it is impossible to drain all wounds involving muscular tissue. Cases in which crepi-

tations are present should have preference as regards operation over those in which they are absent.

Experiences in a Base Hospital.—Dr. Thomas McCrae read a paper on November 3, 1917, before the Johns Hopkins Medical Society, which was published in the *Johns Hopkins Hospital Bulletin*, March, 1918, dealing with some of his experiences at an active general base hospital in England of 2,080 beds, with a number of associated convalescent hospitals, so that the service was constantly moving. Dr. McCrae said in part that among the diseases peculiar to war, trench fever may be first mentioned. This is absolutely new so far as he could judge. The vast majority of the cases come from the trenches, but a certain number have arisen back of the trenches. Statements are made that the disease has originated in hospitals in Great Britain among nurses and orderlies waiting on patients with the disease. He was told that one case occurred in a nurse in the hospital where he was. He was able to prove that this was not so, and he could not find anyone who had definitely seen such a case. The patients have an onset much like any other acute febrile disease. They feel badly for a day or two, have a good deal of headache, malaria, chills, fever, and loss of appetite. The fever begins comparatively early and is not necessarily high. When these symptoms develop at the front, the men are sent down at once and McCrae saw some of them in about three or four days after the onset. In general, there is nothing particular in the examination, except one striking thing. They complain of pain, which is generally described as being in the shins. The fever is variable; it lasts sometimes five, six, or seven days, sometimes only three or four, and then drops and the temperature runs along for some days at normal. After this interval of from five to seven days there is a sudden elevation in temperature, the fever going up to 102°-104°. This persists for 24 hours and then drops to normal. There is another apyretic period for five to seven days, and then another paroxysm, the temperature again dropping to normal. That may go on for seven or eight attacks. The majority of the patients had two or three; after that the temperature was normal and there was no return of fever. With this elevation of temperature, there is apparently no increase in leucocytes. The pulse always goes up a little and the patient looks very ill. The point of particular interest is the condition of the legs called "painful shin." In the majority of cases the shin is very tender. In some cases when one goes near the bed the man implores you not to touch it, a condition the speaker had only observed otherwise in very severe cases of rheumatic fever. If a more careful examination be made tenderness behind the knees will often be found. Indeed a good many of the patients had as much tenderness on pressure behind the knees as in the shins. After the period of fever is over there is nothing left but this excruciating pain, which is usually worse at night, and it is very common to find these men sleeping during the day. Naturally, in such a condition symptomatic therapy is of importance, but it was not very successful. Locally, the application of a solution of Epsom salts gave

more relief than anything else. McCrac was interested in trying the effect of sunlight. It acted like magic in some cases, but unfortunately they were the exceptions. Some of the patients were not affected at all. The views as to the etiology are conflicting and not one has been confirmed. A good deal of evidence points to the fact that the disease is carried by lice.

Army Health Continues Good.—An announcement made by the War Department, on April 4, states that the health of the army in the United States continues good, although in many of the Northern camps the non-effective and death rates increased slightly over the preceding week. The total number of deaths reported was 237, of which 90 were among the regulars, 29 in the National Guard, and 118 in the National Army.

American Red Cross Meets Emergency.—According to a cablegram from Paris, the American Red Cross has performed another feat by preparing and shipping to a town behind the French front a tent hospital of 500 beds, within twelve hours after receiving a request from the French Government. The hospital was needed to care for patients suffering from fractured limbs who were being removed from a hospital in eastern France that was being menaced by German air raids. The equipment supplied by the Red Cross consisted of 25 tents 20 by 60 feet, each containing 20 beds. The Red Cross is making arrangements to send 50,000 Parisian children to a provincial center where they will be cared for during the summer.

Mineola Fair Grounds for Hospital.—After a conference between the Queens-Nassau Agricultural Society and a representative of the War Department, announcement is made that the fair grounds at Mineola, L. I., will be turned over to the Government for a convalescent hospital. The fair grounds comprise sixty-three acres and when the present buildings are remodeled will accommodate 10,000 patients. At present convalescent soldiers will be sent from the army cantonments but later those from over the seas will probably be placed there.

Urge Shorter Training Course for Nurses.—Dr. Charles B. Grimshaw, the superintendent of the Roosevelt Hospital, has sent a letter to the president of the New York Academy of Medicine showing that there will be a shortage of nurses for several years to come. He urges the New York Academy of Medicine to recommend that hospital units be used as schools, and that the number of nurses in training schools be increased to the full housing capacity. He also recommends a reduction of the training course from three to two years, stating that the latter period has given satisfactory results in Roosevelt Hospital. Other authorities, familiar with the work of nurses' training schools are much opposed to shortening the course.

Army Medical Corps Examinations.—The Surgeon-General of the Army announces that preliminary examinations for the appointment of first lieutenants in the Medical Corps of the United States Army are being held at numerous points throughout the United States, on the first Monday

of each month. There are at present 650 vacancies in the Medical Corps of the Army. The essential requirements to securing an invitation to report for examination are that the applicant shall be a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, of good moral character, and have at least one year's post-graduate hospital internship. A first lieutenant receives \$2,000 a year and during the period of the war will be promoted to captain within a year, subject to examination and receive a 10 per cent. increase in salary. Further information may be had by communicating with the Surgeon-General United States Army, Washington, D. C.

Hospitals Assigned to American Fund for French Wounded.—The New York Office of the American Fund for French Wounded has received a cablegram from its headquarters in Paris stating that the American Red Cross has assigned to the American Fund the care of several base hospitals back of the firing line to be used for the American and French wounded.

Government Takes Over Hoboken School.—The Medical Corps of the United States Army has made arrangements to use Public School No. 6, Hoboken, N. J., as a military base hospital. The school building has a capacity for 500 beds.

New Reeducational Clinic.—Through the beneficence of an anonymous donor New York is to have a new clinic for the functional reeducation of maimed military men and civilians. The new institution will occupy the plant formerly used by the New York Infirmary for Women and Children at Stuyvesant Square and Fifteenth Street. During the war it will concern itself largely with military work, but it is the intention of its founders to make it a permanent organization for the benefit of the industrial maimed of peace times. The institution is to be known as the New York Clinic for Functional Reeducation of Disabled Soldiers, Sailors, and Civilians. Dr. W. Gilman Thompson is president of the organization.

Medical Reserve Corps Needs More Men.—An earnest call is made for more physicians in the Medical Reserve Corps following an increase in the number of assignments to active duty. The Surgeon-General reported on March 22 that there was a total of 18,138 officers in the Medical Reserve Corps and of this number 15,174 are now on active duty.

Dr. Anna Von Sholly of New York City, who is serving with the Women's Overseas Hospital at Paris, has, according to a recent cablegram, been caught in the zone of fighting where she went to prepare a new hospital for occupation. At the time the message was sent she had been cut off from her headquarters in Paris for several days.

Antivivisectionist Propaganda Denounced as Treasonable.—Representative Charles F. Reavis of Nebraska recently denounced before the House of Representatives a circular issued by the National Antivivisection Federation which asserted that inoculation of American soldiers was causing thousands of deaths in army cantonments. He has sent the circular to the Department of Justice with the recommendation that action be taken against the members of the Federation.

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A PHILOSOPHY OF MEDICINE.

IT has been said that a branch of knowledge cannot stop at a scientific rationalization, but must go on to a philosophy, which will not only determine its intrinsic but its extrinsic relationships. One man who thus expressed himself was Herbert Spencer, and it should indeed require a Spencerian mind to write a philosophy of medicine, for it is to be feared that the profession is too much occupied with asserting its own rights and seeking for cohesiveness to consider in a dispassionate manner the relationships of medicine to the general scheme of creation. It is at once a source of comfort and of despair to bear in mind that Spencer, had he attempted to write a philosophy of medicine in his best years, would have failed miserably because the sciences upon which medicine is founded have been substantially transformed since that period. It is only too evident that in a philosophy of medicine the general advance of science—since it cannot be foreseen—must be largely left out of consideration.

At present we can only touch on certain detached aspects of medicine which are seldom borne in mind by physicians but are very obvious to the public and which would certainly require incorporation into a philosophy of medicine. The medical man is tacitly assumed to understand all that concerns the body and mind. In his student years he spends much time on anatomy and physiology and no one would think of denying that he must be thoroughly familiar not only with the normal man but also with those slight borderline deviations from the normal which fall short of actual disease. He is called upon to treat and judge insanity, and hence has been the final authority on the mind. But these assumptions are largely gratuitous, for there are chapters and chapters on the body and mind of which the medical practitioner is, to say the least, very poorly informed. His is in fact but one of a score of professions through which services are rendered to the body and mind or which require great familiarity with the organism in some particular aspect. We may enumerate here high as well as humble callings. Many divines and teachers have been well qualified to improve their op-

portunities of unlimited contact with the human mind and its influence on the body. Doubtless the medical man could learn much from the Jesuit fathers and the writings of Emerson, as he could also from the great pedagogues of the past and present. The athletic trainer, physical director, boxing instructor, masseur, barber, undertaker, can all teach him something about the body.

A barber on a busy city corner may see and handle more scalps in a month than a great expert in scalp affections sees in a lifetime. Is there no way by which these opportunities for observation can be made to yield information for the common weal? The fact is well known that constant familiarity with a given subject by a layman or undergraduate gives him a technical eminence for the nonce which is superior to the consultant in medicine. The late Dr. Oren Pomeroy used to tell with glee about a student who became so obsessed with the ophthalmoscope that he devoted most of his time to the study of eyegrounds and came to be indispensable in all consultation work in a well-known eye hospital. His labors in this field having been interrupted he soon fell off in his ability to see what others could not. There are stories about dissecting-room roustabouts who became superb anatomists because they had no other outlet for their activities. But we need no muster of facts to uphold the existence of this kind of making good, for it is only common sense and daily experience.

We naturally think of the medical man as the chief contributor to the general weal in the direction of public health activities. Many things done formerly in the name of mere utility are done to-day in the name of hygiene. Cities once asked only for plenty of potable water and the problem was purely one of engineering. To-day the water must also be sterile. The same change in viewpoint is present universally. Hence thousands of men to-day—employees of city, State, or central government—earn their livelihood by efforts to improve the public's physical well-being. From an entirely different angle, and largely in the interest of economical utilization of countless forms of plants and herbs—with various animal and mineral products—thousands of individuals are occupied to-day in the drug industry. The exploitation of these industries by patent medicine advertisers should not blind us to the fact that the utilization of these substances for the public weal is praiseworthy on several grounds. Not only does it represent a vast amount of salvage, but it enables a very large fraction of the general public to add legitimately to their incomes.

THE IMPORTANCE OF EXERCISE IN EARLY LIFE.

THAT exercise is healthful, indeed is essential to good health in early life, is a matter which admits of no argument. Yet it is obvious that such exer-

cise should be taken with discretion, as too much exercise in youth is as harmful as too little. It is largely a question of the personal equation, seeing that a child inherits certain mental and physical characteristics which may be developed or retarded by judicious training. The mental powers should not be unduly exercised at the expense of the physical, nor should the physical powers be strained to the detriment of the mental. The endeavor should be to strike the happy medium and to encourage the faculties of the mind and body both to attain to full fruition.

As a rule, teachers are apt to forget or to be indifferent to the truth that "all work and no play makes Jack a dull boy"; or, if it does not make him a dull boy, will render him a nervous, unhealthy specimen of youth. The boy or girl who does not possess a healthy body is incapable of assimilating more than a certain amount of knowledge, or the effort in gaining and retaining such mental pabulum will result in bringing about mental indigestion, injuring health and shortening life. As Dr. Edred M. Corner has pointed out in a paper published in the *Medical Press* of February 20, 1918, parents must be educated to understand that the highest and most acceptable endowment which they can bestow upon their children is good health, and later a sound education is to be grafted on it by forethought and foresight on the part of both parents and teachers.

According to Corner, physical education in the wider sense of team work, that is team work of school games, is perhaps the most valuable part of school life. Further, it may be emphasized that physical education requires as much forethought, method and application as mental. A master, a new creation, skilled and educated, must appear and take charge of it; not merely an exponent of the art of the game, but one familiar with the science of physical culture, which means that games should be supervised in a scientific manner in order that one part of the body or one set of muscles should not be exercised at the expense of the other part or set of muscles. Physical training, as far as possible, should be of a uniform nature, and yet should not be purely gymnastic, but should be taken in the form of games, which add a keen zest to the flavor and provide a healthy stimulus to the mind. Monotony of play, as of work, is to be avoided. Variety is the spice of life, and change of work and change of play are as important as variety of diet. Natural tastes and instinctive aversions must be heeded, at any rate to a considerable extent.

Corner places his finger upon the weak spot in our system of education, and his strictures thereon are as applicable to education in this country as in Great Britain. The physical education of girls is referred to, yet they need bodily education no less than their brothers. The time has certainly gone when it was considered almost indecent for a girl to indulge in physical exercises or exertion. Not

many years ago the ideal girl, regarded from the physical standpoint, was distinctly delicate looking, not to say anemic, and it was deemed vulgar if she bore upon her face the hue of health or the effects of the sun and wind. Now it is esteemed a mark of superiority if a girl is somewhat athletic, has a complexion glowing with health, walks with springing step, and is altogether a robust specimen of girlhood. Perfection of body, vigor of frame and constitution can only be reached by taking daily and appropriate exercise. This not only promotes muscular development but a vigorous nervous system and brain capacity, and aids in curbing that expenditure of nervous energy which is so frequent in girls. Physical exercise provides a healthy outlet for nervous repression.

Healthy children, and especially in these times, are the greatest asset of a nation. Healthy children will not be born unless their mothers are vigorous and healthy; and after all what will it profit a woman to cram her head with knowledge if, in the process, she becomes neurotic and incapable of bearing lusty offspring. If a girl wishes to go in for the higher education, her parents at least should insist that, ere she thus strains her mental and physical powers, she prepare her body by outdoor exercise to withstand this onslaught. It must be borne in mind that mental powers in women are developed at a high physiological cost, and that if she be not hardened she will suffer very serious depreciation of her nervous and bodily system. While physical culture is more urgently needed by girls than by boys, it is required by both sexes in their youth. There is room for sweeping reforms in this direction.

THE PROGNOSIS OF ACUTE PULMONARY EDEMA.

A PAROXYSM of acute pulmonary edema must always be considered serious, and therefore the prognosis must be guarded. The attack may prove fatal or, if recovered from, there is always the chance of a recurrence, and only too frequently it is a symptom of a usually incurable organic affection which will sooner or later end in death. The immediate gravity of an attack of edema of the lungs is naturally derived from an examination of the patient and an analysis of the symptoms offered, but of these there are two which should above all govern the prognosis, namely, the temperature and the expectoration.

The temperature does not usually go up in this process, and often it is subnormal, and the rare instances in which there was fever have almost all ended in death, regardless of the energetic therapeutic measures resorted to. From the viewpoint of the prognosis, the expectoration is of greater import than the temperature and better proven by a larger number of clinical observations. When the expectoration appears at the very onset of the process, and in quantity is in relationship to the râles and other sounds heard on auscultation, one may have reason to hope for the patient's recovery.

But when the expectoration decreases or ceases without any evidence of a diminution of the stethoscopic signs, the situation is eminently serious, for the reason that a bronchoplegia, with or without a paresis of the diaphragm, is in play. The serous exudate no longer being eliminated invades the entire respiratory tree and the patient dies from progressive asphyxia. However, one should not assume that all patients who expectorate freely will survive the paroxysm. There are, unfortunately, instances in which the violence of the attack is such that the patient dies in spite of abundant expectoration which should free the inundated pulmonary parenchyma, and regardless of a copious abstraction of blood which is the only rational treatment of the condition. On the other hand, an energetic and early interference will often save patients who do not expectorate, even when the condition is most alarming.

As to the etiological circumstances which govern the degree of gravity of the paroxysm, it is rather a delicate matter to pass upon, but we believe that it is logical to admit that the degree of renal insufficiency is largely responsible in this respect. The severity of the prognosis of acute pulmonary edema will be greatly lessened, the earlier a correct diagnosis is made, and hence the earlier is a resort to energetic treatment. In the majority of cases a copious abstraction of blood will carry the patient through. A patient who has recovered from an attack of acute edema of the lungs is always liable to develop another paroxysm of greater severity within a few weeks or months, and this fact must ever be recalled when making the prognosis. Finally, the etiological diagnosis shows the evident gravity of this pulmonary process, which is very often symptomatic of serious lesions, such as aortitis or interstitial nephritis.

RESPONSIBILITY IN THE INEBRIATE.

THERE is still too much difference of opinion between what constitutes legal responsibility for crime and medical responsibility of action. While it may be difficult to divest the law of its conception of criminal responsibility from long-established precedent, it is unfortunate that not even the medical profession is in accord on all phases of this question. It would be desirable whenever the question of responsibility arose, whether in insanity or in inebriety, that everyone should agree on irresponsibility, once it is established that there is a change in the physical or mental constitution of the individual in question. While legally a man is responsible who knows the nature of his act and that it is wrong, yet it seems obvious that every action of an individual or of the will, so called, is always influenced by his physical or mental condition. In medicine, unlike in law, the free will has no place in intelligent discussion. If it is once established that the mind or even the body of an individual is diseased or disturbed then it must be conceded that all his ac-

tions are under the baneful influence of these conditions. The question of degree of disease or disturbance and therefore the degree of influence and responsibility is then too essential for consideration. The law gives even less consideration in the matter of responsibility to the alcoholic than to the insane. He is held to greater responsibility because he is said to have had a choice in his drunkenness. He is only relieved from responsibility if the crime required for its commission deliberate intent, deliberate premeditation, and if he was in such a state from intoxication as to be incapable of deliberate premeditation. But in keeping with the more progressive notions on inebriety, no one can truly be said to be an alcoholic from choice. The pathological inebriate can no more prevent his excessive indulgence than can the drug addict. They are both in the same class in every respect. Moreover, the alcohol habit is very often an hereditary condition of extreme sensibility to alcohol, and responsibility for the habit rests, if anywhere, with the ancestry. It is obvious that the alcohol habit can no more be put off at will than crime or disease. That this condition is far deeper than is the power of the will to put aside is shown by the fact that excessive indulgence is accompanied by organic degeneration as well as psychoses, which latter are often characteristic of alcohol poisoning. Crime, inebriety, insanity, and degeneracy go hand in hand so often that it seems that there would be little doubt of the somatic nature of this habit.

It is often said that the mental and degenerative conditions accompanying inebriety are caused by the willful indulgence in alcohol, but it seems more plausible to say that the over-indulgence in alcohol is born of the mental and physical degeneracy which is of hereditary origin. At any rate it is not logical to speak of moral considerations or considerations of free will in an inebriate. One who is so fully poisoned by alcohol cannot be credited with moral motives or amenability to moral suasion. Alcohol paralyzes both mind and body and limits their activities; it creates in its addicts an inability to adjust themselves to the ever-changing conditions of life. The studies of the physiological action of alcohol on the brain and nervous tissues in general can leave no doubt of the pathological conditions induced in the minds of the inebriates. Whenever the fact of the habitual poisonous use of alcohol by an individual is established the sufferer should be given institutional custodial care and not vindictive or correctional punishment, no matter how heinous the offense; the treatment must be the same as that of the insane.

THE SOCIAL SERVICE EXCHANGE.

IN a free democratic community organization there is bound to be a certain amount of overlapping of effort with the concomitant waste of energy and funds. It is true of every branch of life, in busi-

ness, science, and philanthropy. Efforts are being made constantly to eliminate duplication as far as possible, and in an endeavor to achieve this we frequently pool our interests.

There has been a considerable amount of this sort of waste in hospital and charitable work. The same person would frequently be treated for his ailment in several dispensaries and hospitals, or would get aid from several agencies not knowing of each other's contributions. To check the possibilities of such abuse various plans have been suggested and various agencies called into being. One of these is the Social Service Exchange. It is a clearing house for charitable work, not dissimilar to the financial clearing house. As the latter clears checks drawn upon the various member banks, so the former "clears" drafts upon the various philanthropic agencies of the city. Under the plan in operation the name of the person applying for relief in any of the agencies using the exchange is sent to the central office, where it is kept for future reference. There information bearing upon the client's vital interests is recorded on a special card. When, at some future date, the same client appears in another connection his name is again "cleared," and immediately the new organization is informed with regard to all the important facts concerning that client. This system enables the various agencies interested to get such information as is available without waste of time or duplication of effort. At the same time it protects the institutions against the practices of unscrupulous persons.

The hospitals and dispensaries are agencies which come very close to the interests of our population. The facts about ill health and disability are ascertained there. The information obtained by hospitals and dispensaries is very frequently indispensable in the proper disposition of the cases and in laying proper plans for families. It is, therefore, of greatest importance that the dispensaries and hospitals, like other philanthropic agencies, "clear" their cases in a regular and systematic way. This does not mean that the names of all charity patients in hospitals or dispensaries should be reported to the Social Service Exchange, but it does mean that all cases suffering from conditions which have an important economic or social bearing should be "cleared" in the exchange. In return for this important cooperation the hospitals and dispensaries can obtain from the Social Service Exchange information as to the financial status of the patient and whether he is entitled to free treatment. They can also get very quickly, and without special investigation, all the available information about the home condition of the patient. Likewise, they can very easily find out whether the patient is receiving support from some philanthropic organization, and save the time and effort of the social-service workers.

When the slogan of the day is elimination of waste and inefficiency, it is important that the hospitals and dispensaries make greater use of the free facilities offered by the Social Service Exchange than they have heretofore.

A NEW CALL TO SERVICE.

ON page 647 of this issue of the MEDICAL RECORD is a letter from Surgeon General Gorgas, to which we would call our readers' most serious attention. It is nothing less than a summons to the medical profession of the country to come to the aid of the Government in its undertaking to win this war. There seems to be an impression abroad that we have done well, that we have done our share, or more than our share, in giving some 12 per cent. of our members to the medical services of the army and navy. We have done well, or rather we have begun well, but now much more will be demanded of us, and we shall have to meet the demand. General Gorgas states that there are to-day something over 15,000 officers in the Medical Reserve, all of whom will be needed to care for the men now or soon to be in France. Up to the present there has been little in the way of war surgery for our officers "over there," but soon, perhaps before these lines are printed, there will be enough, and more than enough, of that sort of work for every man in the Medical Corps. In the meanwhile there will be several drafts this year, each of which will require a certain number of medical officers, and these medical officers will need training before they are ready to discharge their new duties properly. But this training takes time, and volunteers are therefore needed at once. There are still numbers of young, and even middle-aged, men who are free to offer themselves without injustice to those they leave behind, many, indeed, with no impediment whatever. It is of these that the sacrifice is first demanded. Sacrifice? No, privilege!

UTILIZATION OF EPILEPTICS IN THE WAR ZONE.

AGOSTINI in the *Giornale di Medicina Militare*, January 31, seriously discusses this subject. The likelihood of seizures at inopportune moments would ordinarily eliminate the epileptic from any sort of military service. Nevertheless "epilepsy is a very elastic term, comprising numerous conditions in which major crises do not occur, as well as states which, while attended with convulsions, belong not really under epilepsy but under psychasthenia. It is the subject who suffers only with the infrequent mild or abortive crisis or symptomatic paroxysm who could be utilized for military work. It is admitted that war has caused or awakened only a very small number of cases of true epilepsy. Many subjects of trifling epilepsy are interned in insane asylums and prisons and some of them have learned trades and become skilled workmen. Such men are also found in civil life, supporting themselves and but little inconvenienced by their infrequent, mild seizures. Of 142 alleged epileptics referred to the author's insane asylum, not over a third proved to be true epileptics. The same overwhelming proportion of false epileptics occurs in other statistics. Apparently the skilled artisans among these subjects are those most needed.

ENLIGHTENED CANADA.

THE Canadian government, wishing to reduce the war burdens so far as it could, and to encourage the widest dissemination of knowledge, some time ago

reduced the postage rate upon Canadian publications 50 per cent. during the continuance of the war. It has established no zone rate of postage by which the printed word is reduced to the same level as salt pork and tobacco, but sends any newspaper, magazine, or medical journal from its place of publication to any part of the British Empire—London, Shanghai, Bombay, or Jamaica—at the rate of one-quarter cent per pound. Publishers in the United States pay four times as much, or one cent per pound, on their publications to any part of the country, but on July 1, unless the burdensome law passed some time ago by Congress is repealed, this rate, already four times that in Canada, will be increased from 50 to 900 per cent., according to the distance from the place of publication at which the subscriber lives. This is an unjustifiable addition to the already grievous burdens of the war; these burdens are borne willingly and without complaining, for they are necessary to win the war, but the institution of the zone rate for second-class postal matter is a purely domestic tax, not advocated or needed as a war measure, but one that is simply oppressive. Canada reduces her postal rate 50 per cent., the United States increases hers 50 to 900 per cent.—but comparisons are odious, and sometimes humiliating. Some weeks ago we referred to this, and asked our subscribers to write to their representatives in Congress to repeal the law. It now is only about eleven weeks to the time when the law goes into effect, the law has not yet been repealed, and another letter may give just the necessary impetus to bring about its abrogation. Write this letter to your congressman, and write it now, before you forget; the next time you remember it it may be too late.

News of the Week.

Bills Providing for Insane.—Bills are pending in the Legislature of New York State providing for two new State hospitals for the insane in the metropolitan district. The Creedmore site is proposed for one of these. A site for the other has not yet been selected. The pending bills also ask for the enlargement of existing State hospitals in and near New York City; the completion of the State Hospital at Marcy, and the establishment of a psychopathic hospital in New York City. The measure also provides for a new State Board to handle the problem of the feeble-minded, and recommends a state-wide census, a uniform commitment law providing for defective delinquents, and the reclassification and redistribution of feeble-minded persons now confined in large numbers in reformatories and other institutions. The appropriation bill now before the Legislature provides for a total of about \$2,500,000 in authorizations and appropriations for the construction of new buildings.

Drug Addiction.—As a result of a study of the problems of drug addiction by the Public Health Committee of the New York Academy of Medicine and the New York Psychiatric Society, a set of recommendations has been prepared urging that the Federal Government abolish the manufacture of heroine altogether and control and regulate the sale and distribution of opium and its derivatives and of cocaine, from the time of its manufacture to the

time of its final distribution, and also that it take measures to prevent the importation of these drugs. It is recommended that the Federal Government do not at present extend its jurisdiction to the control of all habit-forming drugs, but that control of special drugs be taken up as occasion demands. A thorough study of drug addiction is recommended in reference to the age, sex, occupation, environment, mental and physical condition of victims, and as to how their habit was formed. Examination of a long series of addicts at Bellevue Hospital shows that about 4 per cent. formed the habit through the advice and prescriptions of physicians. It is further recommended that the State do not at present undertake the cure of a drug addiction, but that at the present time it do what it can to prevent the development of new cases and encourage provision of relief of present sufferers. For this purpose the use of psychopathic hospitals or pavilions is suggested, and that special provisions be made in general hospitals throughout the State to care, under proper control, for those who ask for a withdrawal treatment. Finally, pending Federal action, it is recommended that the State of New York enact some law which will control the matter of drug addiction, and the use of drugs by physicians, in a better, more efficient, and practical way than does the present law.

Bill to Remove Restrictions from Osteopaths.—A bill is now pending before the Legislature of the State of New York which would amend the Public Health Law by removing the limitations now placed upon the practice of osteopathy which prevents these practitioners from administering drugs or performing surgical operations. Health Commissioner Amster has requested the city's legal representative to express the Health Department's disapproval of this measure.

Investigation Shows No Glass in Food.—The New York City Health Department has analyzed more than 100 samples of bread, rolls, candy, and other foodstuffs said to contain glass. Only one sample contained a small piece of glass, and an examination of the whole stock of that kind of candy revealed no more glass. Fifty per cent. of the suspected samples contained only sand or grit, probably the result of slovenly manufacture. Of 19 samples of food sent by the Federal Food Board not one has been found to contain glass. The Department of Health warns the public "that unless this thing is checked by an appeal to reason there will be a wave of hysteria that may result in something worse."

Fire Destroys Morristown Hospital.—The historic Morristown Hospital, which was erected in 1770, and for many years served as a tavern, was recently destroyed by fire. All the patients were removed to safety. The loss is estimated at \$100,000.

Bill Removing Restrictions on Oleomargarine.—There is a bill before the Legislature of the State of New York which would remove the restrictions which now prohibit the use of oleomargarine and butter substitutes in institutions maintained wholly or in part by the public moneys. The Department of Health has expressed its approval of this measure, and points out that the obligation to use butter in public institutions places an undue

burden on the taxpayers by prohibiting the city authorities from purchasing a wholesome and nutritious substitute for butter. The Health Department believes it should rest with the officials in charge of institutions to determine whether or not it is advisable to supply the inmates of public institutions with butter or a wholesome, nutritious substitute.

Duty of Physicians With Respect to Abortions and Homicides.—The Chief Medical Examiner of New York City calls the attention of physicians to a duty often neglected in cases of abortion. He finds attending surgeons, gynecologists, and their staffs of internes, singularly unaware of their responsibility to the prosecuting authorities in regard to the preservation of the pathological material of such abortions, namely, the curettings, and in some cases the uterus removed by hysterectomy. Neglect to preserve such material renders the physician *particeps criminis* to any action which the district attorney of the county may deem necessary. The attention of physicians is also called to the frequent failure on the part of physicians to properly preserve and identify bullets removed by them at operation from the subjects of homicidal attacks.

Epidemic in Ford Plant.—The officials of the Ford Motor Company confirm the report that more than 200 men have been affected daily by a malady resembling grippé. It is estimated that about 2,000 employees have been ill thus far, within a period of ten days.

Vital Statistics of Great Britain Encouraging.—The Registrar General of Great Britain, in a recent report to the Royal Statistical Society shows that but for the war the number of children born in the United Kingdom from May, 1915, to June, 1918, should have been 3,500,000, while the number actually born will be about 2,950,000. In Germany the number born should have been 5,850,000, and will be only about 3,250,000; while in Hungary there should have been 2,600,000, and there will be only 1,100,000. In the United Kingdom this will be equivalent to the loss of over six months' normal births; in Germany to a loss of seventeen months' births; in Hungary to more than twenty-four months. This report discloses the fact that the rate of infant mortality in the United Kingdom during the war years has been lower than at any previous period of like duration. In last July the infant mortality rate in large towns was 10 per 1,000 births, while in German towns of like size it was 76. In August the English figure was 36, and the German was 108; in Halle it reached 145, and in Cologne 283. Deaths from alcoholism in the United Kingdom declined from 53 for each million persons living in 1914 to 29 in 1916. The surplus births over deaths in the United Kingdom during the war is very considerably greater than the total loss of lives of English, Welsh, Scotch, and Irish soldiers during the period of the war.

Dr. Stephen Smith has resigned as member of the State Board of Charities, an office which he has held continuously since 1881, with the exception of six years, from 1882-88, when he was a member of the State Commission in Lunacy. Dr. Smith was 95 years of age on February 19.

The Pawtucket Medical Association, at its annual meeting, in Providence, R. I., on March 21,

elected the following officers: *President*, Dr. A. H. Merdinyan; *Vice-President*, Dr. E. J. Mathewson; *Secretary*, Dr. C. H. Thibodeau; *Treasurer*, Dr. S. A. Hughes.

Examination for Position of Pathological Physiologist.—The United States Civil Service Commission announces an open competitive examination for pathological physiologists, for men only, to fill a vacancy in the Hygienic Laboratory, Public Health Service, Washington, D. C. The position carries a salary of \$3,000 a year, and future vacancies requiring similar qualifications will be filled from this examination. Applicants should apply for form 2118, and for further information to the Civil Service Commission, Washington, D. C.

Obituary Notes.—Dr. FRANK H. WHITE, a graduate of the New York University Medical School, in 1882, and chief examining physician of the Hackensack Draft Exemption Board, died of pneumonia at the Hackensack Hospital, on April 2, aged 55 years.

Dr. OSCAR AUGUST BAST of Brooklyn, N. Y., died of pneumonia at his home in that city on March 27, aged 35 years. He was a graduate of the Long Island College Hospital in 1895, and later studied at Weisbaden, Germany.

Dr. GEORGE SCRIBNER TEN EYCK, formerly of Syracuse, a retired physician, died in New York City on March 29, aged 37 years. He was a graduate of the Syracuse University Medical College in 1897.

Dr. CLARENCE LINDER HOWES, a graduate of the Long Island College Hospital, Brooklyn, in 1878, died from pneumonia at his home in Hanover, Mass., on March 7, aged 69 years.

Dr. OLAF SOHLBERG of St. Paul, Minn., a graduate of the Minnesota Hospital Medical College, in 1884, died suddenly on March 6, aged 61 years.

Dr. WILLIAM G. ENYON, a former president of the Bronx County Medical Society, died of pneumonia in the New York Hospital, on March 24, aged 64 years. He was a graduate of Bellevue Hospital Medical College in 1887, assistant visiting physician to the Red Cross Hospital, attending physician to the House of Refuge, and consulting physician at the Bronx Eye and Ear Hospital.

Dr. ALBERT H. TANNER, a graduate of Bellevue Hospital Medical College, in 1874, died suddenly at his home in Brooklyn, Conn., on March 22, aged 66 years.

Dr. GEORGE HOSLEY SHEDD died suddenly at his home in Conway, N. H., on March 21, aged 65 years. He was a graduate of Maine Medical School in 1879, and head of the Memorial Hospital at North Conway.

Dr. MILFORD B. SHIPP, a pioneer physician of Utah, and a graduate of Jefferson Medical College, died at his home in Salt Lake City on March 14, aged 82 years.

Dr. JOSEPH F. DOYLE of Hartford, Conn., a recent graduate of the Baltimore Medical School, died at a local hospital following a surgical operation, on March 18.

Dr. M. H. SUMMERS, a pioneer resident of Columbus Junction, Iowa, died in Cedar Rapids on March 11, aged 68 years.

Dr. FRED P. JONES of Goshen, N. H., a graduate of New York University Medical College in 1877, died recently at the age of 65 years.

Correspondence.

VOLUNTEERS NEEDED FOR THE MEDICAL RESERVE CORPS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I wish to call to the attention of the profession at large the urgent need of additional medical officers. As the war progresses, the need for additional officers becomes each day more and more apparent. Although the medical profession of the country has responded as has no other profession, future response must be greater and greater. The department has almost reached the limit of medical officers available for assignment.

I am, therefore, appealing to you to bring to the attention of the profession the necessity for additional volunteers. So far, the United States has been involved only in the preparatory phase of this war. We are now about to enter upon the active or the fighting phase, a phase which will make enormous demands upon the resources of the country. The conservation of these resources, especially that of man power, depends entirely upon an adequate medical service. The morning papers publish a statement that by the end of the year a million and a half of men will be in France. Fifteen thousand medical officers will be required for that army alone. There are to-day on active duty 15,174 officers of the Medical Reserve Corps.

Within the next two or three months the second draft will be made, to be followed by other drafts, each of which will require its proportionate number of medical officers. There are at this time on the available list of the Reserve Corps an insufficient number of officers to meet the demands of this draft.

I cannot emphasize too strongly the supreme demand for medical officers. Will you give the department your assistance in obtaining these officers? It is not now a question of a few hundred medical men volunteering for service, but it is a question of the mobilization of the profession. In the large centers of population and at other convenient points, as well as at all army camps and cantonments, boards of officers have been convened for the purpose of examining candidates for commission in the Medical Reserve Corps of the army. An applicant for the Reserve should apply to the board nearest his home.

The requirements for commission in the Medical Reserve Corps are that the applicant be a male citizen of the United States, a graduate of a reputable school of medicine authorized to confer the degree of M.D., between the ages of 22 and 55, and professionally, morally, and physically qualified for service.

With deep appreciation of any service you may be able to render the department, I am

W. C. GORGAS,
Surgeon General, U. S. Army.

POISONING BY ARSPHENAMINE.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In view of the reports in current medical literature of untoward results from the use of arspenamine and neoarsphenamine, I have to request

that you give publicity to the statement that it is requested that samples of any lots of these arsenicals which have shown undue toxicity be forwarded to the Hygienic Laboratory of the U. S. Public Health Service, Washington, D. C., for examination.

In sending these samples it should be ascertained that the lot number is the same as that of the ampoules used on patients. The samples sent should, if possible, be accompanied by a brief note stating the approximate body weight and age of the patient, the dose and dilution of the drug given, the symptoms and result; that is, whether fatal or not.

G. W. MCCOY, M.D.,

Director, Hygienic Laboratory, U. S. P. H. S.

OUR LONDON LETTER.

(From Our Own Correspondent.)

INVALIDS AND COMPULSORY RATIONS—TUBERCULOSIS AND THE ARMY—THE TESTING OF SALVARSAN—CONTINENTAL HEALTH RESORTS FOR BRITISH INVALIDS.

LONDON, March 21, 1918.

THE rationing scheme for London and the "Home Counties," as the contiguous counties of the metropolis are termed, has now been in full swing for a fortnight and a very real feeling of relief is being experienced by the population involved. Apprehensions that the restrictions would prove too drastic have been largely allayed, for numberless people have found that the rational allowances are in bulk as great as they had been in the habit of consuming; others have had little difficulty in bringing down their previous consumption to the new scale, and yet others, who had placed no voluntary restrictions upon their appetites are finding the benefit of forced asceticism. The Ministry of Food, upon whom the duty has devolved of drawing up the regulations for compulsory rationing, have met the difficulty with regard to invalids as liberally as they have met the demand of children and nursing mothers for milk. Extra milk is now allowed not only to meet the needs of these physiological cases, but in the pathological states of pneumonia, enteric fever, acute abdominal conditions, and the cachexia dependent upon nephritis, tuberculosis, enteritis, dysentery, diarrhea, and gastric and duodenal ulceration. In all diseases associated with malnutrition extra milk may be ordered as well as extra butter and margarine, and in diabetes and tuberculosis extra meat is allowed. Extra sugar is only to be sanctioned on medical order in cases where there is difficulty in the mastication and deglutition of solid foods, as in malignant disease of the pharyngo-esophageal tract, or in gunshot wounds of the throat or jaw. The Ministry of Food recognizes no pathological condition as requiring cream, which may not be ordered by medical men. The Ministry of Food have taken the opportunity afforded by making a public pronouncement on the relaxation of rationing regulations for invalids to combat the distrust expressed in certain quarters of the bread now in use, which, owing to the inclusion of a higher percentage of wheat stuffs, has a darker color than the bread made of so-called "refined" flour. The Ministry state definitely that there is no evidence that any state of health warrants the ordering for invalids of bread made from

"superior" flour, a view with which most medical dieticians are in absolute accord. The concessions to invalids have been recognized by the medical profession as wise and liberal, the value of taking expert advice being thus proved, for the Ministry of Food have acted upon the advice of the Committee of Reference of the Royal College of Physicians of London and the Royal College of Surgeons of England, acting in concert with the Central Medical War Committee.

The huge British army has on the whole been wonderfully free from tuberculosis; if compulsory medical service has not proved the frequent method of open-air cure which was prognosticated, equally the strain of military service has not proved the abundant cause of breakdown which the pessimist expected would occur. But undoubtedly, and in particular in the early days of the war when the recruiting medical boards were not so well selected and were far less experienced in their work, many cases of incipient phthisis were allowed to enlist, while other cases of supposed cure were passed as sound with the idea that the tendency to relapse would be counteracted by the open-air life and good rationing of the soldier. Sometimes, however, there was no excuse for the reception into the army of tuberculosis cases, and certificates from tuberculosis medical officers, attached to the public health departments of various localities, were ignored by medical boards, who preferred to rely on their own diagnosis. The particular difficulty arising in this situation, apart from the cruelty to the individual and the immediate expense to the country of enlisting a man who becomes at once a hospital patient, formerly was that the question of pension was complicated by the difficulty of deciding whether the breakdown had occurred *because* of military service, or *during* medical service and because of pathological conditions existent before enlistment. This situation gave room for a good deal of argument and contrary scientific opinions, but these can no longer arise, for it is now decided that the enlisted man is enlisted free of tubercle, and that his breakdown later is the result of military service. An enormous improvement in the quality of the diagnosis of the medical recruiting boards has made this sensible policy possible.

The merits and demerits of salvarsan are to receive very thorough scrutiny at the hands of a competent scientific committee of inquiry, having regard to the differences of opinion on many matters which have manifested themselves as various centers for the control of venereal diseases which have lately been placed at the disposal of the public. The committee of inquiry has been appointed by the Medical Research Committee, and is therefore likely to be particularly acceptable to the public, inasmuch as the Medical Research Committee, though a government bureau or sub-bureau, represent the scientific side of the great democratic measure, the National Insurance Act. A certain fraction of the large tribute levied on employers and employed to finance that Act, is regularly allocated to the support of the Medical Research Committee whose original functions were to conduct research for the right directing of medical practice under the Act. But when the war broke out, and the country as a whole was seen to be engaged actively in a colossal

struggle, the services of the Medical Research Committee were placed at the disposal of the government for any and all war purposes, and some of the very best work in scientific therapeutics has been published under the reign of the committee, the circumstances inquired into being connected in all sorts of ways with the conditions of soldiers and sailors fighting for their country. At an early stage of the war it was seen that in all the armies of all the countries the incidence of venereal disease would play a disastrous part if unchecked; and it was also seen that, while prophylaxis and prevention, exercised by disciplinary measures and moral persuasion and advice, might work wonders, a large number of infections which had occurred could be cured by prompt treatment. Gonorrhea, most chronic and indirectly most dangerous of the ills to which the young adult is liable, can be rapidly cured, almost aborted, by simple chemical and mechanical means, with the result that the soldier finds himself back in the ranks in a few weeks, a wiser and no less efficient man than he was before; all that is required is prompt treatment along recognized lines. Syphilis is seen not to be so simple a problem; it is more difficult of diagnosis, and the treatment is not so regulated by universal agreement as to the best routine. In particular the use of salvarsan has given rise to differences of opinion; some men of experience consider salvarsan to be actually dangerous; many held opposing views as to dosage and method of administration; and many, while granting the virtues of salvarsan, believe that other substances can replace it with advantages of various sorts. Into all these matters the committee appointed by the Medical Research Committee will now inquire, and it will be of enormous use to medical men to receive from them an authoritative statement upon doubtful points. The view of the committee will carry weight, for its members form a strong tribunal. The chairman is Surgeon General H. D. Rolleston, senior physician to St. George's Hospital, London, and now consulting physician to the Royal Navy; the other members are: Dr. F. W. Andrewes and Professor W. Bulloch respectively professors of pathology and of bacteriology in the University of London; Dr. H. H. Dale, the director of bio-chemistry and pharmacology to the Medical Research Committee; Lieutenant-Colonel L. W. Harrison, one of the best-known workers on venereal diseases in the Royal Army Medical Corps; and Dr. F. J. H. Coutts, one of the assistant medical officers of the Local Government Board. The committee has been appointed with the idea that they should propose specific investigations into existing methods of employing salvarsan, and they are empowered to seek at any point the assistance of surgeons and others who are in a position to offer practical advice or communicate firsthand experience. The wide scope thus offered should result in the committee being placed in possession of all the facts that have led to differences of opinion as to the value of salvarsan, from which full comprehension of the situation authoritative suggestions should emerge.

Where a high altitude is needed—*i.e.* any altitude above 4000 feet—for the effective treatment of the British invalid it is obvious that recourse must be had to foreign lands. But it is universally borne in upon British medical men that the factor of altitude

and that of absolute humidity are the only ones that need trouble the physician when recommending his patient to try a sojourn in a home health resort. The variety offered in every circumstance of environment by the bracing north of Scotland, the bleak eastern coast, the high central plateau, and the subtropical softness of Cornwall and Devonshire meets the needs of almost all sick persons, and the number of patients whose life, or whose permanent cure, depends upon a continual sojourn is small indeed. British medical men have now been urged to remember this, and to make their recommendations to foreign resorts as infrequent as possible, as all cross-Channel traffic has been reduced to the lowest limits.

Progress of Medical Science.

New York Medical Journal.

March 30, 1918.

1. Hay Fever and Asthma. Robert Anderson Cooke.
2. Is Early Operation Indicated in Fractures of the Spine with Cord Symptoms? Alfred S. Taylor.
3. Pituitary Tumours from the Surgical Standpoint of the Rhinologist (With Eleven Illustrations). Otto J. Stein.
4. Ischio-rectal Abscess from a Broken Surgical Needle. Joseph F. Saphir.
5. A Nauheim Method (Concluded). N. Philip Norman.
6. The Correlation of the Diagnostic and the Musical Ear. Cyrus Hamlin.
7. Septic Cellulitis. Ramon D. Garcin.
8. An Instruction Corps for Medical Reserve Officers and Cadets. Charles E. de M. Sajous.
9. Present Status of the Pathology of the Paratyphoids. Charles Greene Cumston.

2. Is Early Operation Indicated in Fractures of the Spine with Cord Symptoms?—Alfred S. Taylor points out that there is little unanimity among neurologists, clinicians or surgeons as to the desirability of early interference in cases of fracture of the spine with cord symptoms. The question must be considered in relation to the different types of fracture and the resulting lesions of the cord. With the exception of bullet wounds where there has been complete division of the cord, in which case operation is hopeless, there is no question as to the desirability of surgical interference in fractures by direct violence. In fractures by indirect violence or those in which the line of fracture runs from the spinal canal margin downward and forward to the anterior aspect of the spinal column and again in those rare cases where the line of fracture is reversed, the primary aim of treatment, operative or non-operative, must be to preserve and restore the function of the damaged cord. The lesions of the cord associated with fracture of the spine may be classified as immediate and remote. The former include: (1) Contusion, associated with punctuate hemorrhages of the cord substance at the level of injury, and not infrequently accompanied by gross hematomyelia. In these cases there is always a secondary edema and the loss of the cord function may be partial or complete. After a time there is more or less complete recovery of cord function. (2) Internal distortion of the cord with permanent and complete loss of cord function. (3) Complete division of the cord with separation of the divided ends, in which case loss of function is complete and permanent. The damage to the cord consists of several components: complete division of elements of the cord, which occurs at the time of injury and is permanent regardless of the kind of treatment; hemorrhage, which causes cord symptoms which may clear up with the absorption of the blood; and edema, with loss of cord function which will be restored only if the edema is absorbed before the resultant pressure has caused degeneration of the cord elements. In addition, displaced bone fragments which press upon the cord will cause myelitis with loss of function. Taylor refers to the experiments of Allen, of Philadelphia, upon the cords of dogs, who found that to obtain recovery it was necessary to split the dura and cord very promptly after the impact. Although this could not be done so promptly in human subjects, Taylor performed a laminectomy with splitting of the

dura and incision of the cord on three patients, all of whom died within forty-eight hours. He concludes, therefore, that it is undesirable to subject fractured spines, where the vertebral bodies are involved, to operation within the first week, for the following reasons: Because it is not possible to operate with sufficient promptness to get the good results obtained by Allen in his experiments; because of the dangerous handling necessarily incident to operation, and the increase of false motion likely to follow the removal of the arches and their ligaments; and because of the impracticability of fixation of the fractured spine by external apparatus. In debatable cases in which it seems chiefly a question of the time when an exploration should be done, if there is increasing loss of function caused by secondary edema immediate operation may be indicated; on the other hand, if there is improvement after a few days there is less urgency for interference. Finally Taylor reaches the conclusion that operation should be deferred until the vertebral bodies have become solid enough to stand handling, and only then if improvement should be slow and unsatisfactory or should cease too soon.

Journal of the American Medical Association.

March 30, 1918.

1. Causation of Eczema, Urticaria and Angioneurotic Edema by Proteins Other than those Derived from Food: Study XVIII. Chandler Walker.
2. The Diet of the Negro Mother in New York City. Alfred F. Hess and Lester J. Unger.
3. An Experimental Investigation of Lipovaccines: An Additional Note, with a Note on Triple Dysentery Lipovaccine. E. R. Whitmore and E. A. Fennel.
4. The Influence of Forced Diuresis in Experimental Poisoning with Diphtheria Toxin. W. D. Sansum.
5. Points in Technic of Separating Anaerobes. James L. Stoddard.
6. Cases Showing Remote Results of Testicle Implantation. G. Frank Lydston.
7. Toxicity of the American-made Arsenphenamin (Salvarsan): Report of Cases. James C. Sargent.
8. End Results of Friedmann's Vaccine. Harry Lee Barnes.

1. Causation of Eczema, Urticaria, and Angioneurotic Edema by Proteins Other Than Those Derived from Food: Study XVIII.—Chandler Walker found that eczema was frequently associated with bronchial asthma in persons who are sensitive to various food proteins, and was able to prove that in some cases urticaria was caused by food proteins. He presents instances in which eczema, urticaria, and angioneurotic edema were produced by proteins which are not foods and have not previously been recognized as possible causes of these conditions. He found that horse dandruff, pollen of timothy, and pollen of ragweed, all caused eczema; that horse dandruff and ragweed pollen caused urticaria; and that timothy pollen, ragweed pollen, and flax seed all caused angioneurotic edema. Out of twelve patients, all with one exception (who was suffering from hay fever) had bronchial asthma, which was due to the same cause. Walker concludes that the proteins of horse dandruff, ragweed and timothy pollens may cause eczema both from external exposure and internal injection in predisposed persons. As is the case with food proteins, eczematous patients tolerate very small doses of the offending protein and the eczema seems to improve; but a slight increase in the amount makes the eczema worse. The amount of protein that benefits eczema is too small to prevent asthma, and the amount of protein that benefits asthma makes the associated eczema worse. Therefore, desensitization for eczema, if such is possible, must be a very slow and cautious process. Since small subcutaneous injections of the proteins or horse dandruff and ragweed pollen caused urticaria, it would seem advisable, in determining the cause of this condition, to exclude all protein substances with which the patient may come in contact as well as the food proteins. The same reasoning would apply to cases of angioneurotic edema. During the desensitization of patients with proteins, the appearance of eczema, urticaria, or angioneurotic edema should lead one to suspect that the treatment was the cause of such symptoms.

3. An Experimental Investigation of Lipovaccines. An Additional Note, with a Note on Triple Dysentery Lipovaccine.—E. R. Whitmore and E. A. Fennel point out that lipovaccines can be made on a large scale by growing the bacteria in Kolle flasks; taking off the

growth with a vacuum scraper; freezing and drying in vacuo, and emulsifying in lanolin and oil by grinding in a ball mill, using glass bottles and steel balls. The oils can be sterilized by steam at 15 pounds for fifteen minutes; by heating to 90°C. for ten hours on a water bath, or by mixing with potassium iodide. They state that experiments are being conducted to ascertain whether or not this method of sterilization will affect the antigen power of the vaccine. Ultraviolet rays are also being tried in the sterilization of the oil; and tests are under way to determine whether the antigen substances are extracted from the bacteria in an oil-suspended vaccine by heating, as is the case in a vaccine suspended in saline. In administering the vaccine Whitmore and Fennell have found a needle, No. 21, B. and S. gauge, with a cannula three-fourths of an inch long entirely satisfactory. Although the danger of fat embolism appears to be slight, they issue a definite warning that the injection should be made subcutaneously and care taken to avoid getting the vaccine into a vein. These authors found that they could give men a dose of 3,000 million Shiga, 3,200 million "T," and 2,200 million Flexner type of the dysentery bacillus in oil without marked local or general reaction. They also found that agglutinins, precipitins and bacteriolysins were produced in the blood of vaccinated animals and men, and that there was some evidence of complement fixation.

The Lancet.

March 9, 1918.

1. A Clinical Address on Serum Sickness. E. W. Goodall.
2. Some Mechanisms at Work in the Evolution of Hysteria. Donald E. Core.
3. Clinical Observations on the Effects of Flavine in Wound Treatment. William Pearson.
4. Observations upon the Condition Known as D. A. H. Robert H. Trotter.
5. The Emotive Response to Ordinary Stimulation, Real and Imaginary. A. D. Waller.
6. A Case of Partial Gunshot Division of the Musculo-Spiral Nerve with Secondary Suture. Charles A. Morton.
7. A Note on the After-Treatment of the Radical Mastoid Operation. M. Lyon-Mercado.

3. Clinical Observations on the Effects of Flavine in Wound Treatment.—William Pearson selected for treatment with flavine two types of cases; those in which infection and sepsis were active and not under control when treatment was instituted, and those in which infection and sepsis has been controlled and repair had already begun before flavine was employed. No observations were made as to the "prophylactic" value of flavine in the abortive treatment of sepsis, but Pearson observes that the chief supporters of flavine from a theoretical point of view do not advocate its use as a substitute for hypochlorite solution in such procedures as that recommended by Carrel. The results of Pearson's observations are in agreement with those of Pridaux, and his conclusions have been arrived at from clinical use and observation alone. These conclusions are: (1) In cases where infection and sepsis are active and uncontrolled the use of flavine following suitable operative measures has no beneficial effect on the subsequent progress of the cases in so far as the control of sepsis is concerned. Any slight differences observed were unfavorable. (2) In cases where sepsis has already been controlled and repair has begun flavine acts injuriously, chiefly by producing an unhealthy granulating surface. Pearson adds that while these conclusions do not prove that flavine may not possess powerful germicidal properties in certain experimental conditions, he believes that they show that its clinical use is not attended with good results, and since completing his observations he has abandoned entirely the use of flavine. He further observes that a definite though minor objection to the use of flavine is its staining propensities and the difficulty of removing it from bed-clothes, bandages and utensils. White gauze, as used for packs in dressings, possesses a very powerful affinity for flavine. If a roll of gauze is soaked in flavine solution, even for several hours, it will be found that the outer layers are stained an intense yellow, but the central part of the roll is almost, or quite colorless. Similar experiments carried out with a loose bundle of gauze swabs showed the same result and it is obvious that white gauze has a considerable "filtering" (and "fixing") power on flavine, and this must modify its

action when used on gauze packs in wounds. Pearson points out that the treatment recommended by the Bland-Sutton Institute of Pathology would yield admirable results whether any antiseptic were employed or not. He considers statements as to the possibility of operating near an area already infected (e.g. secondary amputations) without a recrudescence of sepsis, when put forward as a proof of the value of flavine treatment, as scarcely worth considering.

British Medical Journal.

March 9, 1918.

1. Suggestions for the Prevention of Post-operative Thrombosis and Embolism. Frederick McCann.
2. Myomectomy or Hysterectomy. Victor Bonney.
3. Laminectomy for Gunshot Wound. With a Record of Three Successful Cases. Major D. M. Hughes.
4. Five Intestinal Operations on the Same Patient. Harold Hartley.
5. Notes on Surgical Work in a General Hospital. With Special Reference to the Carrel-Dakin Method of Treatment. Major J. S. Dunne.
6. Infected Fractures: Two Cases Treated by Lane's Plates and Carrel Dressing. John MacIntyre.
7. Gonorrhea Complicated by Syphilis. N. P. L. Lumb.
8. The Life-History of *Ascaris lumbricoides*. George C. Low.
9. Treatment of Oral Sepsis. N. C. Fischer.
10. Pharyngeal Hemorrhage Due to Leeches. Captain J. M. Biggs.

1. Suggestions for the Prevention of Post-Operative Thrombosis and Embolism.—Frederick McCann is of the opinion that, although other factors may be contributory, post-operative thrombosis is largely due to the technique employed by the surgeon and that the chief fault may be expressed in the one word "transfixion." He points out that it is the improvement in surgical technique, especially in the direction of combating sepsis, that has reduced the number of cases of post-operative thrombosis and embolism, and he believes that the number of fatalities can still further be reduced by neat, clean workmanship founded on sound anatomical knowledge. He refers to the dangers of transfixion and states that "never transfix a vascular area" should become a surgical axiom. By transfixion, vessels are liable to be punctured and bleed either externally or into the tissues; the transfixing ligature is tied to arrest the bleeding and the result may be that the ligature remains in the lumen of the vessel. Should this ligature not be aseptic or become infected, the natural process of clotting in the vessel may be arrested, the clot liquefying and becoming detached. It is the milder infections that are followed by troublesome complications. The surgeon must cultivate delicacy of touch so that ligatures and sutures may be nicely and accurately adjusted without undue constriction. Round bodied needles are to be preferred to pedicle needles and, indeed, the latter should no longer be employed. Transfixion of the broad ligaments, the omentum and the mesentery is frequently done; McCann believes it to be a dangerous proceeding in each of these situations. In gastric and intestinal operations it is important to avoid puncturing the vessels in the walls of the stomach and intestine. Many accidents could also be avoided by due care and respect for the structure of the abdominal wall. In summing up the situation McCann lays down the following recommendations: (a) Do not transfix or puncture blood vessels; (b) Do not tie or stitch too tightly and cut into blood vessels; (c) Obtain accurate hemostasis, leaving no blood clots.

Berliner klinische Wochenschrift.

January 14, 1918.

Weil's Disease.—C. Klieneberger offers a general survey of this affection. His conclusions are that the diagnosis of serious and fairly marked cases of the disease is an easy matter. The more or less latent cases may cause difficulty in making a correct diagnosis. The icterus, nephritis, and splenic tumefaction may be wanting in the latter. Concomitant acute affections may mask the clinical picture of Weil's disease. The prognosis, formerly regarded as benign, is at present considered as giving a mortality of 13 per cent. The elements of gravity are: an irregular pulse, tachycardia, hemorrhages, a serious cerebral state and massive al-

buninuria and especially hypothermia with tachycardia and cerebral manifestations. Treatment is purely symptomatic, quinine and salvarsan being without effect, likewise the serum of convalescents. Dietetic treatment is important. At the time when great loss of chlorides arises the use of normal salt solution will prevent great emaciation from taking place.

The Cleansing and Cure of Torpid Bone Lesions by Filling in with Pedunculated Flaps.—J. F. S. Esser advises the general use of pedunculated flaps receiving a good vascular supply in order to instill vitality into bone, even in cases of infection and partial necrosis. Esser bases his view on a case of cranial bullet wound, the external table having been injured and giving rise to the formation of a cicatrix which prevented vascularization of the traumatic focus. At length, wearied by repeated operating, Esser removed a large portion of the external table and covered the wound surface with a skin flap taken in the occipital region. Light gauze drainage. The resulting occipital wound healed by granulation. The writer also reports a lacerated wound of the arm in which the biceps was bare over a large area, a condition which later on would interfere with its functions on account of the resulting cicatrix. Therefore a large plastic operation with a pedunculated cutaneo-fat flap was undertaken in order to avoid the above complication. [These extensive skin and fat flap operations in bone injuries have been resorted to on a somewhat large scale by the French surgeons, with extremely good results in many cases.]

Münchener medizinische Wochenschrift.

January 15, 1918.

The Contagiousness of Congenital Syphilis.—Werther points out the contempt often shown by members of the profession in regard to contagion from syphilitic babies, in spite of the frequent presence of the spirochetæ in the superficial lesions. This tendency is still more reinforced by the writings of many authorities. Werther relates ten cases of contagion from newly born luetics. In most of them it was only by a very searching anamnesis that the true origin of the various extra-genital lesions resulting from this manner of contagion could be detected.

A Preliminary Communication on the Treatment of Gonorrhea in the Female with Intravenous Injections of Collargol.—H. Menzi has met with excellent results with this treatment. The injections are given every second day, progressively increasing the dose of collargol solution at 2 per cent. from 2 to 10 c.c. Urethral inflammation, both acute and chronic, was cured in all cases. Out of a total of 24 cases in which the cervix uteri was infected, only one was not cured by the treatment. Two instances of very chronic metritis were uninfluenced by the injections, while three cases of arthritis were quickly recovered from. Infantile gonorrheas were cured after two to twelve injections had been given. Several of the patients treated had been subjected to a long treatment without results until collargol injections were used.

A Pseudogrippal Infectious Disease.—A. Schittenhelm and H. Schlecht have observed an epidemic which might very well have been mistaken for influenza, but Pfeiffer's bacillus could never be demonstrated. The distribution of the affection appeared to be the result of the very marshy region in which it broke out. The writers are of the opinion that the epidemic should be classed under the head of the psittacoses and the dengue. It did not appear that lice had any part in the transmission of the disease. Six typical case histories of the affection are recorded.

Deutsche medizinische Wochenschrift.

January 17, 1918.

The Comparative Value of Radiotherapy and Myomectomy.—Uhlirz criticises Nagel's point of view (reviewed in the issue of November 17, 1917; in Medical Record, February 9, 1918), and although not doubting the good operative results obtained by the latter and other operators, he points out that theoretically a truly specific action can be attributed to the x-rays on the myomatous cell, as well as on ovarian tissue, both these

tissues possessing morphological and biological cells belonging properly to them. Therefore, these cells can be placed electively beside the other tissues of the body.

The Interpretation of the Weil-Felix Reaction in Typhus Fever.—Braun and Salomon refer to the divergence of views existing on this subject, some writers maintaining that the reaction is a certain proof of the infection (Weil-Felix), while others look upon it as a reaction of the organism against the pathogenic agent itself (Friedberger). The writers have compared the biological and bacterial properties of the Proteins X 19 with those of other protein organisms found in pus, human urine, and feces. They have been unable to distinguish any character belonging individually to the X 19, excepting, perhaps, a more rapid production of indol in twenty-four hours. The protein organism of typhus fever are not always identical with each other and they greatly vary in their agglutinogenous properties when inoculated in animals. Several types or races of the proteins can be made out. Braun and Salomon have noted that the serum of inoculated rabbits first reacts against the X 19, and only afterwards against the X 2. This serum heated at 56 deg. C. for one hour loses its agglutinating properties and these are not revived by the addition of normal serum. In conclusion, the writers believe that a reply to the question of interpretation cannot be made at the present time. Besides the two opposed interpretations, one will do well to consider the solution of the following proposition, namely, during the progress of typhus fever the proteins having the characters of the X 2 may transform to the X 19 type, from which arises the specific reaction of the organism against this microbic family.

La Presse Médicale.

February 14, 1918.

Causes of Errors in the Wassermann Reaction.—Leradde and Rubinstein state that paradoxal reactions should be attributable to defective technique. It is necessary to search for such before trying to incriminate the serum. Defects are to be found especially in absence of titration, in poor serum and in the condition of the globules, and at times in the glassware and water used. Frankly positive and negative reactions seldom lend themselves to confusion. It is the partial reactions which make up the great majority of the paradoxal finds and the interpretation is often very difficult. Parallel tests with heated sera (Wassermann) and non-heated sera (Hecht) afford the best conditions for clean results. But for Hecht's reaction to be decisive certain conditions are required which will be discussed by the writers in a subsequent paper. The present article deals solely with the Wassermann. The latter always seems a simple matter to the novice and only years of experience make one alive to the possibilities of error through the clinical reports which come back to him. In fact the serologist and practitioner are mutually dependent on each other. Six components enter into the reaction and each may be a source of error. The apparatus constitutes a seventh component. Each possibility of error must be foreseen and provided against. Again in addition to these individual possibilities others arise in connection with their association in the reaction. Here a quantitative factor enters. There is not a unit or constant in the entire mechanism.

Diminution of Normal Transparency in Tuberculous Apices.—Lebon sums up his radioscopic experience as follows: the uncertainty and doubt attendant upon the precocious diagnosis of tuberculosis of the lungs are not always alleviated by a minute radioscopic examination. It is very difficult to back up with auscultation and percussion the contrasts which at once become visible on the screen, when an opacity has been visible to all who have remained in the dark room long enough for the retina to become adapted. The small condensation in the apex projects a shadow which is the more visible in proportion as the parenchyma in general is sound and permeable to air. The radiograph shows the condition perfectly. For a number of reasons, however, the difficulty in making out a simple diminution of transparency in the apex is much more difficult and the same degree of uncertainty inheres as in auscultation and percussion. Further radioscopy fails to reveal all the

tuberculous apices and numerous lesions when minute and discrete escape all x-ray examination whatever although in such cases we can readily hear a diminished vesicular murmur. Hence stethoscopic evidences still take precedence.

Correspondenz-Blatt für Schweizer Aerzte.

January 19, 1918.

Etiology and Prophylaxis of Goitre.—Bernhard writes very briefly of this subject. The late Kocher, not long before his death, alluded to the fish "goitre" as studied in the U. S. A. with reference to recovery of the animals when flowing is substituted for stagnant water, which makes possible greater movement; also to the good effects of iodine when added to the water; also to his own observation that goitre tends to begin at the school age and finally to the good results of military service. A feature of prophylaxis is the presence of a "healthy" well near every schoolhouse. The water may also be purified by ultraviolet rays or addition of iodine or boiling. However, natural sunlight is the best disinfectant and combined with exercise in free air is also a prophylactic for the child. A survey of shade dwellers and sun dwellers on the slopes of mountain valleys shows marked differences in constitution, the former being more dumpy in build and phlegmatic, while the latter are slender, lean and lively. The author believes that the favorable influence of solar light in the prophylaxis of goitre has never yet been duly honored. As sometimes happens, the intuition of a gifted layman has proved to be superior to the scientific knowledge of his day, and many years ago Balzac saw in absence of sunlight and free air the cause of cretinism. Tourists and those who take cures in Switzerland almost never become goitrous and naturally they visit the country only in the summer or sunny months. The author admits that at present his views are only hypothetical, but hopes they will be corroborated by the studies of others.

Pyelitis Infantum.—Wieland concludes his article on this subject as follows: Pyelitis (and pyelocystitis) is a characteristic febrile disease of childhood as yet not widely known. While it may be due to a variety of microorganisms, the *B. coli* causes a special clinical variety—col'pyelitis. In childhood the infection is chiefly of the descending and hematogenous types and the sudden development of isolated pyelitis speaks for the hematogenous route. After the nursing period female children are principally affected. The condition is very often a metastasis from a focal infection in the rhinopharynx or throat. Constipation and urinary stagnation are not causal factors, but exposure must be reckoned with. To detect the presence of this affection it should be regarded as necessary to examine the urinary sediment in all febrile conditions in young children, the urine being preferably obtained in girls by the catheter. The presence of leucocytes in the hanging drop is good evidence, although bacteriological tests are of course necessary. The condition is eminently a recurring one and may account for cases in the adult woman, especially in pregnancy. Treatment is relatively simple—urotropine or salol, with alkalis and excess of fluids, along with rest in bed.

Correspondenz-Blatt für Schweizer Aerzte.

February 16, 1918.

Significance of Carriers in Cerebrospinal Meningitis, Diphtheria and Typhoid Fever.—Silberschmidt states that carriers occur alike among the sick, convalescent and recovered patient, the nurse and other bystanders, and finally among the unknown. In scarlet fever and poliomyelitis we are quite ignorant as to who bears the disease germ, because the latter has never been isolated. We may speak of permanent carriers who have never been infected, temporary carriers or eliminators who have recently suffered from the disease and permanent carriers who have gone through the disease but cannot throw off the germs. The significance of carriers and methods of elimination vary with the disease. In cerebrospinal meningitis the acute course and high mortality make a strong impression on the public. The epidemiologist is impressed in a different fashion.

He notes that the earliest cases are deadly, but that the later are neither so acute nor so fatal. This is especially the case in barracks and among young adults. But in a community with many children things change greatly. As a rule an adult carrier infects a child. Thus in Silesia workmen from an infected district settled in a new community and communicated the disease to the children of their boarding masters. In France, reservists who had never been infected were sent home when the disease first appeared in the barracks and transmitted the disease to the children. We now know beyond doubt that the meningococcus is harbored in the nasopharynx. From 10 to 30 per cent of carriers never become infected. It is also well known that a subject with the disease seldom appears to convey it to others. In children's hospitals, even when no precautions are taken, spread of disease from the infected is almost unknown. The young recruit, coming to camp among conditions strange to him, is exposed to the weather conditions which would ordinarily cause catarrh of the nasopharynx. The time of year—February to March—is the era of exposure and propagation of disease. It has been shown that when a certain number of carriers enter a barracks the number of cases bear no relation to the number of carriers. The rounding up and internment of the latter seems to be an injustice, considering the very small number of cases which can be imputed to the presence of carriers. There is a marked factor of predisposition which explains the infrequency of infection in those directly exposed. As long as scores of carriers transmit little or no infection, the carrier problem in cerebrospinal meningitis becomes almost a dead letter. In diphtheria it is quite otherwise for here the carrier is justly accused of spreading the disease and is proportionately feared. Most physicians attach great importance to the bacteriological diagnosis, but cases occur in which laboratory and clinical finds do not correspond which cause a certain attitude of reservation. If in all such cases a second test were at once made the latter attitude would doubtless be changed. This refers to the initial diagnosis with especial reference to the indication for serotherapy. But in a case proved to be diphtheria no one attacks the great value of bacteriology because only through the laboratory can we determine whether a subject is cured and free from danger to others, and whether he still harbors germs and is a menace to others. But both the avirulent diphtheria bacillus and the pseudo diphtheritic bacillus constitute problems which can often only be solved by inoculation tests on guinea pigs. In clinical diphtheria there is no such germ as an avirulent Klebs-Loeffler bacillus, but the latter occurs at times in healthy men and those ill with maladies other than diphtheria, irrespective of past disease and epidemic incidence. If several hundred school children are examined at a given time a few may be found to harbor avirulent diphtheria bacilli. To what extent such children are potential carriers is unknown. They differ wholly in this respect from the healthy carriers of virulent germs discovered when the disease is prevalent and may be regarded as dangerous carriers. Neither local nor systemic treatment is certain of sterilizing a carrier and the only protection to give society is isolation, as in the case of the typhoid carrier.

Precipitate Labor and the War.—Rassauer during the past two years has seen many precipitate labors, even in primiparae. He associates the phenomenon with war emaciation and war amenorrhea, as having in part a common motivation, to wit, abnormal irritability of the nervous system.—*Muenchener medizinische Wochenschrift*.

Damage from War Diet.—Boenheim discusses war edema in which there is no cardiac or renal lesion but a secondary anemia. Victims had long been nourished almost exclusively on eggs and potatoes. Upon a diet of green vegetables with extra calcium and iron the disease promptly ceased. The author does not regard the condition as due to lack of vitamins. He believes that lack of certain protein is responsible; without this hemoglobin cannot be synthesized in the body. A needed "pyrrol ring" is supplied by plant legumes in the green state.—*Correspondenz-Blatt für Schweizer Aerzte*.

Book Reviews.

THE SURGICAL OPERATIONS ON PRESIDENT CLEVELAND IN 1893. By WILLIAM W. KEEN, M. D., LL.D., Emeritus Professor of Surgery, Jefferson Medical College, Major Medical Reserve Corps, U. S. Army. Philadelphia: George W. Jacobs & Co., 1917.

THIS is an interesting account of an operation for cancer performed on President Cleveland, no knowledge of which was allowed to come out during his lifetime. It is interesting to the profession and also bears testimony to the worth of the late President, both as a man and a statesman. Dr. Keen has done a public service by the publication of this little book on President Cleveland.

A MONOGRAPH ON THE EPIDEMIC OF POLIOMYELITIS (INFANTILE PARALYSIS) IN NEW YORK CITY IN 1916. Based on the Official Reports of the Bureaus of the Department of Health. Published under the Direction of the Department of Health of New York City, 1917.

THE epidemic of infantile paralysis occurring in New York last year stimulated a large addition to the already voluminous literature of this disease. Most of this was ephemeral in type, recounting already known aspects of the disease, but there emerged from this mass of material some contributions of solid value. The present volume may be taken as belonging to the latter class, representing as it does the seasoned observations and studies of the New York Health Department experts. Although names are modestly withheld, when we know that men like Park, Poor, Berg, Billings, Biggs, and Lederle are identified with this work we have sufficient assurance of its value.

After a brief survey of the historical aspects of the disease the question of causation is discussed, and the present status of the Flexner-Noguchi organism given. An exhaustive account of the post-mortem findings in forty cases is given; this agrees substantially with the pathology given by Wickmann, Harbitz, Scheel, and Straus. In this book, as would naturally be expected, the relation of the disease to the community is given more attention proportionately than the discussion of the disease itself, differing thus from the usual monograph on such a subject. But the general medical aspects are by no means neglected, forty pages, *e.g.* being devoted to diagnosis and forty-six to treatment. Not the least interesting part of the book is the appendix, which is a complete record of the New York epidemic, with many interesting pictures.

THE CONVERSION OF HAMILTON WHEELER. A Novelette of Religion and Love, Introducing Studies in Religious Psychology and Pathology. By PRESCOTT LOCKE. A Voluntary Contribution to the National Mental Hygiene Movement. Price, \$1.25 net. Bloomington, Ill.: The Pandect Publishing Company, 1917.

THIS is a book with a purpose! From the first line to the last we are not allowed to forget it. An emotional adolescent boy attends several of the spiritual debauches of an eminent revivalist (whom there is no difficulty in identifying), yields to a religious frenzy which finds its outlet in sexual immorality first, and finally in a near-psychotic episode. Through the judicious intervention of two alienists he is restored to normality. While the reviewer is heartily in accord with the purpose of this book he cannot help remarking that the heavy bricks of didactic psychopathology are too thinly joined by the mortar of narrative to make it interesting, and it will be an earnest reader indeed who follows the story to its end.

THE SENSE OF SIGHT. By FRANK NICHOLAS SPINDLER. Vice-President and Professor of Psychology and Education, State Normal School, Stevens Point, Wisconsin. Our Senses Series—GEORGE VAN N. DEARBORN, Editor. New York: Moffat, Yard and Co., 1917.

WHEN a reviewer reads in the editorial introduction that "the books are the best of their kind and are in a class by themselves, they are the standard authority for ordinary use. These volumes, when disposed as a red-backed set on one's library shelf will be a set of books to be proud of," he feels there is little he

can add. The possessor of such a monochromatous set is indeed a man set apart. But really there is much that the layman will find interesting and instructive in the present volume, and one is almost inclined to agree with the editor when he goes on to say, "the high school boys and girls and their fathers evenings and on Sundays, and their mothers at the club, all alike will think of them as highly valued friends, both wise and agreeable."

The book is one which the layman who wishes to possess or even to impress with a little learning may well add to his library.

AN INTRODUCTION TO THE PHYSIOLOGY AND PSYCHOLOGY OF SEX. By S. HERBERT, M.D., M.R.C.S. (England), L.R.C.P. (London). Author of "The First Principles of Heredity," "The First Principles of Evolution," etc. Containing 49 illustrations. Price, 5s. net. London: A. and C. Black, Ltd., 1917.

MANY are the books on sex, varying from the erotic exhibitions of the cheap professors who pander to the prurient curiosity of the proletariat to the ultra-scientific discussions of genuine physiology, but this book is a presentation of the facts of sex so that the intelligent lay reader can grasp them, and yet they are presented as coldly and dispassionately as if they were an explanation of the mechanisms of vision, we will say. An excellent thing, indeed! And Dr. Herbert has produced an excellent book, one to which the social worker, the minister, or the teacher can turn with assurance of enlightenment. We cannot imagine a more wholesome book to place in the hands of the adolescent, whose curiosity has been titivated by the whispering of schoolmates, whose imagination has been aroused by concupiscent best-sellers, and whose morbid inappreciation of physiological processes has been stimulated into dread by the dire prophecies of charlatans.

Dr. Herbert's views on sexual abstinence are the most sensible we have ever seen expressed in a book of this kind; and there are many other merits which lack of space forbids our enumerating.

HANDICAPS OF CHILDHOOD. By H. ADDINGTON BRUCE, Author of "Psychology and Parenthood," "The Riddle of Personality," etc. Price, \$1.50. New York: Dodd, Mead and Company, 1917.

THIS later contribution of this well-known author is a compilation in large part of articles which he has contributed to the pages of popular magazines. In this book a successful effort has been made to demonstrate the necessity of early and never-ending training of children in the moral sphere. All the mean, unpleasant traits of character and manner which men and women are afflicted with, and which detract from their success in life, both financially and socially, could in so many, many instances be traced back to faults of early training, due to indulgence of parents and those in authority during the child life of the suffering victim. These books of Addington Bruce bring to light the intense suffering undergone by people who have been badly trained in the training years, and they also show up the weakness of will, the lack of moral backbone, the love of luxury of mind and undisturbed life current of parents.

There is no use trying to evade the fact any longer that parenthood is a definite profession which needs a preparatory course of study and thought as well as any other profession entered into as a life work. Marriage may be nature's way of obtaining happiness and at the same time populating the world, but with this happiness goes certain serious duties that can no longer be side-stepped.

In this book the author has endeavored to make clear phases of childhood which can be more or less conquered by right training such as mental backwardness, mental and moral conditions surrounding the only child, the child who sulks, selfishness, stammering, bashfulness, indecision, and jealousy.

How much better it is to train children in the right and high-minded way, both for their good and the betterment of the world, than to have them as miserable, unhappy members of society, going, in later years, to psychoanalysts for the relief or cure of that which should have been eliminated from them as little children.

Society Reports.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held February 25, 1918.

THE PRESIDENT, DR. HOWARD C. TAYLOR, IN THE CHAIR.

Conservation and Reclamation of the Civilian and Military Forces.—Major HARRY E. MOCK of Washington, D. C., made this contribution by invitation. He said that before reading his paper he wished to tell the story of Johnny Jones of Kokomo, Ind. Johnny left an orphanage at the age of sixteen years because he had a sister to support. He worked up to a position as trucker in the bolt factory, was satisfied with his job, and planned to be married, when he was drafted. While rescuing a comrade he was wounded, having both legs and his right arm shot off. For days he was too weak to think, and then came days when he was very despondent. Finally, he came to a reconstruction school. While waiting for the stumps to heal he began learning to write with his left hand. He then took a commercial course, and is now secretary to the president of the bank at home, making more per week than ever before. By physical reconstruction of the disabled men was meant the adopting of the very best medical or surgical procedures possible in order to obtain the greatest functional restoration in a diseased or injured organ or member of the body. Rehabilitation included the mental and physical training of the disabled individual so that he could again be established as a useful member of society, and included further supervision until he had secured a firm grip on life as represented by all its economic factors. All the nations engaged in this war have adopted methods of reconstruction and of otherwise reclaiming their disabled soldiers for the purpose of returning them either to the firing line once more or placing them back into industry. The Canadians had been forced to meet these problems during the last two years, for thousands of permanently disabled soldiers had been sent home. Canada had established reconstruction hospitals in every Province with curative shops in connection with them. It was voluntary with the discharged soldier whether he chose this opportunity for vocational training or not. The work both of training and of placing these men back into the occupations was left to civilian committees in each Province. In England the disabled soldier remained under military control until he had completed all medical and surgical treatment required in the hospital. France and Belgium had excellent systems of rehabilitation in certain centers. But a study of the plans for this work in all the countries showed that they were still incomplete and lacked the coordination necessary to make them efficient. In this country we would soon be facing the same problem. Congress had passed a very good war risk or disability insurance act which would enable us to carry on a very broad program of rehabilitation. This bill gave more or less control over the disabled soldier which would enable us to complete his rehabilitation. But the success or failure of our work rested with each individual. Unless the ambition and desire for this training was stimulated in the hearts and minds of the disabled men, the whole scheme would be a failure. Thus far the work in the surgeon general's office had been along the lines of studying and preparing for this great problem, arranging for the establishment of hospitals in every one of the sixteen draft districts of the country, and mapping out plans for curative shops and pre-vocational training. In making these plans it was realized that they must be made so comprehensive that they would fit in with the programs of existing civil organizations whose purposes were the same as theirs, namely, the placing of the disabled men back in civil life on a self-supporting basis.

At present this was a military problem and belonged to the medical department of the army. Closely allied to it was the same problem in the navy and in the industrial army. Later it became purely a civilian problem and entered the field of many federal, State, local, and private civilian organizations whose duty it would be to complete the rehabilitation. It was our duty

therefore to work out a plan that would not only be applicable to handicapped soldiers and sailors, but that would be applicable to the handicapped in the industrial army as well. A resumé of the plans for these crippled soldiers and sailors would illustrate the scope of the work.

The disabled soldiers on their return to this country would be received at a large central hospital. This hospital would undoubtedly be located on Staten Island. Here the patients would be thoroughly examined and each individual case passed on by both medical and vocational experts. From this central receiving point they would be distributed to (a) general hospitals; (b) special hospitals; (c) hospitals with special vocational schools; (d) direct home or to hospitals for incurables. In connection with each hospital, as an aid to medical care, there would be established gymnasiums, hydrotherapy and massage rooms, and mechanical appliances. Each hospital would have a curative shop where men could indulge in light work of various kinds. The purposes of these curative shops were: (a) to give mechanotherapy when indicated; (b) for their psychological effect; (c) for productivity and beginning vocational training when that was indicated. At all times a practical trend must be given toward employment. Pre-vocational schools would be open (a) for the purpose of curative therapy; (b) to teach new trades to those unable to take up their former occupation; (c) special schools for the blind, the deaf, the orthopedic and tuberculous cases, etc.; (d) for agricultural pursuits, which could be taught in some of the hospitals favorably located. Some of this vocational training must be given in already established schools, such as our State universities, where short courses could be arranged or regular courses adapted to the new needs. Others of the war injured, with no special training in any line of work and no special qualifications of entering vocational training, would best be placed directly into some industry or trade. Three of the best vocational experts in the country, representing commercial, professional, industrial, and agricultural schools, were serving as commissioned officers of the reconstruction staff of the surgeon general's office and were devoting their entire time to the development of this branch of the work. The widest publicity must be given to the proposed plans for reconstruction and later the public must be kept in constant touch with the actual work. The rehabilitated soldiers would need kindly advice and encouragement for some time to prevent them from deteriorating. The hospitalization and hero worship which these men would receive would tend to make retrogression easy and this must be counteracted by proper influences. Depending upon the length of the war, plans were being made to care for anywhere from 5,000 to 100,000 disabled soldiers who must be reconstructed and rehabilitated.

In civil life, we were told, there were between 600,000 and 700,000 industrial workers disabled as the result of accidents every year. Those disabled from preventable disease far exceeded this number. War had focussed attention on this great waste of human life. The time was ripe for our federal Government to put in force and administer a plan for this great conservation movement. Human conservation could be accomplished by health supervision, disease prevention, accident prevention, raising of the standards of medical and surgical practice, by educational campaigns on sanitation, living conditions and the allied subjects, and by the co-operation of all existing machinery.

The speaker then reviewed the various existing agencies that might be utilized, namely, the medical departments of the army and navy, the public health service. There should be an extension of this work to the industrial army employed in the military industries, to those employed in federal controlled industries, to employees in industries under federal contract, and to all civil industries necessary to the winning of the war. In civilian life much could be done for the furthering of this work by utilizing the State and municipal health departments, by utilizing State and federal inspectors, by educational campaigns, and by organized work such as that developed by the Food Conservation Bureau. The unsanitary conditions existing in many of our industries could no longer be ignored. Human conservation demanded the adoption of some such plan as this and the

winning of the war demanded some such plan as this.

Social Affairs for Disabled Soldiers.—Mr. CURTIS E. LAKEMAN of the Department of Civilian Relief, American Red Cross, Washington, D. C., made this address by invitation. He first referred to the plan described by the previous speaker, characterizing it as the ideal program of reconstruction peculiarly appropriate to the army of a democracy. The plan called for the participation of civilian agencies, and among them the American Red Cross had a definite part to play. The plans of the Red Cross did not in any way duplicate those of the Government, its field lying almost wholly in the social supervision of these men during the period of their readjustment to civil life. There was but one exception to this and that was the experiment station in the vocational training and employment of cripples established at No. 311 Fourth Avenue, New York, under the direction of Mr. Douglas C. McMurtrie, which exemplified the function of the Red Cross as an auxiliary of the army and navy. The Surgeon General and the Secretary of War had bestowed their approval on this school. The disabled soldiers and sailors on their return to this country would first be cared for by the military hospitals of the army and navy. But when they resumed their places in the community, after being discharged from further treatment and training in the Government institutions, the Red Cross would find an appropriate field for its activities in assisting these men temporarily during their period of adjustment to industry and normal life.

Many of the activities of the Red Cross were well known to the public, but it was not so well known that since August, 1916, the Red Cross had developed a system of service to the dependents of enlisted men which reached into every city and town in the country. The war risk insurance law of October 6 saw to it that the income of the soldier's family was kept up, but often more than money was needed. A family in trouble might need many services which the Government could not render as effectively as could a friendly neighbor, and there was no agency so well prepared to supply this friendly and patriotic spirit to each community as the Red Cross. The Red Cross called this part of its work "Home Service," which meant the conservation of American ideals of health, education, sanitation, housing and working conditions, relief in emergency, and the provision of a regular allowance to those who had no legal claim on the Government and nevertheless had heretofore been dependent on a soldier or sailor. In Manhattan and the Bronx alone four thousand families were being helped in this way. When the Government had rehabilitated a disabled soldier and placed him in a suitable employment his problems and difficulties of readjustment became the concern of the Home Service. He needed constant personal encouragement, help in finding congenial surroundings, and assistance in meeting and overcoming obstacles. A condition of permanent stability in the reunited family must be maintained, and a continuous effort made to restore self-confidence, self-reliance, and ambition. When everything possible had been done for the rehabilitated man and his family, something remained to be done with the employers. They should be encouraged to provide proper opportunities for handicapped men and to exercise forbearance in their dealings with them. Last, but not least, it was the first duty of the Red Cross and of all other agencies truly interested in the rehabilitation of disabled soldiers to create the most wholesome public sentiment, to the end that every effort to become self-supporting might be encouraged and that everything possible might be done for the disabled soldiers returning from the front.

Vocational Reeducation of the War Cripple.—Mr. DOUGLAS C. MCMURTRIE, director of the Red Cross Institute for Crippled and Disabled Men, described the work that the Red Cross Institute planned to do and illustrated it with lantern slides. He stated that up to the present time the whole tendency in the way of making amends for industrial accidents had been in paying off some money indemnity. It had remained for the present war to bring about changes in this attitude. This was well brought out by the pictures showing the work being done abroad in the reeducation and rehabilitation of crippled and disabled men. The speaker then described the reconstruction work now being carried on

at Roehampton, England, and in several Continental reconstruction schools. When a man was an expert in any particular line of work the attempt was made to raise him a grade in his own line of work. Provision was made for special training in almost every line of industry. On the other side, a good deal of attention was given to teaching cobbling, as this enabled a man to open a shop of his own and to make a comfortable competence. Cobbling was found to be a useful trade in Canada, but it did not promise so much in this country. As an illustration of what could be done pictures were shown of soldiers with both legs amputated at the hips. Some of these men became expert leather workers and saddlers, and others were taught the more expert processes of tailoring. Wherever possible cripples were employed as teachers. In Canada it had been found that in order to be thoroughly successful the teacher must have been overseas himself. The man who "had been through the mill" himself had much more influence and offered a greater inspiration to those who were learning than did one who lacked this experience.

There were a number of these vocational schools in Canada; one at Winnipeg accommodated two or three hundred men. In these schools special attention was given to teaching the making of artificial limbs. In making provision for prosthetic appliances two sets were usually supplied, one constructed for efficiency in the workshop and one constructed esthetically for wear when working hours are over. The method of using an artificial limb or appliance was practically always taught by a man who was wearing such an appliance. The occupations taught in these schools, included tailoring, cobbling, carpentry and cabinet work, the making of artificial limbs, electrical maintenance and repairs, the making of submarine fittings, coppersmithing, welding, blacksmithing, typewriting, stenography, book-keeping, switchboard operating, etc. The idea was to fit the men so that they would fit into a local labor market. One of the most essential things to be done was to keep the men who had been on farms still on the land. It had been found that after vocational training a man could do his own farm work no matter how badly crippled he was. The American Red Cross was trying to contribute to the French reeducational system up-to-date agricultural machinery so that a man could depend upon skill and device as a substitute for his lost strength. In Alberta, Canada, the reconstruction work was as good as anywhere in the world. They were getting 95 per cent. of the men who would profit by vocational work to take it up voluntarily. In the United States it had been the intention of the Government from the first to reeducate cripples, but there had been considerable delay in getting the work under way. In the meantime several private agencies had become interested and had offered to contribute, among them Jeremiah Milbank, who had offered the Red Cross sufficient money to start a school at once. As soon as this subject was discussed it was seen that this was not only a question of the soldier cripple but that it concerned other cripples as well, and for this reason the Red Cross had started its activities. When the war cripples began to return the institute would be in a position to take them in and deal intelligently with them. At the present time the institute was taking care of the cripples of industry and those in charge would be glad to have brought to their attention any case that would be helped by reeducation. It was their object to place cripples in occupations where their handicap would not be a drawback. Where a man could not be fitted to his former employment without such a handicap he would be taught a new trade or occupation. The classes were being started at the present time in the old building of the College of Physicians and Surgeons, at Twenty-third Street and Fourth Avenue, New York. They hoped to do considerable experimental work in artificial limbs.

At the present time the scheme for reeducational work was under discussion in Washington and the effort was being made to prevent the work from becoming localized. In France the cripple's care depended upon the locality from which he came. If there was work there that he could do, he profited; if there was none he suffered. There was no doubt that the national plan was most desirable. It seemed probable that the

reconstruction work would be handled from the surgeon general's office and would be conducted in various reconstruction hospitals throughout the country.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting, Wednesday, February 13, 1918.

THE PRESIDENT, DR. FRANK C. HAMMOND, IN THE CHAIR.

Plastic Repair of Oral Mutilations from War Injury or Operative Attack.—Dr. JOHN B. ROBERTS said that his paper might perhaps find justification in the frequent avulsions of military surgery, the burnings with liquid fire in war, and the operative mutilations demanded by delay in radical treatment of malignant disease. While some difference in detail occurred in the repair of lesions of lips, cheeks, and jaws from the causes mentioned, the principles of the surgeon's reconstructive acts and the steps through which the human organism responded to his desires were said to be essentially the same. A surprising degree of ignorance, Dr. Roberts observed, existed regarding the availability and success of treatment for such forms of facial deformity, such ignorance existing not only in rural populations but in large cities as well. Congenital malformations, like harelip and cleft palate, also cicatricial distortions from slow healing of burns and crushing injuries were seen at metropolitan hospitals for treatment, months, even years, after the precious moment when the aid of corrective surgery or dentistry should have been sought. The appreciation of the value of early plastic aid, Dr. Roberts said, was gradually being instilled into the minds of surgeons by the lessons of the present European war. The energy exhibited by the contracting force of fibrous tissue when it replaced granulation tissue in wounds was said to be astonishing. Carrel and deNoüy had shown that when open wounds were compelled by infection to heal through the conversion of granulation tissue into scar tissue, the major part of the closure was effected by dragging the boundaries of the ulcer toward a central point. Thus it was that the epidermization was reduced to a minimum and the cutaneous defense against ingress of microorganisms from without re-established. The effect of this interstitial contraction on the surrounding and underlying structures was lamentably evident. Slow healing of wounds due to injury, tardy cure of ulcers left by suppuration of tissues killed by fire, electrolysis, or chemical action, left eversion of lips and eyelids, closure of orifices of mouth and nose, strictures of ducts, and produced adhesions that restrained the movements of joints.

Major HUNTER W. SCARLETT said that the pictures shown by Dr. Roberts reminded him of the cases seen at the American Ambulance in Paris in the first two years of the war, the only difference being that the war wounds were infected, which delayed reparative work, in some cases, for from five to twelve months. He had been impressed in such work with the importance of making flaps as large again as would ordinarily be thought necessary for filling in of the gap, also of making their bases very large, with sufficient subcutaneous tissue to insure nourishment and prevent superficial gangrene or deep sloughing. In two cases in which these precautions were not observed sloughing of flaps occurred. More success had been obtained in the use of the pedunculated flap than in those taken from other parts of the body. An astonishing fact was that so large an amount of tissue might be lost and the membrane brought to almost its normal position. In one case in which the whole side of the face had been shot away, the bony structures only remaining, the wound had cicatrized down to possibly an inch in diameter. Nature did much for these wounds; in a number of instances, after making the wound surgically clean and approximating the tissues, it had been left exposed to the air except for a covering of gauze.

Captain BRUSH, appreciating the courtesy of Dr. Roberts in his invitation to the members of the military surgery class to discuss his paper, felt that he could offer nothing of interest from personal experience, but referred to the technique of Morestin whom he had seen operate in Paris. In operations under local anesthesia only three persons took part, Morestin himself,

his assistant, and the hospital nurse. In operations under general anesthesia the anesthetist made a fourth. The instruments were laid in a large open box; very few towels were about. The manipulations of the operator were done with great rapidity; the flaps were brought up as far as they would bear the tension and were then united. The sutures used by Morestin were almost exclusively silkworm gut and this was darkly stained to be easily seen. The sutures, he said, were passed through the thick edge of the flap, the Hagedorn needle being used; the ends were rapidly tied and allowed to hang long. These were gathered up by the assistant and held until the completion of the operation.

Dr. L. J. HAMMOND asked Dr. Roberts how he secured mucous membrane lining for the newly formed lips and cheeks in cases in which there had been great loss of substance. He had found it essential to employ mucous membrane lining in order to obtain an approximation to normal contour of the lip.

Dr. C. B. LONGENECKER inquired how Dr. Roberts determined the interval of time when the wound in a malignant case might be safely closed, observing that if any of the malignancy remained the plastic work was, of course, useless.

Dr. ROBERTS, in closing, said that in operating upon a malignant case he endeavored to get far beyond the area of the disease, agreeing with Dr. Longenecker that if this were not possible, plastic work was inadvisable. Replying to Dr. Hammond, he said he sometimes tried to save mucous membrane for lining the lip or cheek; he did not, however, pay so much attention to this matter as did some operators, since he usually tried to get enough skin or muscle turned into the cheek to offset any probable contraction. He agreed with Major Scarlett that Nature could do much more for these wounds if they were lightly dressed. A big poultice, he said, soon became saturated with fluid and in reality formed a pus poultice. His endeavor was to dress all his operations dry; often he put on no dressing at all if the lines of the incision were not too close to the orifice of the mouth or nose where it would become contaminated. His standing rule was that his assistant should not wash the area, except with a damp cloth in the region not operated upon.

An Analysis of Fourteen Hundred Cases of Cancer Treated by Electrothermic Methods or in Combination with Operative Surgery, X-Rays, or Radium.—Dr. WILLIAM L. CLARK said that electrothermic methods of treatment of cutaneous cancer had been found to be more uniformly reliable than other procedures. This was also true of cancer of the lower lip and oral cavity; but operative surgery, x-rays, or radium might be used to advantage when metastasis had occurred. When glands or large blood-vessels were involved electrothermic methods could not be used with safety in the region of the blood vessels. Operative surgery and the x-ray were usually preferred in mammary cancer, but a breast might be removed by electrothermic methods. Operative surgery, radium, or both in combination, ordinarily seemed best in cancer of uterine cervix, but electrothermic methods were also of value. Cancer of the bladder or rectum, unless seen very early, was hopeless. If seen early electrothermic methods offered the best chance of success. Electrothermic methods were successful when the disease was localized, and they had the advantage over other methods in that the diseased tissue was entirely destroyed with one treatment, blood and lymph channels were sealed, and superior cosmetic results were obtained. The successful treatment of cancer, generally speaking, he said, was the intelligent use of the methods best suited for the individual case; or, when indicated, the use of combined methods.

One Hundred Cases of Cancer of the Uterus Treated by Radium.—Dr. JOHN G. CLARK said that during the last three years he had had under treatment considerably over 100 cases of inoperable cancer of the cervix. One hundred of these had been available for statistical study. So long as cancer was within operable bounds surgical treatment had been employed. The treatment of these inoperable cases with radium had been begun on purely the palliative basis and so continued because it had been realized that no case was a cured case under five years and in none of these cases has that length of time elapsed. The hope was expressed and, indeed,

the belief, that after the lapse of five years there would be a distinct percentage of these patients still alive and apparently free from the growth; because there were now quite a number beyond the two-year period without signs of local cancer. With Dr. Keene he had been watching the cases with a great deal of interest. The patients returned from time to time for examination; consequently the cases presented were those which had been controlled. One very interesting case was cited in which two and a half years had elapsed since the beginning of treatment. The woman weighed 240 pounds and was a diabetic—therefore a serious surgical risk. The radium had been applied twice and her symptoms, short of the discharge, had ceased. If metastasis was present radium did not cure. The great danger in the use of radium, Dr. Clark believed, was that the striking case impressed one with such force that one was likely to anticipate better ultimate results in all cases than might be realized. The argument for the use of radium, it was emphasized, was purely that of palliation with a strong degree of hope of cure, because the author was constantly seeing patients two, and two and a half years after treatment with no return. The average stay in the hospital was said to be three days. The free patient could have the treatment while there was bed space just as readily as the one who paid.

Dr. L. W. KOHN said that of all malignant conditions perhaps cancer of the stomach was the most difficult to treat, because of the difficulty of access to the organ. In his work they had endeavored to recognize the condition early so that the patient might be referred promptly for surgical treatment. When metastasis had occurred, operation, of course, was unavailing. Then the only resort was to try to give the patient some degree of comfort in amelioration of symptoms and to offer psychic encouragement. A trial of radium, he thought, might also be made. Reference was made to the fact that the Mayo brothers had treated well advanced cancer at the cardiac end of the stomach by the use of radium capsules inserted by means of the sound, and that they claimed a certain amount of benefit.

Dr. G. C. BIRD thought that unquestionably the electrothermic, coagulation, and desiccation methods should be used in some of the forms of epithelioma referred to the roentgenologist. After destruction of the growth the x-ray was used to advantage in preventing metastasis. Dr. Bird had had no experience with the treatment of cancer of the uterus with radium. He had seen fibroids of the uterus in which he had suspected malignant disease, treated by the Percy cautery, and one of this number remained cured for two years. In cases of malignancy of the uterus he would not think of depending upon the x-ray for cure.

Dr. BARTON COOKE HIRST inquired regarding Dr. Clarke's experience with treatment by radium of recurrence of cancer of the uterus. Personally he had been discouraged with the results. In many cases of recurrent cancer, after the complete removal of the uterus, radium treatment had been invariably unsuccessful except in one case. One successful case, however, argued for the routine adoption of the method. In one case of very bad recurrence operated on two years ago last summer the patient within six months had recurrence in the vaginal scar as big as his fist. He had referred her to Dr. Newcomet, and she was now, after having had seven or eight applications of radium, apparently entirely free from malignancy.

Dr. G. BETON MASSEY said that the two very convincing papers led him to plead for the consideration of cancer as a parasitic disease, although the pathologists had not so determined. Approaching the subject from this standpoint and acting upon this probability would give hope in the early treatment and patients would seek aid earlier. The methods outlined by Dr. William L. Clark, he said, made possible a frontal attack on these growths, which was not possible with the knife. In the knife treatment of cancer the surgeon necessarily must not touch the growth, and none of the infected cells must rest upon the wound. With the ionic and electrothermic methods and with radium a frontal attack was possible, going through the disease and reaching the periphery and sealing it against reimplantation of the germ. It seemed to the speaker

that there should be more exactitude in the use of terms; while radium was so successful in uterine cases it was not in any sense surgery as were other processes mentioned.

Dr. C. B. LONGENECKER, referring to Dr. Clark's statement of the large number of cases of cancer of the uterus which were inoperable when first seen, said that for the last five or ten years there had been an effort made in the State, County and other societies to train physicians to the early recognition of cancer. Results, however, had not been gratifying, since there were almost as many cases of inoperable cancer as before. Dr. Longenecker did not regard the application of radium as quite so simple a matter as indicated by Dr. Clark; not every case, he thought, could stand the same dosage; he thought it advisable to try out the resistance of the individual patient before giving the massive dosage. Besides the use of radium in the inoperable cases he referred to other means of value. At the Jefferson Hospital there was used the Coolidge tube by which an intensified x-ray with an absolutely measured dose was possible. A combination of the radium treatment and the Coolidge x-ray, he thought, was often an improvement upon radium alone. While there was apparently not much difference in the radiation of the two, there seemed to be something reached by one not accomplished by the other. Frequently they used also one of the electrical modalities in connection with the radium or the Coolidge tube.

Dr. F. HURST MAIER said that all were impressed with the very conservative analysis given by Dr. Clark of his series of cancer of the uterus. If radium could do nothing more in these inoperable cases than check hemorrhage, decrease the discharge, and relieve the pain in the percentages given, the treatment was indeed of much value. He asked whether it was not advisable, after the surgical removal of the uterus for cancer, to give two or three treatments of radium at monthly intervals. Such application, it would seem, would destroy any foci of malignancy and yield a larger percentage of permanent cures.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

WEST VIRGINIA STATE BOARD OF HEALTH.

Clarksburg, November 21, 1917.

ANATOMY.

1. What blood vessels pass to and from the liver?
2. In an amputation of the forearm 3 inches above the wrist, what arteries will it be necessary to tie, and of what are they branches?
3. What cranial nerve has the widest distribution, and give the four principal points of distribution.
4. What muscles form the tendo Achillis, and where is the tendon inserted?
5. What is the chief difference between the male and female pelvis?
6. Name the abdominal viscera wholly covered with peritoneum and those partially covered.
7. Name the regions of the abdomen.
8. Locate and briefly describe the gall-bladder.
9. Name the subdivisions of the alimentary canal, and give the name and location of the various glands found in the small intestine.
10. Give the classification of joints, with an example of each.
11. What bones make up the pelvis? Give the gross anatomy of the bony pelvis.
12. Give the origin and insertion and blood and nerve supply of the humeral biceps muscle.

PHYSIOLOGY AND HISTOLOGY.

1. Give briefly but accurately the structure of an artery, and describe its physiology.
2. Describe the physiological symptoms of Bell's paralysis.
3. If the right optic tract is cut what will be the effect? Define the conditions and trace good fibers.
4. What is lymph? How do lymphatics begin? Describe a lymph gland.
5. Mention some important characteristics of the pulse in health and in disease.

6. What is the source of animal heat? How is the temperature of the body maintained?
7. What is the composition and action of the bile?
8. Food—divided into how many classes? Give example and chemical composition of each.
9. Discuss physiologically, bacterial action in the alimentary tract.
10. Classify and give function of white blood corpuscles.
11. Describe the heart sounds; what causes them?
12. Give the physiological action of the pneumogastric nerve.

CHEMISTRY AND MEDICAL JURISPRUDENCE.

1. What is a poison? How may poisons be classified? Give the manner of action of each class.
2. How would you conduct an autopsy for the purpose of testing for arsenic in the stomach, intestines, and tissues?
3. Give the difference between a physical and a chemical change, with an example of each.
4. Define (a) atom, (b) molecule, (c) a mechanical mixture, and (d) a chemical compound.
5. What are the antidotes for poisoning with (a) copper sulphate, (b) nitric acid, (c) tartar emetic, (d) carbolic acid, (e) bichloride of mercury?
6. In what respects does mother's milk differ from cow's milk?
7. In what part of the digestive tract are proteins digested, and what are the active agents concerned?
8. Give the distinguishing marks between ante- and post-mortem wounds.
9. How can you tell whether an infant has been born dead or died after birth?
10. Define criminal abortion.
11. What is meant by dying declaration and what points must be fulfilled before same has any legal significance?
12. Give the chemical reasons why diabetics should abstain from starchy foods.

MATERIA MEDICA AND THERAPEUTICS.

1. Strychnine: Derivation, dose, and physiological action.
2. Discuss vaccine and serum therapy, naming three vaccines.
3. Mention two heart stimulants that act quickly; discuss their mode of action, giving dose.
4. Write a prescription for acute catarrhal dysentery, using not less than three drugs.
5. Write a prescription for incontinence of urine in an old person, using at least two drugs.
6. Discuss the use of potassium iodide.
7. Aspirin: Give origin, dose, and physiological action.
8. Describe fully the way a saline cathartic acts. Give three examples.
9. How would you treat a case of failure of respiration under ether anesthesia?
10. Write a prescription for the treatment of simple stomatitis, containing at least two drugs and a menstruum.
11. Discuss the physiological effect of belladonna and its derivatives.
12. Name five of the most dangerous poisons, and their antidotes.

ANSWERS.

ANATOMY.

1. The hepatic artery and portal vein pass to the liver; the hepatic vein passes from the liver.
2. In an amputation of the forearm three inches above the wrist, the following arteries should be tied: Radial (branch of brachial), ulnar (branch of brachial), anterior interosseous (branch of ulnar), posterior interosseous (branch of ulnar).
3. The tenth cranial, or pneumogastric, nerve has the widest distribution; four principal points of distribution are: Heart, lungs, stomach and larynx.
4. The tendo Achillis is formed by the gastrocnemius and soleus; its tendon is inserted into the lower part of the posterior surface of the os calcis.

5. The chief differences between the male and female pelvis are thus tabulated in Morris's *Anatomy*:

MALE.	FEMALE.
Bones heavier and rougher.	Bones more slender.
Iliac fossæ deeper.	Iliac fossæ shallower.
False pelvis relatively wider.	False pelvis relatively narrower.
True pelvis deeper.	True pelvis shallower.
True pelvis narrower.	True pelvis wider.
Inlet more heart-shaped.	Inlet more oval.
Symphysis deeper.	Symphysis shallower.
Tuberosities of ischia inflexed.	Tuberosities of ischia everted.
Pubic arch narrower and more pointed.	Pubic arch wider and more rounded.
Margins of ischiopubic rami more everted.	Margins of ischiopubic rami less everted.
Obturator foramen oval.	Obturator foramen triangular.
Sacrum narrower and more curved.	Sacrum wider and less curved.
Capacity of true pelvis less.	Capacity of true pelvis greater.

6. (a) *Viscera wholly covered with peritoneum*: Liver, stomach, spleen, jejunum, ileum, transverse colon, sigmoid flexure, upper part of rectum, uterus, and ovaries.

(b) *Viscera partially covered with peritoneum*: Duodenum, ascending and descending colon, middle part of rectum, and bladder.

7. *Names of the regions of the abdomen*: Right hypochondriac, epigastric, left hypochondriac, right lumbar, umbilical, left lumbar, right iliac, hypogastric, and left iliac.

8. The gall bladder is a conical bag placed in a fossa on the under surface of the right lobe of the liver. Its upper surface is attached to the liver, and its fundus and posterior surfaces are invested by peritoneum reflected from the adjacent surface of the liver. The body is in relation in front with the liver, and behind with the first part of the duodenum, the pylorus, and the hepatic flexure of colon. The fundus is in contact with the parietes opposite the ninth right costal cartilage. It is about four inches long, and holds about one ounce. Its duct passes from the neck of the gall bladder downward, backward, and to the left to join the hepatic duct.

9. *Subdivisions of the alimentary canal*.—Mouth, pharynx, esophagus, stomach, small intestine (duodenum, jejunum, ileum), large intestine (cecum, ascending colon, hepatic flexure, transverse colon, splenic flexure, descending colon, rectum). *Glands in small intestine*: *Glands of Lieberkuhn*, in all parts of small intestine; *Brunner's glands*, in duodenum and beginning of jejunum; *solitary glands*, in all parts of small intestine; *Peyer's patches*, in ileum chiefly, also in lower part of jejunum, occasionally a few are found in the duodenum.

10. *Classification of joints*: (1) *Synarthrodial* (or immovable), as the sutures of the skull; (2) *amphiarthrodial* (or slightly movable), as the symphysis pubis; (3) *diarthrodial* (or freely movable), as the shoulder joint.

11. The pelvis is made up of the two ossa innominata (each of which is composed of ilium, ischium, and pubic bone), the sacrum, and the coccyx. The pelvis is divided into two parts by a plane passing through the sacral promontory, the iliopectineal lines, and the upper border of the symphysis of the pubis. The space above this plane is called the false pelvis, and belongs to the abdomen; below this plane is the true pelvis. The pelvic outlet presents three prominences, the tuberosities of the ischia and the tip of the coccyx. Beneath the symphysis is the subpubic arch; and behind the tuberosities of the ischia are the sacrospinous notches. There are differences in the male and female pelvis; see above, question 5.

12. *BICEPS*. *Origin*: Coracoid process of scapula and upper margin of glenoid cavity of scapula. *Insertion*: Back part of tuberosity of radius. *Blood supply*: Muscular branches from the brachial artery. *Nerve supply*: The musculocutaneous (from the brachial plexus).

PHYSIOLOGY AND HISTOLOGY.

1. "A typical artery consists of three coats: an internal, the *tunica intima*; a middle, the *tunica media*; an external, the *tunica adventitia*. The internal coat consists of a structureless elastic basement membrane, on the inner surface of which rests a layer of elongated spindle-shaped endothelial cells. The middle coat consists of several layers of circularly disposed, non-striated muscle-fibers, between which are networks of elastic fibers. The external coat consists of bundles of connective tissue of the white fibrous and yellow elastic varieties. Between the external and middle coats there is an additional elastic membrane. In the small arteries there is but a single layer of muscle-fibers. In the large arteries the elastic tissue is very abundant, exceeding largely in amount the muscle-tissue. It is also more closely and compactly arranged. The external coat is well developed in the large arteries. In virtue of the presence in their walls of both elastic and contractile elements, the arteries possess the two properties of elasticity and contractility."

"The functions of the arteries are as follows: (1) to distribute the blood to all regions of the body; (2) to accommodate varying volumes of blood; (3) to convert the intermittent flow of blood as it leaves the heart into a remittent and finally into a continuous and equable flow as it passes into the capillaries; (4) to regulate the volume of blood delivered to an organ in accordance with its functional activities, and (5) to present that degree of resistance necessary to the maintenance of the normal blood pressure, through the activities of the muscle fibers in the walls of the arteries." (Brubaker's *Physiology*).

2. *Physiological Symptoms of Bell's Paralysis*: "When the seventh cranial nerve is paralyzed, the muscles of the face being all powerless, the countenance acquires on the paralyzed side a characteristic, vacant look, from the absence of all expression; the angle of the mouth is lower, and the paralyzed half of the mouth looks longer than that on the other side; the eye has an unmeaning stare, owing to the paralysis of the orbicularis palpebrarum. All these peculiarities increase the longer the paralysis lasts, and their appearance is exaggerated when at any time the muscles of the opposite side of the face are made active in any expression, or in any of their ordinary functions. In an attempt to blow or whistle, one side of the mouth and cheeks acts properly, but the other side is motionless, or flaps loosely at the impulse of the expired air; so, in trying to suck, one side only of the mouth acts; in feeding, the lips and cheek are powerless, and, on account of paralysis of the buccinator muscle, food lodges between the cheek and gums." (Kirkes' *Physiology*).

3. Division of the right optic tract will produce hemipopia in the temporal half of the right eye and the nasal half of the left eye, with left lateral hemianopsia. The good fibers will all proceed from the left optic tract which supplies the temporal side of the left retina and the nasal side of the right retina.

4. **LYMPH. Origin**: There are two theories as to the formation of lymph: (1) That it is formed from the blood plasma by the processes of filtration, diffusion, and osmosis. (2) That in addition to these, the endothelial cells of the capillaries exercise some influence. **Description**: Lymph is a colorless, albuminous fluid, alkaline in reaction, with specific gravity of about 1015, containing lymph corpuscles, and coagulating when drawn from its vessels. **Composition**: Proteins (serum albumin, fibrinogen), sugar, sodium chloride and carbonate, water, urea, fat. **Function**: To provide cells and tissues with materials necessary for their growth, repair, and functional activities; and to receive and carry away their waste products.

Lymphatics begin (1) in closely meshed networks, or (2) in irregular lacunar spaces between the various structures of which the different organs are composed.

Lymphatic glands. "The basis of all lymph glands is the so-called lymphoid tissue, which consists of retiform or adenoid tissue with lymph corpuscles occupying the meshes of the network. The lymph glands are small rounded bodies placed in the course of the lymphatic and lacteal vessels, through which the lymph and chyle pass on the way to the thoracic duct. They are collected in groups, such

as the mesenteric, portal, bronchial, splenic, cervical, lumbar and inguinal glands. The afferent lymphatics enter the glands on the outer or convex surface, and emerge as the efferent vessels at the hilum. Each gland is surrounded by a fibrous capsule, which passes into the interior as the trabeculae or septa. The trabeculae pass one-third or one-fourth of the way into the gland (the cortex), dividing it into oval compartments, whilst in the central portion they join together and form small compartments of an irregular shape (medullary portion). The capsule and trabeculae are formed of fibrous tissue and nonstriated muscular tissue, and carry the vessels which enter the gland, and are distributed to the lymphoid tissue of the gland. The compartments of the cortex contain oval masses of lymphoid tissue which do not completely fill them, and which form the lymph follicles of the cortex; the medullary portion contains irregularly shaped or elongated masses called the medullary cylinders. The space left free between the lymph follicles and the cortical trabeculae, and between the medullary cylinders and the trabeculae, forms the *lymph sinus*. The lymph path or sinus is occupied by coarse retiform tissue. The afferent lymphatic vessels, having entered at the cortex at the external surface, open into the lymph sinuses of the cortex, then the lymph passes into the lymph sinuses of the medulla, and leaves the gland by the efferent lymphatics at the hilum. The passage of the lymph through the sinuses is delayed by the reticulum, that any foreign bodies or inflammatory products may be arrested in the passage." (Ashby's *Notes on Physiology*).

5. *Characteristics of the pulse to be noted*: The frequency, the strength, its regularity or irregularity, its tension, its compressibility, its rhythm, and whether it is large, full, or small.

6. The normal temperature of the body is maintained by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost.

Heat is produced in the body by: Oxidation; muscular action; the action of the glands, chiefly of the liver; the food and drink ingested; the brain; the heart; and the thermogenetic centers in the brain, pons, medulla, and spinal cord.

"The immediate source of the body-heat is to be found in the chemical changes which take place in all the tissues and organs of the body. Each contraction of a muscle, each act of secretion, each exhibition of nerve-force, is accompanied by the evolution of heat. The chemical changes are for the most part of the nature of oxidations, the union of oxygen with the elements, carbon and hydrogen, of the food principles either before or after they have become constituents of the tissues. The ultimate source of the body-heat is the latent or potential energy in the food principles, which was absorbed from the sun's energy and stored up during the growth of the vegetable world. In the metabolism of the animal body the food principles are again reduced through oxidation, directly or indirectly, to relatively simple bodies, such as urea, carbon dioxide, and water, with a liberation of a large portion of their contained energy which manifests itself as heat and mechanical motion."—(Brubaker's *Physiology*).

7. *Composition of bile*: Water and solids; the latter, about 15 per cent, consist of sodium taurocholate, sodium glycocholate, mucin, bile pigments (bilirubin and biliverdin), lecithin, cholesterolin, neutral fats, and inorganic salts (NaCl, KCl, and phosphates).

The *physiological action of the bile* is: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis; and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterolin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it aids the pancreatic juice in digesting protein; (8) it has a very feeble antiseptic action.

8. *Foods are classified*:

I. Inorganic. { Water.
 { Salts.

11. Organic. { Non-nitrogenous. { Carbohydrates.
 { Fats.
 { Nitrogenous—Proteids.

Examples of each: *Carbohydrate*, sugar and starches; *Fat*, fat of meat, and butter; *Proteid*, flesh of animals, and white of eggs; *Salt*, sodium chloride, and calcium phosphate.

The *carbohydrates* consist of carbon, hydrogen and oxygen, the two latter being in the proportion to form water. *Fats* consist of carbon, hydrogen, and oxygen, the proportion of oxygen being less than sufficient to convert all the hydrogen into water. *Proteids* consist of carbon, hydrogen, oxygen, nitrogen, sulphur, and sometimes other elements.

9. *Bacterial action in the alimentary tract*: "The gastric juice is an antiseptic; the pancreatic juice is not. An alkaline fluid like pancreatic juice is just the most suitable medium for bacteria to flourish in. Even in an artificial digestion the fluid is very soon putrid, unless special precautions to exclude or kill bacteria are taken. It is often difficult to say where pancreatic action ends and bacterial action begins, as many of the bacteria that grow in the intestinal contents (having reached that situation in spite of the gastric juice) produce enzymes which act in the same way as the pancreatic juice. Some form sugar from starch, others peptone, and amino-acids from proteins, while others, again, break up fats. There are, however, certain actions that are entirely due to these putrefactive organisms. (i) On *carbohydrates*. The most frequent fermentation they set up is the lactic acid fermentation: this may go further and result in the formation of carbonic acid, hydrogen, and butyric acid. Cellulose is broken up into carbonic acid and methane. This is the chief cause of the gases in the intestine, the amount of which is increased by vegetable food. (ii) On *fats*. In addition to acting like lipase, they produce lower acids (valeric, butyric, etc.). The formation of acid products from fats and carbohydrates gives to the intestinal contents an acid reaction. Recent researches show that the contents of the intestine become acid much higher up than was formerly supposed. Organic acids do not, however, hinder pancreatic digestion. (iii) On *proteins*. Peptones, amino-acids, and ammonia are produced; but the enzymes of these putrefactive organisms have a specially powerful action in liberating substances having an evil odor, such as indole, skatole, and phenol. Indole and skatole originate from the tryptophane radical of proteins. There are also gaseous products in some cases. Ammonia-producing organisms flourish best in the lower regions of the small intestine; the ammonia neutralizes the organic acids produced higher up, and in the large intestine the contents have in consequence an alkaline reaction. If excessive, putrefactive processes are harmful; if within normal limits, they are useful, helping the pancreatic juice, and, further, preventing the entrance into the body of poisonous products. It is possible that, in digestion, poisonous alkaloids are formed. Certainly this is so in one well-known case. Lecithin, a material contained in small quantities in many foods, and in large quantities in egg-yolk and brain, is broken up by the pancreatic juice into glycerophosphoric acid, fatty acids, and an alkaloid called choline. We are, however, protected from the poisonous action of choline by the bacterial enzymes, which break it up into carbonic acid, methane, and ammonia."—(Halliburton's *Physiology*.)

10. *White blood corpuscles* are divided into (1) small mononuclear leucocytes, or lymphocytes, (2) large mononuclear, (3) transitional, (4) polynuclear, or polymorphonuclear, or neutrophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named. They are probably formed in the spleen, lymphatic glands, and lymphoid tissues. Their functions are (1) to serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

11. There are two normal heart sounds which follow in quick succession, and are succeeded by a pause. The first, or systolic, sound is dull and somewhat prolonged; the second, or diastolic, sound is sharper and shorter.

The causes producing the first sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculoventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall. The second sound is caused by the vibration due to the closure of the semilunar valves.

12. *Physiological action of the pneumogastric nerve*: "Throughout its whole course the vagus contains both sensory and motor fibers. To summarize the many functions of this nerve . . . it may be said that it supplies (1) motor influence to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) sensory and, in part, (3) vasomotor influence, to the same regions; (4) inhibitory influence to the heart; (5) inhibitory afferent impulses to the vasomotor center; (6) excitatory to the salivary glands; (7) excitomotor in coughing, vomiting, etc."—(Kirkes' *Physiology*.)

CHEMISTRY AND MEDICAL JURISPRUDENCE.

1. A *poison* is a substance which, on being in solution in or acting chemically upon the blood, causes death or serious bodily harm. *Classification*: There are many classifications given, but not one of them is entirely satisfactory. That of Witthaus is into corrosives and poisons proper, the latter being subdivided into mineral poisons, vegetable poisons, animal poisons, and synthetic poisons.

A *corrosive* is a substance capable of producing death or injury by its chemical action upon a tissue with which it comes in contact. Corrosives and poisons also differ in other respects. Corrosives act upon dead and living tissue alike, while poisons, as a rule, do not. The violence of corrosion is directly proportionate to the degree of concentration, while the action of poisons depends upon the actual quantity absorbed, but in no wise on the degree of concentration of the solution taken. A corrosive may kill by destroying the skin, producing an injury resembling a burn; the poisons, if applied to the skin, act only when absorbed.

2. The following portions of the cadaver should be preserved for analysis in cases of suspected homicide by poison: "The alimentary canal from the cardia to the middle of the rectum, unopened, and the contents enclosed by ligatures at the esophagus, duodenum, and lower end of gut; the liver, including the gall bladder; one kidney; the spleen; a piece of muscular tissue from the leg; the brain, and any urine which may remain in the bladder. Any suspected food articles, and any obtainable vomited matter, are to be also preserved. They are to be placed in clean and new glass jars, closed with glass or cork covers or stoppers. Jars with metallic caps should never be used. Tapes or cords should be tied about the jar and cap, to which they should be attached by sealing wax bearing impressions of a seal, in such a manner that access can be had to the interior only after breaking the seals or cutting the tapes or cords. Great care must be exercised that no sealing wax can get into the jars. Each portion should be placed in a jar by itself. The post-mortem appearance in acute arsenical poisoning are confined to the stomach and intestines. The stomach is inflamed, whether arsenic has been taken by the mouth or by other channels of absorption. The mucous surface is coated with a layer of mucus, tinged with blood or bile, and sometimes containing white crystals of As_2O_3 or green particles of Paris green. The color of the mucous membrane is brownish red, interspersed with darker streaks or patches between the rugæ. The small intestines are sometimes inflamed throughout their length, but more usually the inflammation is limited to the duodenum."—(Witthaus' *Essentials of Chemistry and Toxicology*.)

3. A *physical change* is such a change as does not alter the composition of a substance; a *chemical change* does alter its composition. "A bar of soft iron may be made to emit light when heated, or sound when caused to vibrate, or magnetism, when under the influence of an electric current. Under the influence of these physical forces the iron suffers no change in composition, and on cessation of the action of the inciting force, the iron returns to its original condition. But if the iron is heated in an atmosphere of oxygen both the iron and a part of the oxygen disappear, and a new

substance, a new chemical species, is produced, having properties of its own, different from those of either the iron or the oxygen. In this case there has been *chemical action*, causing change of composition, as the new substance contains both iron and oxygen. The result of such action is, moreover, permanent, and the new product continues to exist, until modified by some new manifestation of chemical action."—(Witthaus' *Manual of Chemistry*.)

4. An *atom* is the smallest quantity of an element which can enter into the composition of a molecule.

A *molecule* is the smallest portion of a substance (element or compound) which can exist free.

A *mechanical mixture* is a product obtained by uniting into a more or less homogeneous whole two or more substances, whether elements or compounds.

A *chemical compound* is a substance made up of two or more elements chemically united with each other in definite proportions.

5. *Antidote* for poisoning by *copper sulphate*, is solution of potassium ferrocyanide; for *nitric acid*, magnesium oxide or hydroxide; for *tartar emetic*, tannin; for *carbolic acid*, sodium sulphate, alcohol; for *bichloride of mercury*, white of egg in moderate amount.

6. Woman's milk contains more solids, less protein, and more sugar than cow's milk.

Cow's Milk. Human Milk.

Water	87.41	87.21
Total solids	11.59	12.71
Fat	3.66	3.78
Milk-sugar	4.92	6.04
Casein	3.01	1.03
Albumin	0.75	1.26
Proteins	3.76	2.29
Ash	0.70	0.31

7. Proteins are digested in the stomach and the small intestine; in the stomach by the action of the acid pepsin; and in the small intestine by the action of the trypsin of the pancreatic juice, and erepsin of the succus entericus.

8. A *wound inflicted during life* is generally characterized by hemorrhage, coagulation of the blood, eversion of the edges, and retraction of its sides. It may also be inferred that the wound was inflicted during life if any of the following are noticed: The presence of inflammation, swelling, pus, or gangrene on the edges of the wound, or if there is any sign of beginning cicatrization.

In *post-mortem wounds*, the reverse of this will be found.

9. "The *general appearance* of a child that has been *born alive* at full term and respired is something like the following: The remains of the vernix caseosa are usually, seen under the axilla, and behind the ears. The eyes remain partly open, and cannot be permanently closed. The ears are not so close to the sides of the head as is the case in children born dead. The hair is perfectly dry and clean, and the swelling at the back of the head (*caput succedaneum*) is more prominent than in the still-born. In the *dead-born* infant who has died immediately before its birth the vernix caseosa will be found, more or less, over its entire body. The eyes are closed and the ears are in close apposition to the head. The eyelids when raised close again. The mouth is closed, and from the nostrils is often observed exudation of watery blood. The hair is glued to the head. The thorax is unexpanded and flattened, and the lungs are situated at the posterior part of the thoracic cavity; they are greater in length than in breadth, and their margins are rounded; upon pressure no crepitation is elicited. Within the trachea, which is flattened, may be found a viscid mucous secretion. The remnant of the umbilical cord appears fresher looking than that of a child that has survived its birth a few hours."—(Herold's *Legal Medicine*.)

10. When abortion is undertaken by properly qualified physicians after due consultation with other physicians, and for the purpose of saving the life or health of the mother, it is *justifiable*; under all other circumstances it is *criminal*. The former is a perfectly lawful medical procedure; the latter is illegal.

11. A *dying declaration* is any statement made by a dying person who believes that he cannot recover and that he is, at that very time, in actual danger of death.

The statement need not be sworn to; it should be voluntary and sincere; and it is admissible as evidence in a court if the individual dies. An official or someone else should take down the deposition in the exact words of the patient, who should, if possible, sign the declaration.

12. "It has been shown to be most probable that the excess of sugar in the blood, upon which nearly all the symptoms of diabetes depend, is due to its over-production in the liver; and although it is tolerably certain that sugar may be derived from nitrogenous sources, we must admit that carbohydrate food constitutes its chief source of supply, and the one most readily controlled. It has therefore been established as the cardinal principle of the treatment of diabetes to restrict those articles of diet which have this chemical composition."—(Saundby.)

MATERIA MEDICA AND THERAPEUTICS.

1. **STRYCHNINE.** *Source:* *Strychnos nux vomica*, and *strychnos ignatia*. *Dose:* Strychnine sulphate, one-sixty-fourth of a grain; strychnine nitrate, one-sixty-fourth of a grain. *Action:* Strychnine is a bitter tonic, stimulates appetite, secretion, and digestion, increases peristalsis, stimulates the vasomotor centers, and so raises arterial tension; it stimulates both accelerator and inhibitory nerves of the heart. All the functions of the spinal cord are exalted by strychnine, reflex, motor, vasomotor, and sensory. Large doses cause dilated pupils, irregular and jerky respiration, increased reflexes.

2. "*Serum-therapy proper* is the prophylactic and curative treatment of certain infectious diseases by the subcutaneous or intravenous administration of a blood-serum containing an antibody (antitoxic, bactericidal, etc.) which is specific to the particular disease. As generally used, however, the term includes also the treatment of some of these affections by vaccines and by the toxic products (toxins) of attenuated cultures of their respective microbes; but these toxins, though sometimes grown on blood-serum, may be produced on other media, and are never administered in a blood-serum, as the antibodies invariably are."

"*Bacterial Vaccines.* The term vaccine was originally applied to the infective virus or antigen of vaccinia (cowpox), but in modern usage has been extended to include the antigens of all infectious diseases. In the preparation of stock vaccines the pathogenic bacteria are grown in pure culture, then killed by heat, suspended with their toxin in sterile physiological salt solution, protected from contamination by an antiseptic, and standardized to contain a definite number of bacteria in each cubic centimeter. They are used by injection, subcutaneously or intravenously, to develop in the patient's body a condition of active immunity against the corresponding pathogenic germs or their toxins by raising the opsonic value of his blood and thereby promoting the phagocytosis of invading bacteria.

"The advantage of this active immunization for prophylactic purposes depends on the facts that these vaccines are incomparably cheaper and simpler to prepare than the sera, and that the active immunity conferred by them is more durable than the passive immunity produced by the latter. On the other hand their immunity does not set in immediately as is the case with the passive form, but only after 8 to 14 days of treatment."—(Potter's *Therapeutics and Materia Medica*.)

Three vaccines: Those for use against typhoid, bubonic plague, and cholera.

3. *Two heart stimulants that act quickly:* Alcohol and ammonia. *Alcohol* acts partly by reflex stimulation of the heart from irritation of the stomach, and also by direct action on the nervous and muscular mechanism of the heart. It should be given in small quantities (say half ounce of spiritus frumenti), slightly diluted, and as frequently as is necessary.

Ammonia acts by reflex stimulation of the heart and also of the vasomotor center in the medulla from irritation of the nose or stomach (according as the drug is inhaled or swallowed). Dose of aromatic spirit of ammonia, one dram in a little water. The effect does not last very long.

4. *For acute catarrhal dysentery:*

R.

Acidi sulphurici diluti, 3ss.

Tincturæ opii deodorati, 5j

Spiritus camphoræ, 3j.

Tincturæ capsici, 3ss.

Spiritus chloroformi, 3ss.

Spiritus vini gallici, 3jss. M.

Sig.—One teaspoonful, diluted, every three hours.

5. For incontinence of urine in an old person:

R.

Tincturæ belladonnæ, 5iv.

Potassii acetatis, 5j.

Aquæ menthæ piperitæ q. s. ad 5iv. M.

Sig.—One teaspoonful, diluted, t. i. d., between meals.

6. *Uses of potassium iodide*: "Its best effects are observed in *syphilis*; in the tertiary period it is more valuable than mercury, and in the late secondary period it is an excellent adjuvant. It should be given in ascending doses until improvement follows or symptoms of iodism appear. To secure permanent results, the treatment must be continued for six months or a year. In *parasyphilitic affections*—locomotor ataxia, parietic dementia, and arteriosclerosis—the iodide should always be tried, though, of course, no good can accrue from its use if there has been much destruction of tissue. Various opinions are held as to the value of potassium iodide in chronic interstitial inflammations, like *cirrhosis of the liver*, *chronic interstitial nephritis*, and *sclerosis of the spinal cord*, when a syphilitic origin can be excluded. Only small doses should be given, and these should be withdrawn on the slightest evidence of intolerance. In *subacute and chronic rheumatism* and in *chronic gout* it sometimes proves beneficial. It is believed that it aids in the absorption of the effusion in *serous pericarditis* and *pleurisy*. It is the most reliable remedy in *bronchial asthma* to prevent the return of the paroxysms. In *chronic bronchitis*, when the sputum is composed of thick, viscid mucus, it may be combined advantageously with expectorants. In doses of from 10-20 gr. thrice daily it is very beneficial in *aortic aneurysm*. In *angina pectoris* no remedy with the exception of the nitrites is so useful in preventing recurrence of the attacks. It should be given in daily doses of from 30-45 gr. for several months. In *chronic metallic poisoning*, especially from lead and mercury, potassium iodide is apparently efficacious. In large doses continued over long periods of time it has given very good results in many cases of *actinomycosis* in man."—(Stevens' *Modern Materia Medica*.)

7. *ASPIRIN*. *Origin*: From salicylic acid. *Dose*, five grains.

Physiological action: It is antipyretic, analgesic, sedative, circulatory, depressant, gastric irritant, and irritant to the kidneys. It may produce cardiac weakness, depression of respiratory and vasomotor centers, nausea, vomiting, dizziness, urticaria, and collapse.

8. *Salines* "act by stimulating the intestinal glands to increased secretion, and by their low diffusibility impede reabsorption, causing an accumulation of fluid in the intestinal tract which, partly from the effect of gravity and partly by gentle stimulation of peristalsis excited by distention, reaches the rectum and produces a copious evacuation."—(Potter.)

Three salines: Magnesium sulphate, potassium and sodium tartrate, and potassium bitartrate.

9. *Failure of respiration during ether anesthesia*: This condition calls for withdrawal of the ether; and if an inspiratory effort does not quickly follow, pressure should be made upon the front of the chest, and when this is relaxed a deep inspiration usually takes place, and no further difficulty is experienced. Failing this, the mouth should be opened and the tongue drawn forward with tongue forceps. Artificial respiration by Laborde's or Silvester's method should then be tried, and persevered in for at least half an hour. The hypodermic use of atropine, or strychnine is beneficial. Stretching of the sphincter ani and venesection of the internal jugular vein have proved serviceable. Tracheotomy may be necessary.

10. For *simple stomatitis*:

R. Thymol, gr. iv.

Glycerin, 5j.

Distilled water, 3i. M.

Sig.—Use as a mouthwash. Dilute if necessary.

11. *BELLADONNA AND ITS DERIVATIVES*. *Physiological effects*: Anodyne, mydriatic, inhibits secretions, depressant of terminations of nerves, accelerates the heart beat, causes rise in blood pressure, but toxic doses cause the blood pressure to fall, stimulates the respiratory center, but large doses depress the same; it may cause vertigo, restlessness, excitement, delirium, or mania.

12. *Antidote of arsenic*, freshly prepared solution of ferric hydroxide; of mercury, milk or white of egg; of strychnine, chloroform, chloral, or tannic acid; of potassium cyanide, ferrous sulphate; of opium, potassium permanganate.

(To be continued.)

BULLETIN OF APPROACHING EXAMINATIONS			
STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION†	
Alabama*	Montgomery		
Arizona*	A. H. Williams, 219 Goodrich Building, Phoenix.	Phoenix	
Arkansas	T. J. Stout, Brinkley.	Little Rock	May 14
California	C. B. Pinkham, Sacramento.	Sacramento	
Colorado	David A. Strickler, Empire Building, Denver.	Denver	
Connecticut*	Chas. A. Tuttle, New Haven.	New Haven	July 9
Delaware	J. H. Wilson, Dover.	Wilmington	June 18
Dist. of Col.	E. P. Copeland, Washington.	Washington	July 9
Florida*	W. M. Rowlett, Tampa.	Jacksonville	
Georgia	C. T. Nolas, Marietta.	Atlanta	May 30
Idaho*	Charles A. Dettman, Burke.	Postville	
Illinois	F. C. Dotts, Springfield.	Chicago	
Indiana	W. T. Galt, Crawfordsville.	Indianapolis	July 9
Iowa	G. H. Sumner, Des Moines.	Des Moines	
Kansas	H. A. Dykes, Lebanon.	Topeka	
Kentucky	J. N. McCormack, Bowling Green.	Louisville	May 28
Louisiana	E. W. Mahler, New Orleans.	New Orleans	June 6
Maine	F. W. Searle, Portland.	Portland	July 2
Maryland	J. McP. Scott, Hagerstown.	Baltimore	June 18
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston.	Boston	May 14
Michigan	B. D. Harrison, 205 Whitney Building, Detroit.	Ana Arbor	June 11
Minnesota	T. McDavitt, St. Paul.	Minneapolis	
Mississippi	J. D. Gillespie, Jackson.	Jackson	
Missouri	G. H. Jones, Jefferson City.	Jefferson City	
Montana*	S. A. Cooney, Helena.	Helena	
Nebraska	J. J. Hompes, Lincoln.	Lincoln	
Nevada	S. L. Lee, Carson City.	Carson City	May 6
N. Hampshire	Walter T. Crosby, Manchester.	Concord	June 24
New Jersey	A. MacAlister, Trenton.	Trenton	June 18
New Mexico	R. K. McClanahan, East Las Vegas.	Santa Fe	
New York	G. M. Wiley, Univ. of State of New York, Albany.	New York, Albany, Syracuse, Buffalo	May 21
N. Carolina	H. A. Royster, Raleigh.	Raleigh	June 24
N. Dakota	G. M. Williamson, Grand Forks.	Grand Forks	July 2
Ohio	Columbus.	Columbus	
Oklahoma	J. J. Williams, Weatherford.	Oklahoma City	
Oregon	B. E. Miller, Portland.	Portland	July 2
Pennsylvania	N. C. Schaeffer, Harrisburg.	Philadelphia	July 9
Rhode Island	B. U. Richards, Pawtucket.	Providence	July 4
S. Carolina	H. E. Bozer, Columbia.	Columbia	June 11
S. Dakota	P. B. Jenkins, Waubay.	Deaewood	July 9
Tennessee	A. B. DeLoach, Memphis.	Memphis, Nashville, Knoxville	June
Texas	M. F. Bettencourt, Mart.	Austin	June
Utah	G. F. Harding, Salt Lake City.	Salt Lake City	July 1
Vermont	W. Scott Nay, Underhill.	Burlington	July 9
Virginia	J. W. Preston, Roanoke.	Richmond	July 18
Washington*	C. N. Suttner, Walla Walla.	Tacoma	July 2
W. Virginia	S. L. Jepson, Charleston.	Charleston	July 9
Wisconsin	J. M. Dodd, Ashland.	Milwaukee	June 25
Wyoming	H. E. McCollum, Laramie.	Laramie	
National Board	J. S. Rodman, Philadelphia.	Fort Riley, Kan.	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Cerebral Accidents in Tetanus.—Lumière and Astier first call attention to the well-known fact that as a rule tetanus spares the cerebral centers. The intellectual faculties are retained even in cephalic tetanus and by this test the latter may be distinguished from meningitis. During the present war, however, the authors have noted a type of tetanus in which the cerebral functions were disturbed even when prophylactic serum injections had been used. Febrile delirium and chloral intoxication could be excluded. The symptoms were of late supervention, from one to two weeks after the début of the malady, and persisted for at least one week. The type of tetanus was therefore subacute. The manifestations comprised hallucinations and phobias (fear of death in one case) which were of a fixed character. The termination in these cases is not mentioned.—*La Presse Médicale*.

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WAR FOOD DIETING AND OUR PATIENTS.*

BY W. GILMAN THOMPSON, M.D.,

NEW YORK.

MUCH discussion has appeared of late in foreign medical journals regarding the effect upon civilian patients of the modifications in diet imposed upon them through necessities of the war, and the present time is appropriate to institute such discussion here. Moreover, physicians owe the patriotic duty of guiding patients in their endeavors to conform to the published war food regulations. In so far as war conditions may result in restrictions in quantity, *i.e.* in food deprivation, there is little that is new to be said—a starving man is a starving man, through whatever cause, and fortunately there is little real deprivation in this country. But where regulations concern substitute foods and abrupt changes in dietetic habits of long standing, although without restriction in total quantity of food, much ignorance prevails as to both aims and methods. For example, I know several instances in which a large retinue of domestic servants have gone on strike because of food restrictions suddenly and arbitrarily imposed by their employers, and in other cases, although the employer was observing rigid war food regulations, the fear of antagonizing and losing servants prevented securing their cooperation. Then there are the cases in which a too rigid adherence to a new dietetic regimen produces gastrointestinal disorder, changes in body weight, etc., which may prove a poor way of stimulating efficiency. In such situations the family physician can do much to promote the rule of reason.

The war food problem may briefly be summarized as follows (at least in so far as it concerns us at the moment): there are fully 10,000,000 Allies camping out (besides the others in reserve who are billeted) and we rapidly are adding 1,000,000 more men. A large proportion of these men (fully 60 per cent. in France, it is said) have been withdrawn from activities connected with food production, transportation, etc., and, of course, all the men must be fed exceptionally well to do exceptional work. Ten million men standing in rows near enough together to touch the outstretched hands would form a line extending three and a half times across the continent from Maine to California. These men who are camping out, *i.e.* living and

working in the open, in cold weather, need fully 4,000 calories per man per diem to accomplish efficient fighting. To this end they must have fat—fat for body fuel, fat for frying, fat for fighting foreign foes—for fat makes glycerin, glycerin makes nitroglycerin and other glycerin products, good for blowing up the Hun. Moreover, fats and oils are essential for lubrication of all kinds of machinery such as are used in transportation, in munitions manufacture, etc. Let us explain these simple equations to our patients and their cooks. The Germans estimate that the annual pre-war waste of fat found in the garbage pails of three families was equivalent to the fat of one pig. The Germans are feeling their fat shortage so keenly that they are recovering fats and oils from bones, from the stones of fruits, from sunflower and other seeds, and from traps set in sewage systems to regain laundry soap and other grease, even that derivable from feces. So much for the problem of fat saving, in order to maintain the fat content of the established army ration, which is 12 ounces of bacon per man per diem.

The second problem, that of wheat saving, is of equal importance, in order to maintain the army ration standard of 18 ounces of wheaten flour per man per diem, equivalent to a good-sized loaf of bread. Several persons have said to me, "We like wheat, why not send corn meal abroad, and let us eat the wheat?" Again the answer is simple and should be distinctly understood. Corn, as compared with wheat, does not keep or bear distant transportation nearly as well. It is liable to mold in ships' holds, to be eaten by weevils, or otherwise deteriorate. Corn meal bread crumbles readily and is far less easy to handle in army transportation than are wheaten loaves. Moreover, in France the baking of corn bread is not well understood or easy of accomplishment. In many small French villages home baking ovens do not exist, bread being baked in a community bakery. The French, not being accustomed to the use of corn meal, regard it as food fit only for hogs, recalling Dr. Johnson's famous definition of oatmeal, as "in England, food for horses; in Scotland, food for men."

One may not expect to change the dietetic habits of a nation in a few months. Were this country starving and should the Japanese offer to feed us almost exclusively upon rice, we should have a hard time of it. It is true that the American Army ration provides for the occasional use of corn meal, but only as a substitute, and not a constant component of the ration. Our normal

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exportation of wheat to the Allies is 300 million bushels, but their deficit last year was much more than this, and we have now an "S O S" call from England alone for 75 million bushels in addition to all we have tried to send. The recent destruction of wheat through incendiarism and submarines is fearful to contemplate.

The problems of meat and sugar are complex, though less urgent, involving as they do, varied economic and transportation conditions, as well as the fact that one naturally tends to eat more of these foods in attempting to save fats and wheat.

In illustration of the importance of the use of intelligence in selecting food substitutes is the following incident: While traveling recently upon one of our trunk lines, in the dining car, a very obese man wedged himself in opposite me at the table. The menu card announced a "meatless Tuesday," but gave no hint as to how to select substitutes, nor were any special substitutes provided. So the fat man endeavored to nourish his 250 lbs. with a selection of macaroni, toast and other wheat foods, thereby eating much more wheat than he ordinarily might have done, thinking himself "patriotic." There is little gain in saving meat by wasting wheat. What he should have ordered, both for his patriotism and health, should have been fruit, an egg or two, and a salad with cheese.

The net results to be expected from prolonged "Hooverizing," in so far as they may be expected to produce nutritional changes, concern (1) variations in body weight, (2) modifications in digestion, and (3) changes in the stools. The normal, healthy person may make considerable change in long-standing habits of diet without noticeable effect, and often with apparent benefit, but with the invalid the resulting disturbance of function may prove disastrous, and it is poor economy in every sense to persevere with a regimen which lessens efficiency.

1. As to variations in weight, one meets with opposite conditions. There are those who have been heavy meat eaters, who may gain in weight through eating, instead, corn and oat products, even with less sugar and fat. In my experience, however, loss of weight is much more common, resulting from distaste for the coarser cereals, and a consequent net reduction in the total food intake. I have met with several instances in which from 15 to 20 lbs. have thus been lost within a period of a few months. Whether this be an advantage or not must depend naturally upon the individual case. With one or two persons I have had to insist upon a greater consumption of milk and cream, to raise the weight again to a standard more compatible with normal efficiency. In some cases a greater consumption of honey and maple sugar in lieu of cane sugar will maintain the body equilibrium.

2. The second group of cases are those in which careful dieting is essential through existing disease. A sufferer from chronic myocarditis with flatulent dyspepsia, being ardently patriotic, undertook to "Hooverize," mainly to set an example for her servants. The example which she set nearly cost her life, and I was obliged to insist upon complete absolution from her vows. There is another group of persons, of which we also see frequent examples,

namely, those whose starch digestion is persistently imperfect, if not impossible. When they try to eat "war bread" and "war cake," or the coarser cereals, such as rye and oatmeal, colic and all manner of digestive distress ensue.

3. In the third group of cases the modification in the character of the stools is due either to the use of various substitute fat foods, or the accumulation of the coarser cereals. In these cases it is the colon which must be reckoned with. A patient who had thus dieted himself for some time voided feces of inordinate bulk and length. Finally the accumulation resulted in impaction with fever and intense colic which at one time gave rise to the suspicion of a perforated appendix.

The aged, as is well known, frequently are intolerant of the coarser cereals, as, in fact, they are of any radical dietetic change, and here again absolution should be granted.

Fortunately all these common evils are easily preventable, and my purpose in directing attention to them anew is to emphasize the importance for the physician to supervise and direct with special care the diet of patients, whether specifically consulted about it or not, and while most earnestly urging the imperative necessity of food conservation in increasing degree, to see to it that its simple problems are understood and intelligently met.

61 WEST FORTY-NINTH STREET.

SOME MANIFESTATIONS OF THE PARENT COMPLEX.

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UNFORTUNATELY, many have come to look, erroneously, upon the parent complex as indicative of a state of affairs somewhat as follows: A more or less conscious incestuous fixation or desire on the part of an individual for the parent of the opposite sex, with a conscious feeling of hostility for the parent of the same sex. While, if conceived of as a process totally unconscious to the individual, this does represent the essentials of the complex, yet the manifestations of its presence are so manifold that I wish to present some of those more prevalent and at the same time more easily discernible and comprehensible.

In this contribution I shall emphasize the physiology and the pathology of the parent complex, showing that its existence at a certain period is essential for the individual's emotional or affective growth, especially in the field of love. Secondly, as I said above, I shall describe some of its important manifestations, and, thirdly, I shall suggest some measures which, put into use during the child's early life, shall tend toward preventing a purely physiological process from developing into a pathological one.

The typical parent complex phenomenon, with its essential components, is pictured in the following incident: A healthy, lovable, good natured little fellow, of four years of age, normal in every way, said, in the presence of both of his parents, "Father, I'm going to kill you and marry mother." The little boy instinctively chooses his mother, the

opposite sex, and at the same time effectively demonstrates that his marriage to his mother necessitates in some way the removal of his father, the surest method being, in the child's mind, killing.¹

This should give rise to no misconception. As one might be led to infer, instead of an enmity (conscious) existing on the part of the child for his father, in reality, the little fellow loves and idolizes him, and the two are very close chums.

This picture is one that commonly presents itself in one form or another in the life of most, if not all, children. It represents a physiological attempt on the part of the little fellow to do what his father did, namely, to get a wife. One may conceive of the boy's impulse to "kill" his rival the crude, instinctive manifestation of the later sublimated impulse of the adult to achieve success in love (choosing a mate) by the exhibition of qualities superior to those of his rivals.

The choice of the mother as his mate denotes the instinctive sex selection. The picture given above, with the modifications pointed out in note 1, is identical with the adult's conception of what constitutes mating—exclusive sexual possession.

That is what the child learns and naturally so. Surely no better model as a wife can exist for a child than his mother, for she to him is an idealization of all that is desirable.² So that in addition to the general culture, breeding, and knowledge which a child gets from the parent, more important perhaps than all this for its happiness, the child learns from its parents how to love. There is nothing "wrong" in the child's loving its parents, in his infantile way. He is but preparing himself for the future. In this process we see a normal physiological phenomenon in the individual's culture development.

The pathological aspect of this phenomenon I shall now attempt to make clear, seeking at the same time to bring to light those (or at least some of those) factors concerned in the pathogenicity of an otherwise normal process of growth.

That parents should play a very important rôle in the lives of their children is to be expected. Boys and girls, when they mature, often seek as their mates those, in the case of the boys, resembling their mother or a sister, and the girls those individuals resembling their father or a brother (the sister or brother being taken as a youthful reproduction of the parent).

Up to a degree, this is as it should be. In those instances where the mother serves her purpose as a model after which the boy patterns his love object, and the model ceases to exist as an object of desire after the (strange) love object has been found; in such an instance we say that the parent complex has served its purpose. The child has learned to love, in his infantile way, and as he matures transfers his desires (now also matured and different from the infantile) to a stranger, in the process destroying the model of the parent, as a love object, since its purpose, as such, has been fulfilled.

We should regard love as an instinctive, essentially pleasure impulse, characterized in animals by the reproductive act. Among them no laws exist prohibiting the mating of blood relatives. The animal follows its own desires, their fulfillment being

dependent on physical limitations. The child, too, is essentially instinctive in its wants. It as yet knows no laws, except that of physical limitations. As the child grows it learns that not only physical limitation, but morality also, and in an increasing measure, sets limits to the fulfilment of desire. We know that our cultural development depends for its progress on the rejection or, better, sublimation of many of our primitive (pleasure) impulses.

By means of this apparent digression, I wish to point out the pathological nature of the parent complex in the neurotic. We say that he has failed to make use of that phenomenon to help him along: with him it is not a means to an end, but an end in itself. He is fixed on the road of his emotional life. To him the parent is not a model, but an object of desire, just as in the case of the child³ and, important to note, in the same way. This gives rise to the fact that the neurotic in his emotional life is characteristically infantile. In this very important phase of his life, without his being consciously aware of it, he lives in the past, unable as an adult to transfer this love to a stranger and thus unable to have his emotional life keep pace with his intellectual progress.

In individuals in whom the parent complex has not served a physiological purpose there are present evidences of this maldevelopment. Some of these individuals are neurotics; others are apparently normal. These latter are such as are able to maintain a more or less satisfactory emotional life, in spite of the unconscious conflicts present. In both classes, on analysis, evidences of this pathological emotional development are manifest, chiefly by the infantile (undeveloped) state of the sex life.⁴ These I shall now describe.

Such individuals as I have indicated, among other characteristics, show wide, rapid, easily produced fluctuations of depression and elation. They suffer often sexually, either from impotence or premature ejaculation; and very often, in my experience, are subjects of sexual hyperesthesia, indulging frequently in intercourse, the act being preceded by such an intense anticipation that the act itself does not fulfill that expectation, urging the individual on to repeated acts, yet leaving a constant "sexual hunger." The type of individual just described, in spite of repeated indulgence in intercourse, has numerous, vivid, emotionally colored fancies of an amorous nature. These fancies occur not only before the act, but very often immediately following it, the act itself not quieting the sexual desire.

Many of those unable to sublimate the parent complex, especially those who have indulged in intercourse either infrequently or not at all, conceive of a woman as a superior being, a goddess to be worshipped from afar. They put her on a pedestal, as if she were made of a substance different from that which enters into the composition of other beings.⁵

In those still laboring under the inhibiting influence of the (non-sublimated) parent complex another characteristic manifests itself, both in men and women, in their marrying late in life. Many such women are of a "retiring" nature or disposition, thus being inaccessible to men; or some of the women being unable to find the "suitable" man.

Among the men many reasons are given, the chief one being financial; they say they are unable to support a home. Some feel an uncertainty to remain true to any one woman for any length of time. This last reason is one frequently given by patients.

While such are the reasons given, yet on investigation they prove to be what Jones has termed "rationalization," or the necessity of the individual to find a reason or explanation for every phenomenon. In reality, at least in those under my direct observation, the basic (unconscious) reason for the late marriage was the inability of the individual to break away from the old ties and find a new home for himself (or herself).⁶

Among women sexual impotence (sexual anesthesia) is a very common symptom, and at least one of its important causes is the inhibiting effect of the repressed parent complex. Many women show so strong an attachment to their father that they enter the bonds of marriage with reluctance, with a sense of duty rather than a feeling of love. Such women, try as they will, cannot experience sex feeling during the sexual act. While such women are, as far as in their power lies, devoted wives, yet their frigidity is a sign of the incompleteness of their love. For love, no matter how ideal, shows its consummation in the sexual act, which is incomplete if the orgasm is lacking. These women often have a variety of subjective complaints—pains, dizziness, paresthesias, headaches, etc. In this symptomatic way, they proclaim that they ail—and they do ail on account of their inability to satisfy a normal desire, even though they indulge frequently in intercourse. Many such women masturbate after the act, in order to produce an orgasm, showing thereby the infantile or undeveloped nature of their sex impulse.

Masturbation or, at least, its persistence into adult life may more or less directly be traceable to the parent fixation. A striking illustration came under my observation about one year ago. A young man of twenty consulted me for apparently causeless periods of depression, irritability, and restlessness, usually of short duration. It developed that these periods usually followed his acts of masturbation, and that, in part at least, it was the cause of the masturbation that was responsible for the depression. The patient was in the habit, at the time he came to me, of listening for any sound from his parents' room indicative of the sexual act; also he was in the habit of looking through the keyhole of the bathroom when his mother or any of his sisters was bathing; or if he knew that any female member of his family was in the bathroom he pictured to himself their naked forms. All these incidents and fancies were provocative of sex excitement, culminating in the act of masturbation. The patient felt intense remorse after each act of masturbation. I feel that the degree of remorse was determined by the content of the fancies, *i.e.* the more or less conscious realization of the guilt of an individual who, directly or indirectly, takes a member of his family as his sexual object.

I have purposely mentioned some of the more evident manifestations of the parent complex as they exist in many apparently normal individuals, and also in neurotics, because they are very preva-

lent and because the measures I shall suggest, not for their cure, but for their prevention, are more applicable to these manifestations than to those more complex and symbolic ones (symptoms) which we see in the neuroses themselves.

Since the parent complex is a physiological state at one stage of the individual's development, what factors convert it into a pathogenic condition? Why in one individual does it persist later into life than in another? These questions are more easily asked than answered. Yet I feel that a great deal of light has been thrown on them and that we are in a position both to explain the persistence of this phenomenon, and at the same time to formulate some measures which, put into use in the bringing up of children, will tend to a great extent to diminish the harmful effect of the persistence of the parent complex and bring about a more nearly parallel growth in the emotional and the intellectual spheres of the individual.

The general impression seems to prevail that neuroses are the result of traumata, especially sexual, which the child receives early in life. If this were the case, neuroses, common as they are, would be still more prevalent, for many more are exposed to these experiences than develop neuroses. Such an assumption does not take into consideration the individual himself. Freud recognized this, and has called attention to it. What I believe, however, has not been sufficiently brought out, is the direct influence the immediate early environment has upon the individual. I mean the environmental influence before the child has reached the age of five. These influences exert their forces so early in life that we are very apt to talk of the characteristics manifested by very young children as being inherited. An inherited quality or characteristic is contained in the germ cell, transmitted at the time of impregnation. Neurotic characteristics, I believe, are not inherited, as we can very readily conceive of them as acquired characteristics. These, as we know, are not hereditary. A conception of the neurotic constitution as representing a retarded emotional development will enable us to clear up many things heretofore in the dark. We say that a child is born endowed with instinctive impulses, on the renunciation or sublimation of which, as it grows older, depends its moral or ethical development. How will it do this best? Given an environment which prevents the sublimation of these impulses, maldevelopment results. This conception throws the blame for the neuroses on the parents. Not that the children inherit neuroses from them, but owing to some neurotic or abnormal trait in the parent, a normal development of the child is not as likely to result as when normal conditions exist. So that given an individual in such an environment, in addition exposed to sexual or marked emotional trauma, we say that such an individual is predisposed to the development of a neurosis. He has been retarded in his emotional development. He will react, even to the ordinary influences of life, in a way different to the reaction of one not so predisposed. With this digression we are ready to take up some of the more important parental shortcomings that will tend to prevent in a child a proper sublimation of an otherwise physiological phenomenon, namely, the parent complex.

Among neurotics "favorite" and "only" children form a very large group. These are children who receive too much attention and love, and who later in life expect society in general to take towards them the same attitude that the indulgent parents did. Such individuals look upon those people with whom they come in contact, as "parents" and expect from them what their own parents had given them. Yet the blame for this condition, which is one of the most important predisposing causes of a neurosis, lies not with the patient, but with the parent, who fostered in the child a craving it never learned to renounce.

Parents who choose favorites among their children, do so, in my opinion because they see in that favorite child some quality, physical or psychic, for which they had looked in vain or no longer see in their marriage partner; and having found it, shower upon that child all the love and devotion that should normally go to the wife or husband, as the case may be. This is but another way of expressing the disillusion of or dissatisfaction with the marriage and an attempt to satisfy the desire through the unconscious replacement of the marriage partner by one of the children. It is a most common phenomenon that the mother's favorite is a boy, and the father's choice is a girl. In this also, we see an unconscious sex selection, beginning on the part of the parent and later becoming reciprocal.

How often we hear parents, especially mothers, say, "I do not like to see my child grow up. I want to see it remain a child." Such children as a rule are mothered too much, over sheltered and protected, fondled and cuddled to a pathological degree, and have engendered in them desires and longings which only the parents satisfy. Such children "cling" to the parent and later hesitate to venture into matrimony: firstly, they fear they cannot readily get that to which they have been accustomed, and secondly, they have not been prepared to lead an independent existence. They have not grown up, and are unfitted for the life of a normal adult. Such a child is frequently kept by the parent in close contact to the latter, the two at times sleeping in the same room or even in the same bed; the child is dressed, bathed, and washed, by the mother up to an age when it should look out for itself in these respects at least. There is no doubt the mother derives a great deal of pleasure from all this. What the nature of this emotion is, one cannot always say. However, the child, too, receives pleasure from this contact, and in those patients who have gone through some such bringing up and have been analyzed, the nature of this pleasure has been ascertained to have been of a distinctly sexual nature.

Something to which Freud has called attention and upon which he lays great emphasis as important factors in the production of the neuroses, is the general attitude toward things sexual and the inability of parents to explain to children the nature of the sexual act, of conception and child-birth as they take place in the adult human being. These are all of vital interest to the child. They are subjects to which the child gives much time and thought, as manifest in its questions and games. The evil influence of this lack of knowledge is made possible because children have such (to us, but not

to them) queer conceptions of these matters, and because these conceptions persist, as working bases, with the neurotic and also with normals, into adult life, making it impossible for the individual so handicapped to take towards the opposite sex the normal grown up attitude in respect to love. That is one of the reasons for Freud's statement that a neurotic cannot love. He cannot because, unconsciously it is true, his (or her) sex life is still in the infantile state: a condition unsatisfactory to an adult individual and fraught with danger to his or her emotional life.

In conclusion, I wish to summarize:

1. The parent complex is a physiological phenomenon, quite essential for every individual at a certain stage of his development, pathological only when it persists into adult life; in which case so to speak, it is an end in itself, instead of a means to an end.

2. It manifests itself in various ways, all of them unconscious to the individual, yet potent in its possibilities for harm in his life.

3. The responsibility of the parents in the persistence of the parent complex and incidentally in the production of neuroses. I emphasize the part played by the parent, for to my mind, it explains the influence of heredity, so called.

NOTES.

1. If as Freud has pointed out, we regard the concept "death" as it exists for this child as a "going away," we can readily understand why children so often use this method of ridding themselves of all undesirable competitors. The little fellow made the statement in a perfectly unconcerned, matter of fact way, with no emotional display of any kind. The child did not hesitate to tell his parents what he intended to do to accomplish his ends. As yet, in him, the wish is not repressed. The moral sense does not as yet act as a repressing agent, for no moral sense exists. This conscious, non-repressed wish of the child is the unconscious repressed wish of the adult neurotic, and lies at the base of the functional neuroses as the prime etiological factor.

2. It is my opinion that those individuals who carry with them unconsciously, it is true, a picture of their parents, purely emotionally colored, and seek their mates based on these memories, often realize a disappointment in their married lives. For no mortal can rise to the level of an ideal, purely emotionally conceived, an ideal in which reason or judgment does not see the human faults and weaknesses present in all beings. Such seekers see their idols (or ideals) crumble when the latter manifest their human side.

3. Unless we bear in mind that I always refer to these desires as unconscious ones we shall be led to reject offhand that to which we otherwise would give serious consideration. The neurotic also rejects the suggestion that one of his parents is to him an object of desire. For to him, as to all of us, the thought of a state of affairs such as I have described being a consciously desired one, is repugnant, not in accord with his otherwise normal development; and it is this disharmony between desire and repression which gives rise to a conflict, at the same time submerging that desire into the unconscious. Here it remains as a wish, still active and potent, making itself manifest in various ways, some of which I shall illustrate.

4. These defects are present also in other spheres than the sexual only. However, I have chosen the latter as the more accessible to the physician.

5. How like the concept of the parent image to the child, and yet how, for the adult, a very unreal picture. The same holds true of those women whose concept of "man" is so impractically idealistic.

6. Freud has indeed well said that very often a conscious "cannot" should be interpreted as an unconscious "do not wish to." So, in the illustration, we

say that such individuals do not wish to break their old home ties to form new ones. Some of my patients thus constituted, even after their marriage, made their home with the parents or parents-in-law, giving various reasons for so doing. Yet either during, or immediately after analysis, without any change taking place in the conditions which had determined the establishment of the joint home, they readily founded a home for themselves.

7. On several occasions mothers of little boy patients have told me that the latter had manifested an erection of the penis when the hand of the mother, in the process of bathing her child, came in contact with its genitals. The mother of a little girl informed me that the child in the process of being bathed would hold for a moment the mother's hand between its thighs when the hand came in contact with the little girl's genitals.

8. For a long time I doubted the wisdom of describing the sexual act to children. My hesitation was due to my own (false) modesty. My little patients often asked me, "Where do children come from?" I told them in an illustrative way, citing the process in plant and then animal life. This, however, I learned by experience proved to be of very little actual value, for children take things very literally and they repeated the question after my explanations. Many children, whose parents or teachers attempted to answer the question as I had done, repeated the question on several occasions, showing that their curiosity or desire for knowledge in that quarter had not been satisfied. As time went on, I, too, felt that while what I had told the children was correct enough, it did not give to the child that concrete knowledge which is essential for its understanding of the process. While descriptions of plant fertilization and growth are no doubt of educational value, they cannot serve as an answer to the child's question "where do babies come from?" Nor can these descriptions be used as stepping stones to knowledge which is to serve as an explanation. You cannot "lead up" to an answer. The child who asks that question needs a definite, concrete, accurate answer. For he or she has heard or seen something the nature of which is not clear. We cannot expect the child to be able to draw a parallel between the processes in plant and animal life, and apply it to human beings. That serves its purpose in a course of biology later in life, but does not answer the question of the child. Nor can the answer safely be postponed. It should be given at once. Every child, no matter how young, who asks the question, is able to understand the correct answer.

40 WEST 84TH STREET.

FRACTURE-DISLOCATION OF THE SACRUM; RUPTURE OF THE THIRD, FOURTH, AND FIFTH LEFT SACRAL ROOTS, AND COMPRESSION OF THE SAME ROOTS ON THE RIGHT, AND ALSO OF THE SECOND SACRAL ROOT ON BOTH SIDES; WITH SOME OBSERVA- TIONS ON SUPERFICIAL AND DEEP INNERVATION.

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The following is the history of the patient:

W. C., 44 years of age, carpenter, on Jan. 17, 1917, fell from a scaffolding a distance of nine feet, the sacrum striking on a beam; from this falling again to the ground, a distance of six feet. Immediately after the injury the patient was unable to walk; had voluntary motion but no control of legs. For two weeks following catheterization was necessary. Ever since the injury he has had loss of control of bladder and rectum,

with absence of erections and of sexual desire. He does not know when he wants to pass urine or feces. The bowels do not move without a purgative. He experiences, when the bowels move, a severe gripping pain in the abdomen; is not conscious of bowel movements. Bladder control is also defective, the patient not knowing when he wants to void. After the bladder has been emptied by a catheter it takes three or more hours before the patient begins to have a "feeling" in his bladder. By straining the abdominal muscles he can force out a small amount of urine in a steady stream for a short time. In general, when the bladder is full the urine comes away in little gushes at intervals of several minutes. Sexual desire and efficiency have been markedly impaired since the injury. No erections at all for some time past. These defects in the rectal, vesical, and genital mechanisms constitute the chief complaints. Patient had to wear a urinal and diapers. He was a strong, muscular individual. Examination on Aug. 18, 1917, showed that there is a bulging and deformity of the sacrum; marked kyphotic deformity with slight scoliosis to the right at the base of the sacrum; depression at lower end of spine on left into which could fit a hen's egg; to the right of this was a piece of loose bone, proved by rectal examination to be the dislocated coccyx. This was attached to the right pelvic bones by muscle and ligament. It was free on the left.

Patient was examined by Dr. Byrne, whose diagnosis was: Fracture and dislocation of the sacrum with rupture of the second, third and fourth sacral nerves on the left side, with contusion and stretching (partial obstruction) of the corresponding roots on the right, and of the second sacral roots on both sides; fracture and dislocation of the coccyx. Operation was advised.

X-ray examination (Aug. 20, 1917) of the lumbar spine shows nothing definitely abnormal, except that the fifth lumbar is apparently lower than normal, and overlaps the sacrum more than is normal, the lower border of the transverse processes being slightly lower than the internal masses of the sacrum.

Most of the pelvic portion of the sacrum, however, shows very definitely abnormality in the way of loss of bone substance and general appearance of disintegration, leaving only a small amount of the left border displaced slightly to the left. On the right side there is somewhat less bone disintegration, and the coccyx seems displaced about 2 inches to the right and about 1 inch higher than normal. The apparent loss of bone substance, estimated 3 x 3 inches, may be due to the absorption of bone and lime salts after a comminuted fracture; absorption of bone after sarcoma; possible absorption from necrosis and osteitis.

As the damage to the pelvic portion of the sacrum is extensive the interference with the function of the sacroplexus, caudaequina, and nerves should be considerable. Supplementary x-ray examination of the lumbosacral region, stereoscopically, shows no conclusive evidence that the fifth lumbar is displaced forward on the sacrum. The case seems to be one where the angle between the lumbar and sacral regions is much increased, until the upper and articular surface of the sacrum faces forward more than usual, carrying with it the fifth lumbar vertebra until the anteroposterior view shows the fifth lumbar vertebra and its transverse processes to be much lower than usual in their relations with the upper border of the sacrum. The total destruction of the lower half of the sacrum is confirmed, as detailed in the first report.

Motor system: No appreciable defect except the vesical, rectal, and sexual disturbances already described.

Sensory system: Spontaneous phenomena: Numbness over both buttocks; at times a "feeling" shoots from the anus to the penis; sensation of pressure and discomfort in the hypogastric region, at times (with full bladder) after lying on his back for some time a feeling of soreness is experienced in the right buttock. No other pain or tenderness.

Elicited phenomena: Upon light touch for the finer von Frey hairs, the parts having been shaved, sensibility was lost as represented in Chart 1.

Tests for the compass, points simultaneously applied, showed over the anesthetic area on the buttocks (SIII) marked impairment when moderately firm pressure was used, less impairment where more pressure was

made and perfect answers when the pressure was still greater, though short of causing pain. Thus on the left buttock, the points being $3\frac{3}{4}$ inches apart with moderate pressure, the answers in ten trials were with "ones," ten right and none wrong; and for "twos" ten wrong and none right. For deeper pressure at $3\frac{3}{4}$ inches the answers were for "ones" ten right and none wrong, and for "twos" seven right and three wrong. For still deeper pressure the answers for "ones" and "twos" were perfect.

over both buttocks (SIII) the answering was excellent, the threshold being reasonably low. With the points 2 inches apart the answers were perfect.

Prick: For the algometer at two grammes pressure, sensibility was lost on the left side over an area somewhat less in extent than the loss for light touch. On the right the loss was less extensive (SII). Marked overreaction was encountered on the left buttock when the boundary of preserved sensibility was reached by the pin-point dragged from the analgesic area outwards.

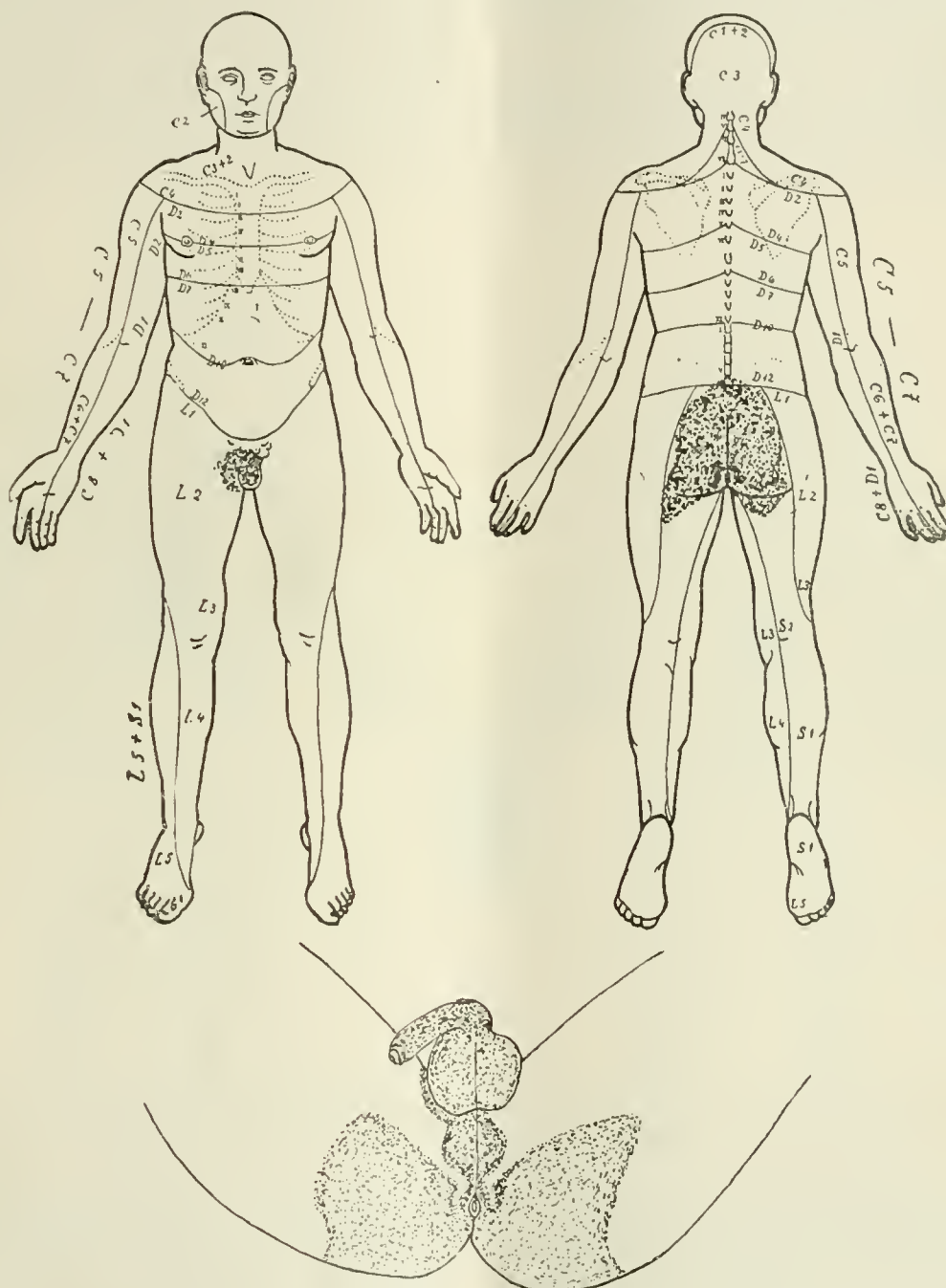


FIG. 1.—Showing light touch loss for the finer von Frey hairs in rupture of the third, fourth, and fifth sacral roots on the left, and contusion, stretching, etc., of the same roots on the right, and also of the second sacral roots of both sides. A small area of preserved sensibility at the junction of the scrotum and the thigh is not shown.

Pressure touch: For the unweighted esthesiometer sensibility was absent on the left buttock to an extent slightly less than the loss for light touch. On the right buttock the loss was considerably less in extent than on the left. For heavy pressure sensibility was preserved all over both buttocks and localization for touch, when felt, was good.

Compasses: For two points *consecutively* applied

On the right side the overreaction was not so marked or so constant. On the glans penis prick sensation at twelve grammes pressure was absent on both sides for single stimuli. Where the stimulus was rapidly repeated some sensation of pain could be evoked on the right side, even at a pressure of three grammes. The same was true for the scrotum on both sides, especially that portion bordering on the thigh (ilioinguinal nerve).

Pinching: Superficial pinching, no matter how severe, did not cause pain on the left buttock (SIII). When, however, the fold of the skin grasped between the nails of the thumb and finger was so large that the skin folded then pain was felt at the site of pinching.

Pressure pain: The average threshold was found to be at nine kilos, on the centre of the left buttock and six kilos on the right. Localization was good, wherever pain was evoked by pinching or pressure, and when the threshold in each case was reached, the impulses into consciousness were gradual and without overreaction. Reflected and referred pains were looked for but no areas could be worked out at this examination.

Examinations on Sept. 10 and 12 showed the cutaneous hyper-algesia that accompanies reflected pain on the areas depicted in Fig. 1 (SIII). The patient suffered from a slight stricture of the posterior urethra so that it was found difficult to pass a No. 16 F. catheter. The

hyperalgesia sensibility for light touch, compasses simultaneously applied, prick at two grammes, single stimuli, and intermediate degree of heat and cold were markedly impaired especially on the areas below the gluteal folds, the impairment being more marked on the right side.

Temperature: For intermediate degrees of heat (38° — 40° C.) and cold (23° — 25° C.), the area of lost sensibility corresponded closely with that for light touch (SI). For gross heat (55° C.) and cold (ice) the loss for momentary light application corresponded closely with the loss for prick at two grammes pressure (SII). Extreme heat (70° C.), when lightly and momentarily applied to the buttock, showed no sensation, but when the application was made with some pressure for a longer time, pain was felt and the patient was able to recognize the stimulus as hot. The sensation was not accompanied by overreaction. Experience and

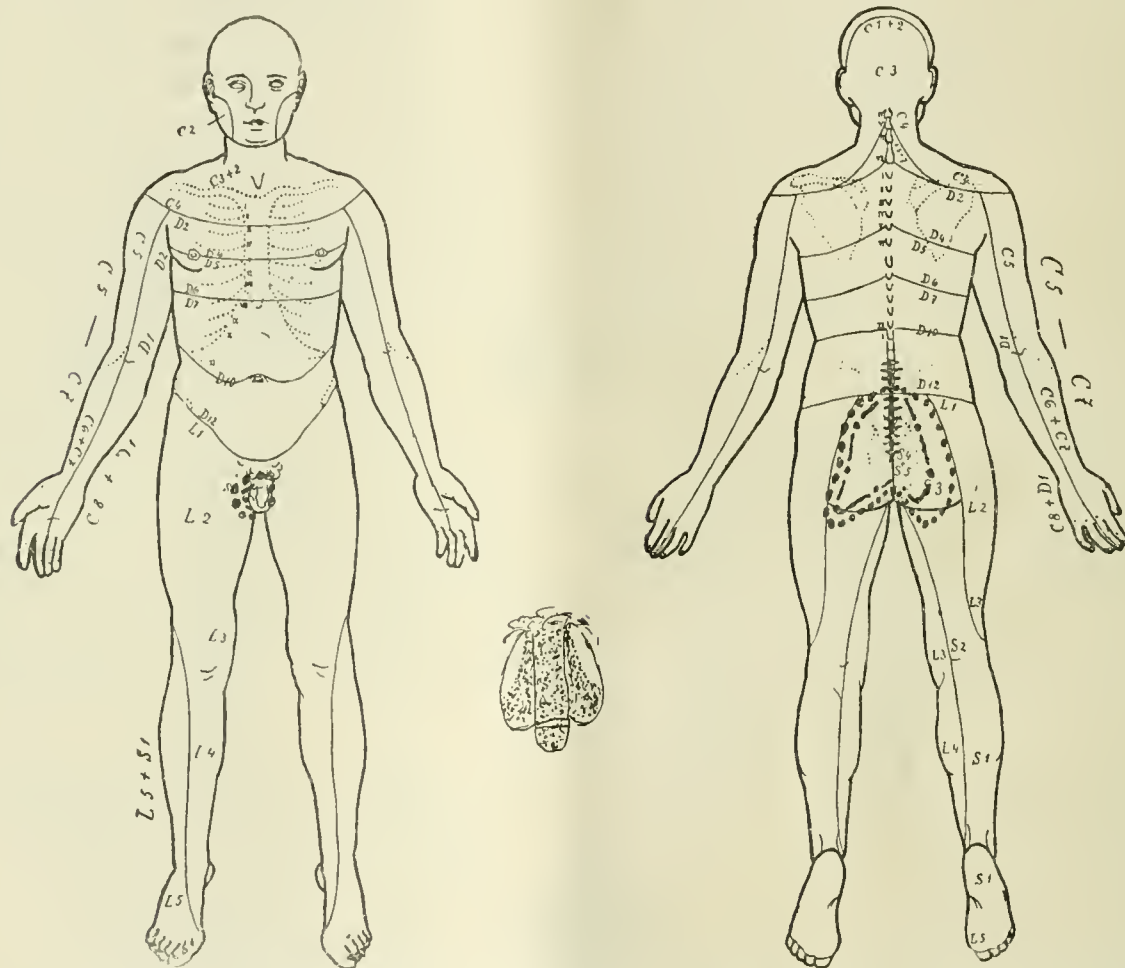


FIG. 2.—The heavily dotted line bounds the area of absolute loss for the lighter von Frey hairs; and for intermediate degrees of heat and cold. Dots and dashes bound the area of loss for prick at two grams pressure and for gross heat and cold on that superficial contact. The central drawing shows the areas (unshaved) of preserved sensibility on the scrotum.

urethra was forcibly distended by injection of sterilized olive oil, when the catheter was readily passed. Examination before this procedure, when the patient was not in pain from bladder distention, showed no hyperalgesic areas except that immediately bounding the anesthetic area. After passing the catheter the cutaneous hyperalgesia appeared. This was most pronounced at the boundary of the area shown on and about the buttock in Fig. 1, outside of the anesthetic areas on the perineum, inner thigh, scrotum, and penis. A lesser degree of hyperalgesia was found on the upper thighs, veins, and lower abdomen. Careful tests showed that a still lesser degree of hyperalgesia could be marked out for each and every important nerve of the sciatic distribution in the legs. Here undoubtedly the phenomena were of the "referred," as opposed to the purely "reflected" variety. A noteworthy feature was that after the development of the reflected cutaneous

care are necessary in making this test, otherwise the skin may be injured. Ice when massively applied with some pressure did not so readily evoke the specific sensation of cold.

Reflexes: The bulbocavernosus reflex was absent on both sides. The anal reflex could not be elicited when the skin or mucocutaneous area was touched, stroked, or pricked, cephalad of the center of the anus, but could be readily elicited caudad of this level. It could also be elicited by stroking the buttock laterad of the boundary of light touch loss or by deep pressure (touch or pain) over the center of the buttock.

Discussion of the Symptoms and Signs.—The following points are of interest: The lowermost motor portion of the reflex mechanisms (efferent arcs) controlling the neck of the bladder and the anus,

though functioning irregularly, were manifestly intact. Compare the constipation and the urinary retention on the one hand, and the incontinence of urine and feces on the other. The nerve supply of the bladder wall comes from the cord through the second, third, and fourth lumbar (vesical plexus), whereas that for the neck of the bladder comes through the second, third and fourth sacral roots (hypogastric plexus, *nervi erigentes*). The retention, therefore, of motor and sensory function (hypogastric pain) in the bladder wall is readily understood. The sphincters of the bladder and rectum, when cut off from their spinal nerve supply, assume a state of postural hypertonus (Sherrington, Elliot) which accounts for the urinary

The elicited phenomena showed absolute loss for touch, pain, and temperature on the left side on an area corresponding to the third and fourth sacral root distribution, so long as the stimuli involved only the superficial structures. When the stimuli were so applied as to reach the deeper structures, just under the skin, then sensibility for touch, pain, and temperature was preserved. This seems to show that nerves running in the subcutaneous tissues (aponeurosis, fascia, synovial sheaths and coverings of tendons, *et cetera*) have specific receptors independent of those situated in the skin proper and have a level of entry into the cord different from that of the nerves supplying the superjacent skin. This fact was further demonstrated by one

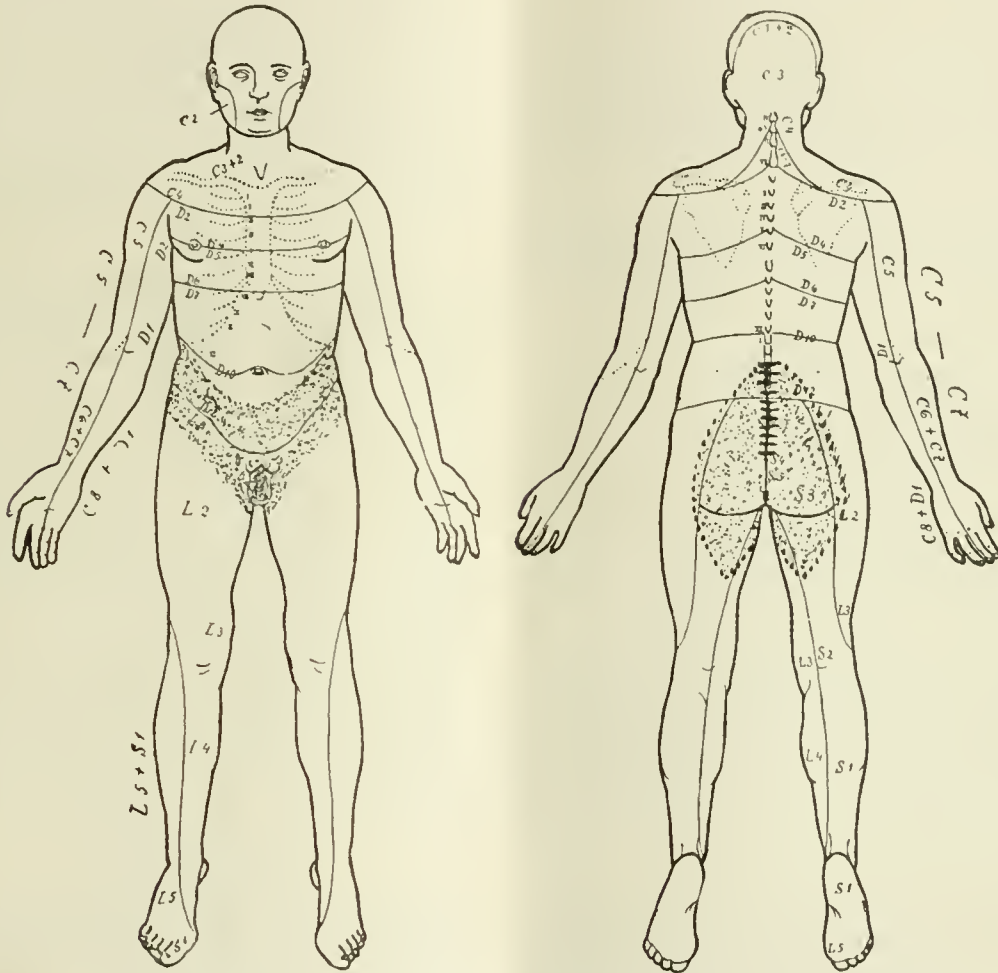


FIG. 3.—Showing reflected pain areas, cutaneous hyperalgesia from bladder and urethral irritation.

retention, constipation, and loss of all admonitory sensations such as accompany a full bladder or rectum. However, when once the sphincteric hypertonus is overcome mechanically or by inhibition through local mechanisms, then the sphincteric muscles again assume a state of postural tonus in the lengthened state (Sherrington) which, for the time being, permits of incontinence of both urine and feces. These conditions of postural tonus in muscles innervated by the sympathetic or autonomic system, are effected through local mechanisms. Compare the paradoxical pupil dilatation and paradoxical vascular constriction (ear vessels) after removal of the superior cervical ganglion.

of us in tests made directly upon these structures in large open wounds, and in the present case by the use of needles and of hot and cold solutions injected into the structures beneath the insensitive skin. It seems therefore that Head's well-known division of the peripheral system of nerves into three sets of fibers, viz., epicritic, protopathic, and deep is inadequate. Sherrington's division into the exteroceptive, proprioceptive, and enteroceptive systems seems more logical but requires qualification. For clinical purposes the most serviceable division of the peripheral system would be into

(a) Superficial critical, corresponding to Head's epicritic, including light touch and its localization.

compass points lightly and simultaneously applied; degrees of heat and cold around the neutral points, *i.e.* the skin temperature.

(b) Deep critical, including pressure touch and its localization, compass points consecutively and simultaneously applied with firm pressure; posture and passive movement; specific sensation of sharpness and its localization, and of gross heat and cold; certain elements in vibration and roughness; size, shape, form, consistency, and weight on the supported hand, *et cetera*.

(c) Superficial effective, including pain or hurt from light stroking of the skin or hair; superficial pricking and pinching; from the superficial momentary application of extremes of heat and cold; or the pleasurable excitement of light contact with smooth objects, or soft fur, warm objects, *et cetera*.

(d) Deep effective, including pain or hurt from deep pricking and pressure; from prolonged application of gross heat or cold; from vibration or roughness, or the pleasurable sensation from massive prolonged application of moderate degrees of heat or from mild vibration or moderate degrees of roughness, *et cetera*.

The absence of pain and tenderness in the totally denervated skin areas on the left buttock and the presence of them on the right, with some evidence of regeneration or restoration of function on the latter region—these facts are important, since at operation it was found that the third and fourth sacral roots were completely destroyed on the left, whereas on the right they were intact but slightly stretched and imbedded in connective tissue. These observations confirm the experience of neurological surgeons who find that section of the posterior nerve roots or of the pain paths in the cord completely and permanently abolishes pain and tenderness in related areas at the periphery. Further corroboration is found in the usually painless course of syringomyelia, and in tumors of the spinal cord (Elsberg) as long as the posterior nerve roots are not compressed (partially obstructed). From these and other facts it may be concluded that the fundamental dynamic factor in all conditions of pain and tenderness is to be sought in processes taking place chiefly in the cells of the dorsal root ganglia, as one of us (Byrne) some time ago pointed out in reference to the pain crises of tubes.

Operation by A. H. Harrington, June 22, 1917.—Ether narcosis; prone position; iodine preparation. An incision seven inches long was made over the center of the sacrum. This incision was extended above over the lumbar spine and prolonged below to the coccyx. Exposure of the bone revealed definite bending or kyphosis in the upper part of the sacrum. There was a dislocation of the sacrum at the right sacroiliac synchondrosis. This dislocation caused the posterior surface of the sacrum to occupy an inclined plane, which inclination, coupled with the fracture deformity, made it difficult to recognize the normal contour of the bone. With the use of chisel, gouge, and trephine the central canal of the sacrum was opened, the cauda equina, which was found lying in the central canal, appearing as a thin bluish structure. In order to establish its identity which was partly in doubt, a part of the laminae and spine of the last lumbar vertebra was removed, definitely establishing the structure previously noted as the cauda equina, by its passage upwards into the central canal of the lumbar vertebra. At the point where the cauda equina entered the sacral canal it had suffered a displacement or pushing backwards so that, at this point, its direction was almost at a right angle to that

which lay within the lumbar vertebrae. This curving or bending backwards of the cauda equina was caused by the posterior displacement and fracture of the sacral vertebrae. Investigation showed that the cauda equina was completely immersed in scar tissue; this scar tissue was carefully dissected away so that the cauda equina was completely freed. Examination demonstrated a rupture of the third, fourth, and fifth sacral nerves of the left side, confirming Dr. Byrne's diagnosis. The distance between the ends of these nerves and the cauda equina following complete freshening of the ends with a sharp scalpel measured from one-half to three-quarters of an inch. Each nerve was sutured to the central cauda equina with a mattress suture of plain catgut—"suture à distance." The coccyx, completely dislocated from the sacrum, was removed. Further exploration showed that a large plate of bone had been detached from the anterior surface of the sacrum and was pressing firmly against the pyriformis muscle. Between this bone and the sacrum an adventitious bursa had developed. The bursa was dissected away and the flake of bone removed piece-meal. This proved to be the most laborious and difficult part of the operation. An attempt was made to transplant a piece of fatty tissue into the space lying above the sutured nerves. This was given up, as no suitable tissue could be found. The overlying muscles were sutured with catgut; a small drain was placed in the lower angle of the wound, and the wound was closed with interrupted sutures of silkworm gut. The drain was removed at the end of forty-eight hours; the sutures were removed at the end of seven days, primary union.

Repeated examinations since the operation has shown some improvement in the sensory mechanisms supplying the scrotum, penis, perineum, and right buttock. The sensory condition over the left buttock (third and fourth sacral root area) shows no return of sensibility as yet. The vesical, rectal, and genital functions show some improvement. Though there is serious doubt as to whether regeneration will take place in the sutured nerve roots on the left side, the relief of the partially damaged roots (sacral third, fourth, and fifth) on the right side may prove sufficient to secure some restoration of the preganglionic fibers supplying sphincteric function. Elliott has shown that after unilateral destruction of the bladder, restoration of function occurred with uniform well-coordinated contraction, as the result of preganglionic neurones on the sound side extending to and establishing connections with the decentralized local mechanisms. Compare the normal functioning of the heart after section of one vague nerve.

BIBLIOGRAPHY.

- Sherrington: Brain, XXXVIII., 1915.
 Elliott: Jour. of Physiol. XXXII, 438, 1906.
 Lewandowsky: Arch. f. Anat. u. Physiol. 360, 1899.
 Langley: Jour. of Physiol. XXVII, 244, 1901.
 Anderson: Jour. of Physiol. XXX, 290, 1903-4.
 Sherrington: Integrative Action of the Nervous System, London, 1906.
 Elsberg: Am. Jour. of Med. Sciences, June, 1917.
 Byrne: New York Med. Jour., May 1, 1915.
 Elliott: Proc. Physiol. Sec. p. XXIX in Jour. of Physiol. XXXIII, 1905.

Researches in Variola-Vaccinia.—Gauducheau has studied cowpox immunization in the Tonkin Institute for the past 12 years and announces that there is no absolute differentiation possible between these affections and that either immunizes against the other. Mutation of variola to vaccinia has been partially successful. The differences are due only to the adaptation of a common virus to two animal genera—men and bovidæ.—*Bulletin de la Société de Pathologie Exotique.*

SURGICAL ANOMALIES OF THE ILEOCOLON.

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THE digestive organs in youth resemble those of the carnivora and in the later years those of the herbivora. The relative predominance of these characters has been emphasized particularly by Ricketts, Bryant, and others. The lower right quadrant has long been of especial interest in this regard, for it frequently becomes the site of an anatomic variant in the terminal ileum, vermiform appendix, or cecum.

The aboral ileum is generally recognized as the relatively most important segment of the ileum. It is particularly rich in lymphatics. So large are the lymph nodes in the mesentery of the terminal small gut that in many mammals they serve as the first means of identifying the ileocolic junction during abdominal exploration. They are comparable with the glands of the neck and groin in size and in frequency of enlargement. The significance of these ileocolic lymphatics was recently brought out in the following case:

CASE I.—*Pneumococcus Peritonitis*.—T. G., 14 yrs. Male. Sudden attack of pain, vomiting, and right sided tenderness and rigidity. Laparotomy disclosed. "Terminal ileum contained lymph follicles which stood out visibly and lymph nodes in the mesentery of the terminal ileum enormously enlarged (from two to five centimeters in longest diameters). Appendectomy and drainage. Pure culture of pneumococci from exudate and from appendix. Rapid recovery.

Of no less interest if of less defensive value is the ileocolic sphincter. Like the ureterovesical and bilioduodenal sphincters it serves as a barrier against ascending infection. This function is happily shown in the above case. Of greater protective value than this "valve" is the neuromusculature of the terminal ileum. It has been said that the "valve" protects 10 per cent. and the neuromusculature 90 per cent., but it is obviously impossible to actually measure these two factors of safety. Comparative studies upon the ureter have shown that the neuromusculature safeguards the kidney above after the vesical sphincter has been destroyed but that the ureterovesical "valve" does not render the upper urinary tract secure after paralysis of the ureter.¹ The defensive interplay of the sphincter and small gut is no doubt made effective through the proximal colonic nodal center. Keith² has drawn attention to the great importance of this nervous tissue situated in the colonic collar about the end of the ileum in the coordination of gastric, enteric, and colonic motility. Our own studies have shown experimentally and clinically that dynamic changes in the duodenum follow obstruction of the end-ileum.³ The lymphatics, the "valve," the neuromusculature, and the proximal colonic nodal center unite to make the distal end of the small intestine one of the most important intestinal segments in the body.

Adhesions probably appendical in origin seldom get further than the appendix itself but the terminal ileum is occasionally caught in scar tissue. In some instances it is apparently the contracted mesentery of the appendix; in others it is an eschar in the mesentery of the terminal ileum, the remains of an old resolved lymph node.

CASE II.—*Terminal Ileal Obstruction*.—J. M., 40 yrs. Male. Paroxysmal sharp pain in right inguinal region with general nervousness and mental depression. Local tenderness. Laparotomy disclosed "Terminal ileum for

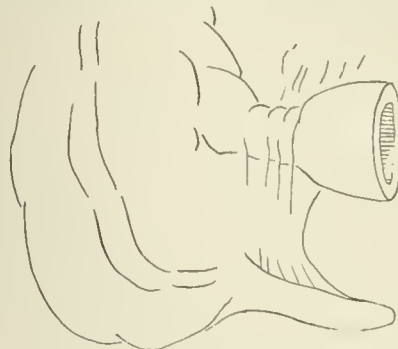


FIG. 1.—Case II, ileum constricted by inflammatory tissue.

8 cm. bound firmly to postcecal space by obstructing band. Portion of ileum immediately adjacent dilated. Appendix distended and congested at tip." Band divided and appendectomy. Discharged cured of symptoms on tenth day.

CASE III.—*Terminal Ileal Obstruction*.—A. H. 38 yrs. Male. Anorexia, vomiting, constipation, and pain in right lower quadrant. Diagnosed in one of large city hospitals as "gold-poisoning." Local tenderness. Laparotomy disclosed "Terminal ileum caught in dense



FIG. 2.—Case III, ileum constricted by scar tissue with enlarged gland, probably in mesentery of terminal ileum.

scar tissue at its antimesenteric border rotated caudad on long axis for 180 degrees, and fastened in postcecal region. This scar evidently arose from a broken-down and organized lymph node in the mesentery just under the terminal ileum. Appendix distended at tip." Band divided and appendectomy. Discharged entirely relieved on twelfth day.

The ileocolic sphincter has been routinely examined but in no instance to date has any indication arisen for valvular repair. An embryonal cord of tubal origin enters into abnormal relations with the end-ileum in the following:

CASE IV.—*Terminal Ileal Obstruction*.—H. H. 20 yrs. Female. Pain, tenderness, and rigidity in right lower quadrant. Laparotomy disclosed "... Right tube connected by a strong fibrous cord one inch from its fibrillated extremity to a cyst, 2 cm. in its long diameter, and by this cord and cyst to the right lateral border of the omentum. This adventitious cord was tautly drawn across the terminal ileum one inch from the 'valve.' The site of traction over the ileum was distinctly marked by a compression in the gut. The ileum met cecum at tip and fused with its mesial border before entering the colon." Cord with cyst divided at both ends and removed. Inflamed appendix removed. Recovery.

In many of the chronic gastrointestinal cases the appendix has outlived its functional usefulness and remains as an abnormal appendix. Under these

conditions it may be looked upon as a diverticulum or as a semiocluded and semiobstructed intestinal loop. Such a loop apparently becomes a source of irritating stimuli to the rest of the alimentary tube, particularly to the stomach. Impaction may con-

retention of bismuth in terminal twelve inches of ileum. Laparotomy disclosed a cecoappendix or infantile appendix well up and behind the ascending colon. This arrangement accounts for a more obliquely upward-directed ileum than usual and adhesions between the terminal ileum and under surface of the transverse colon.



FIG. 3.—Case IV, terminal ileum constricted by omental band firmly attached to a cyst of Morgagni; note the incomplete development of the ileocecum.

vert this semiocluded into a doubly occluded loop or acute suppurative appendicitis may supervene.⁷ Other appendices are faulty in passively serving as anchorage cords for the cecum in difficult positions. Appendicular gastralgia is relatively common; cecal obstruction in which the chronic appendix is an immediate causative factor is comparatively less common. (See Case VI.).

CASE V. Terminal Ileal Obstruction and Fused Ileocecum.—C. L. 24 yrs. Male. Constipation of 5-day type, pain in hypogastrium, and tenderness in right lower quadrant. Laparotomy disclosed "a parietocolic membrane firmly attached to ascending colon, thickened and peritoneal covered in the cecal portion, a chronically inflamed appendix retrocecal and retroperitoneal in its distal two thirds by passing through a rounded edged oval fenestra in parietocecal membrane, and a terminal ileum obstructed by scar tissue in its own and in the appendical mesenteries." Compare Cases III. and IV. Recovery.

The cecum normally measures $2\frac{1}{2}$ inches long by 3 inches wide. It usually rests upon the psoas muscle and is placed so that the apex projects beyond the inner border of that muscle in the male. In the female the apex lies internal to that muscle for the pelvis is broader, thus causing that muscle to deviate more to the right than in the male. The apex may be internal or external to Poupart's ligament, upon the pelvic brim, or within the pelvis and covered entirely by peritoneum.⁸ Variations in position are largely explainable on the basis of arrested descent. The cecum reaches the right iliac fossa in the eighth month of intrauterine life. A cessation of the rotation of the intestine on the axis of the superior mesenteric artery may occur at any stage and give rise to wide variations in the fixation of the organ. Such an arrest may leave the cecum on the left side of the abdomen, under the liver, above, or below the pelvic brim.⁹ Compare the following:

CASE VI. Arrested Descent of the Cecum.—M. S. 39 yrs. Male. Umbilical pain accentuated by straining at stool and seven-day constipation. Large cecocolon, tender ileocecum. No duodenal "cap" with a plus 24 hour

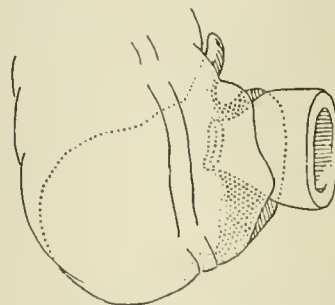


FIG. 4.—Case VI, arrested descent of cecoappendix.

Appendectomy was performed, the cecocolon freed, and raw surfaces over oral colon turned in by invaginating sutures taken along the longitudinal taeniae. Discharged on thirteenth day. Four months later reported daily bowel evacuations and no pain.

CASE VII. Excessive Rotation of the Cecum with the Ileum Entering from the Right.—K. J. 26 years. Female. Epigastric pain and two-day constipation. Local tenderness and slight rigidity in right lower quadrant. Laparotomy disclosed "The cecum and the ascending colon were firmly held in adhesive bands and in an inflammatory membrane arising from the right parietes.

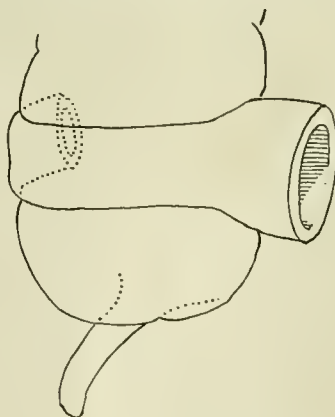


FIG. 5.—Case VII, excessive rotation of the cecum with the ileum entering from the right.

The cecum was rotated upward and to the right so that the ileocolic sphincter was anterior and dextrad instead of mesiad while the appendix was behind both the lower end of the colon and the peritoneum. Furthermore, the distal end of the ileum was dilated, probably as the result of compression. Enterolysis. Appendectomy. Imbrication of the ascending colon for the oral twelve centimeters." Discharged on thirteenth day. Reported free from epigastric pain, and daily bowel evacuations four months later.

The cecum is so little developed in the new-born child that the size of the cecocolon approximately equals that of the small intestine. During middle life the cecum normally becomes extended.¹⁰ Variations in size, therefore, may be due to a faulty development which leaves the oral colon large or small or fixes the organ in such a difficult position that attempts to carry out its motor function are followed by dilatation. Similarly, too, congenital bands and membranes may continually hamper colonic emptying to such a degree that it eventually loses its normal contractility. It is furthermore conceivable that habitual constipation which in the

early stages involves distention of the proximal colon may so fatigue and wear out the normal colonic walls that eventually dilatation ensues. Dilatation of the cecum is probably essentially identical with dilatation of the stomach. In both conditions no microscopic changes have been discovered or evidence for believing the neuromuscular tissues diseased has been found. Experimentally in dogs and working from the standpoint of obstructive or dynamic dilatation it has been observed that:

"The semiocluded and excluded oral colon after ileosigmoidostomy may or may not enlarge; it more frequently does not—in 75 per cent. The microscopic appearance of the wall of the colon in two of the four animals was negative. Doubly occluded and excluded loops of colon may or may not enlarge. Of five animals two were dilated and three were contracted or of normal size—60 per cent. The contents of the dilated loops were faecal remains and large amounts of gas. One half of the bacterial contents of a three weeks' dog injected intravenously into a normal dog caused only a temporary partial paralysis of the hind legs. The microscopical findings as given by A. Fraser are as follows: '(1) Mucosa and submucosa normal. (2) Musculature, both layers from one half to one third thicker than those of the remaining colon; this "thickness" is due not to hypertrophy but to marked hydrops of the muscle fibres. There is no evidence of increase in muscle substance or in the number of the fibres. There is no evidence of inflammation. (3) Serosa shows a thick layer of granulation tissue especially at the line of suture.'"

From an examination with Fraser of material from twenty or more human colectomies obtained by others from individuals with marked cecal retention it must be admitted that none showed any recognizably gross pathology and that a few were apparently negative microscopically. The greater proportion revealed a mucosa that was normal or hypertrophied and a musculature that was pseudo hypertrophied due to hydrops of the muscle fibers. It has been pointed out that these changes in the dilated cecocolons observed above in many respects resemble the histology of early paralyzed voluntary muscle. Such are the laboratory data on clinically diagnosed colonic dilatation. After the normally distended or physiologically dilated cecocolons are eliminated from among the cases of cecal retention of undemonstrable mechanical origin it is possible that so few pathological ones will remain that they should be properly considered anomalous.

Other defects in growth at maturity are apparently due to faulty fusion or to imperfect cleavage. Note the common lateral wall of the terminal ileum and mesial wall of the cecum in the following:

CASE VIII. Common Ileal and Cecal Wall.—M. T. 36 years. Female. Paroxysmal right iliac pain, nervousness, and constipation. Tenderness in right lower quadrant. Other findings including the x-ray confirmatory of chronic appendicitis and obstructed terminal ileum. Laparotomy disclosed: "The ileum approached the tip of the cecum and, fusing with its mesial wall, ran upward for over one inch before entering the large gut. The appendix was long, distended, and chronically inflamed." Malformation so recorded, but not disturbed. Appendectomy. Reported greatly improved three months later.

Anomalous development of the ileum, appendix,

or cecum become of surgical interest when first recognized. These atypical structures are obviously operative when they definitely interfere with the comfort or welfare of the individual. When first seen anatomical variants should be described for future reference as potential sources of evil. Bands and membranes often in themselves innocent commonly give rise to seriously harmful adhesions when unwisely disturbed. Pathology at the site of the anomaly or removed from but none the less dependent upon it should determine an attempt at surgical correction. As a rule these right-lower-quadrant morphological variants are suspected but not discovered until the abdomen is opened for appendectomy or reopened for unfavorable after-results of an appendectomy.

The operative surgery varies with each respective case. The simplest mechanical means of relieving an obstructed ileum or cecum is enterolysis which consists in the freeing of the intestine from surgical adhesions. This should be accomplished with the greatest care and with the smallest amount of foreign substance for ties or for suture material. It is probable that the absorbable material attracts

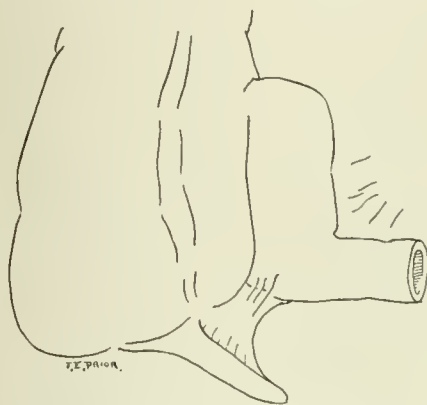


FIG. 6.—Case VIII, common ileocecal wall.

the least reactionary adhesion-formation. When it is necessary to unravel a distorted cecocolon it is probably wise to turn in the resulting abraded serous surfaces. When there seems to be "stasis" of the cecum because of its size and length, Blake recommends imbrication or longitudinal tucking-in of the oral colon. In many instances appendectomy is sufficient. In those very few and isolated instances in which resection of a diseased cecum of cecocolon is called for the preservation of the terminal ileum, the ileocolic sphincter, and of a colonic ileal collar intact and terminal anastomosis between this collar and the cut edge of the remaining colon should be undertaken.⁸

REFERENCES.

1. Barber, W. H. and Draper, J. W.: *Journal of the American Medical Association*, Jan. 16, 1915, Vol. LXIV., pp. 205-209.
2. Keith, A.: *Lancet*, 1915, II., 371-375.
3. Barber, W. H.: *An. of Surg.*, Oct., 1915, pp. 433-440; *Int. Med. Jour.*, Vol. XXIII., No. 10, 1916; *MEDICAL RECORD*, Oct. 14, 1916.
4. Barber, W. H.: *MEDICAL RECORD*, May 5, 1917.
5. Ricketts, B. M.: *Journal of the American Medical Association*, June 1, 1901.
6. Smith, G. N.: *Anat. Record*, Vol. V.
7. Blake, J. A.: Personal Communication.
8. Barber, W. H.: *Int. Med. Jour.*, Vol. XXIV., No. 1, 1917.

616 MADISON AVENUE.

CONSERVATION OF BABY LIFE IN THE TENEMENT.*

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It has been well said, "Start the child on the right path and we need not worry about the man."

In these days, when destruction of human life is so commonplace, an invitation to discuss the conservation of baby life, as suggested by your Chairman in the title of my paper, is gratifying and stimulating. I was cautioned by your presiding officer that twenty minutes would be allowed me and, with characteristic executive ability, he advised me to dispense with all prelude and camouflage and to delve into the subject from the outset. Under the circumstances, a mere surface outline will be presented, in written form, and I will leave such amplification of the subject as is necessary to the lantern slide demonstration which will follow.

The warring countries have all learned as a result of this conflict that it pays to conserve the health and lives of their children. They know now as never before that the nation that has the best babies has the future. The saving of infant and child life has not only a commercial, industrial, social, and civil importance, but a military significance of no small magnitude. At no time in the world's history has the importance of saving children been more urgent or immediate. It has been estimated that if England had devoted the same attention to child welfare during the past forty years that she is giving the subject today, she would have had almost two million more men in the field. And what applies to England applies to all other countries.

We in this country have not suffered as yet from the reduction in birth rate and the increased infant mortality rate experienced by our Allies and enemies in the early years of the war, and because of this very fact it is wise and prudent that we prepare before similar conditions arise here. We should fortify ourselves against any such contingency by avoiding their pitfalls and mistakes and applying their constructive methods to our own child welfare work. This we are doing on a large scale and nowhere, perhaps, to a greater and higher degree than in New York City.

The control of infant and child morbidity and mortality in New York City, as it exists today, has been the result of progress along public health lines in two directions: (1) That prevention is superior to, and easier than correction; (2) That the saving of infant and child life is an all-year-round problem.

Not so many years ago the approach to the conservation of child life was through the channel of treating sick babies. Such a method was irrational and non-productive of results. "Keep the baby well" has taken the place of "Treat the sick baby" in our public health program—a method more rational, more constructive and more productive. Nor are we satisfied with limiting our activities to the summer months, as in former days. Babies require care and attention the year 'round, albeit the heated term is the most dangerous period for them.

*Read at a meeting of the Yorkville Medical Society, March 18, 1918.

With these basic facts before us, the tenement house was the most natural point of attack. It is here that the triad of baby-killers—poverty, ignorance and neglect—finds the largest number of victims. Ignorance, carelessness and neglect respond, after constant and repeated instruction and supervision, to education, although the difficulties surrounding the attack are great.

Poverty, while exceedingly difficult to meet, is not insurmountable. Poverty is always a serious problem in the life of the family unit; but in the life of the baby, it is doubly so. As Holt says, "It may not be true in adult life, but in infancy money may purchase not only health, it may purchase life, since it puts at the disposal of the infant the utmost resources of science—the best advice, the best food, and the best surroundings." Poverty must be approached from various angles, as due either to illness, alcoholism, non-employment, industrial limitations, irresponsibility, etc., and its control through social and industrial readjustment, would in itself make for a lowering of the morbidity and mortality of babies. Poverty, too, may be relative. We hear much today of the increased opportunities for employment and the better wage. With the purchasing power of the dollar reduced by more than half and the weekly wage of the worker advanced by from eighteen to twenty per cent., the workingman occupies, in effect, a less favorable position than in peace times.

The saving of baby life, therefore, becomes more of a socio-economic than a medical problem, more a question of education and prevention than of treatment, more a matter of housing, overcrowding, personal and home hygiene, family income, employment, alcoholism, gainful occupation of the mother, racial or religious prejudices, customs, and superstitions; in other words, more a question of environmental adjustment, industrial opportunities, living wage and civic pride than of caring for babies when they are sick.

It is from this standpoint that the conservation of baby life in the tenement is approached and for this purpose babyhood is divided arbitrarily into three periods: (1) the prenatal period; (2) infancy, under one year and (3) babyhood, from one to two years.

We have reached a point in the saving of baby life where, despite all our efforts, any further marked reduction will become increasingly difficult unless attention is directed to the baby before birth. For some reason or other—perhaps because of its greater tangibility—attention has been focused upon the baby after birth; and yet, when we consider that over forty per cent of all deaths under one year of age are due to congenital causes; that seventy-five per cent. of all deaths during the first month of life are due to these conditions; that more babies under one year of age die from congenital diseases than from respiratory and diarrheal diseases combined; that while the reduction in the death rate from diarrheal, respiratory, and contagious diseases during the past ten years has been marked, the death rate from congenital diseases has remained practically stationary, it will be readily appreciated how difficult the reduction of our infant death rate will be unless instruction and supervision of expectant mothers becomes more universal. Congenital deaths

admittedly bear little or no relation to hygienic or dietetic errors, but are rather due to causes operating before, during, or shortly after birth. Hence the need of guidance for the future mother.

For four years the Bureau of Child Hygiene of the Department of Health has designated a corps of eight special nurses for this work, performing the same in an intensive way. At the same time, all nurses of the bureau, especially those of the baby health stations, have advised expectant mothers whenever they met them officially. Registration as early in pregnancy as possible, periodic visits before birth, instruction and advice in diet, hygiene, clothing, bathing, fresh air, exercise, rest, care of the breasts, skin and teeth, importance of breast feeding, reference to private physicians whenever possible, urinary examination, visits to private physicians, hospitals, maternity institutions, examination for tuberculosis and the social diseases, social service assistance in the form of material relief, clothing, employment, etc., the maintenance of cooking classes and sewing classes for mothers, the preparation of the room and articles for confinement and for the baby, early admission to and examination at maternity centers and hospitals for cases presenting suspicious signs or symptoms, or histories of previous prolonged or complicated labor, home visits for one month post partum, supplemental literature—these are some of the ways and means whereby pregnancy is made safe and comforting for the future mothers.

The results of this work (*New York Medical Journal*, January 12 and 19, 1918) justify the conclusion that a more general application of this supervision throughout the city would result in a lower infant mortality rate, especially during the first month of life, fewer deaths from congenital diseases, fewer premature births, fewer accidents to mother and child, fewer cases of sore eyes, better home conditions and increased maternal nursing, fewer deliveries by midwives, increased birth registration, enhanced supervision of midwives and better care of babies that are, and that are to come. We do not maintain that prenatal instruction and supervision will avoid deaths from all conditions classified under the heading of congenital diseases and from all forces acting during intrauterine life. It is contended, however, that a very large number of deaths due to these causes are preventable.

With the birth of the baby, certain essentials—we may term them elementals—are necessary for safeguarding health and life, from the municipal standpoint, namely:

- (a) Reaching the baby as soon as possible after birth, before aggravated errors of hygiene and diet have handicapped him, reduced his resistance, and exposed him to disease.
- (b) Securing breast feeding, which is the remedy par excellence for the reduction of infant mortality.
- (c) Where artificial feeding is necessary, establishing centers whereat parents who are unable to pay may secure for their children a high-grade, safe, clean milk below the market price.
- (d) Affording individual care in the home by the mother, or, in cases of illegitimacy, or where the mothers must work, in the home of a

foster parent instead of in institutions or at the hands of irresponsible neighbors.

- (e) Giving opportunity for nursing mothers to secure an available supply of high-quality milk at a price commensurate with the family income.
- (f) Emphasizing the importance of prevention, of keeping the baby well rather than treating him after he has become ill.
- (g) Educating mothers by frequent and repeated advice, instruction and demonstration, on all matters relating to the proper care of the child: regularity of feeding, proper quantity of food, home and personal cleanliness, fresh air, proper clothing, bathing, care and preservation of food, avoidance of flies, importance of sleep, rest, and regular weighing, avoidance of pacifiers, demonstration of proper milk formulæ, icing of milk, prompt medical advice at the first signs of illness—in short, advice and practical demonstration of all the little details that make for strong, vigorous, and healthy babies.
- (h) Gaining the confidence and cooperation of the mothers by having municipal employees act as friendly visitors rather than inspectors. The public do not want to be inspected; they want to be helped and advised; they want nurses and doctors to take a personal interest in their welfare, and then they respond.
- (i) In cases of urgent need, where there is want, suffering and privation due to family illness, poverty, desertion, non-employment, etc., the granting of social-service assistance through the organized relief, charitable and philanthropic organizations and individuals in the form of temporary relief of milk, rent, fuel, food, clothing, shelter, medicine, medical and nursing service, employment, etc. Pauperization should always be avoided. Temporary assistance is given with a view to teaching them how to help themselves.
- (j) Coordinated and correlated cooperation of all child-caring agencies, in order to prevent duplication of effort and any needless waste of time and energy.
- (k) A realization that the saving of baby life is a community problem. It is everybody's business—the business of doctors, nurses, parents, teachers, social workers, citizens, as well as of the municipal health department.

All these, and more, are offered the baby of the tenement by the Department of Health of New York City through the Bureau of Child Hygiene, and the avenues through which we reach the babies and carry out the aforementioned program are, in the main, the baby health stations and the district or home visiting by nurses. It is no easy task to reach 141,000 babies born annually in New York City. Many of the babies who need care most never reach us because of the indifference or neglect of their parents. It is for that reason that our drive is in the two directions mentioned, the baby health stations and the district home visiting; the former for those mothers who come willingly and anxiously, the latter for those to whom we must go.

The baby health stations, of which there are fifty-nine in the Greater City, are preventive all-

year-round centers, dedicated to the policy of keeping babies well. Each station confines its activities to a given district, from which it draws its clientele, and within which it carries on its educational campaign. The stations are established after a critical and exhaustive analysis of locality needs as to infant mortality, birth rate, baby population, existence of other agencies performing similar work, congestion, economic status of the inhabitants, housing conditions, intelligence of mothers, and other social factors.

While milk is sold in large quantities—almost six million quarts annually—for babies who must be fed artificially for one reason or another, for nursing mothers, for expectant mothers, for anemic and poorly nourished older children, and for sick children and adults, the sale of milk is the least part of their usefulness.

We aim to emphasize the educational value of the stations and relegate the sale of milk to second place; not that pure milk is unimportant in the life of a baby artificially fed, but because we believe that the saving of infant and child life is due about 80 per cent. to education and 20 per cent. to pure milk. Milk, no matter how good the quality, if accompanied by improper hygiene, diet, and sanitary care, is a secondary factor as a life-saving measure.

Paradoxical as it may seem, the best baby health station, from a public-health viewpoint, is one that sells the least amount of milk for babies, because this shows either that the mothers are feeding the babies at the breast or that they are securing a high-grade milk in open market and using the baby health station for the educational opportunities afforded.

In point of fact, breast feeding is always advised, encouraged, and urged. No child is permitted to be fed artificially unless all efforts at breast feeding have failed and all necessary dietetic, hygienic, medical, and other measures have been tried. We agree entirely with Dr. MacMurchy that "a mother should not sublet her duty to a cow." Nor is weaning sanctioned unless the physician in charge is satisfied that there is no other recourse. Many mothers who, upon admission, have stated that they have ceased nursing, have been enabled to continue breast feeding in part or altogether by the perseverance of the doctor and nurse, for it must be remembered that many breasts apparently lost to babies can be made to functionate again after weeks of non-use and inactivity. The fact that 68 per cent. of the babies registered at the stations are breast fed exclusively, and 13 per cent. fed partially from the breast, bears testimony to our recognition of the importance in value of mother's milk.

At these stations, nurses and nurses' assistants are in attendance daily, physicians twice weekly. Every baby is thoroughly examined upon admission, weighed, advised, and full data recorded on a history form. Breast feeding is the first consideration. This being impossible, a formula is prescribed by the doctor, in writing, to fit the child in accordance with his age, weight, digestive capacity, and tolerance. The preparation of the formula is demonstrated by the nurse at the station and in the home until she is convinced that the mother understands. There is no fixed rule for

milk modification, and top milk, whole milk, percentage feeding, the caloric method, various diluents or supplemental foods as temporary expedients, are permitted the doctor in charge.

The responsibility for the proper growth, development and health of the child belongs to the doctor. Babies are weighed once a week, or more or less frequently, as indicated. Sick and delicate babies are urged to report at least once a week. Breast-fed and normal babies report weekly or twice a month.

Home visits by the nurses are made regularly—more frequently, of course, in the case of weak, ill, and delicate babies—and all necessary advice as to preparation and care of the food, bathing, clothing, ventilation, sleep, regularity of feeding, etc., is given at the station as well as in the home.

Mothers' classes are held by the nurses, at which the proper purchase, preparation, palatability, preservation and care of food are demonstrated with special reference to the family budget, the nutritional content, the needs of the children, and the racial psychology, for, after all, Owen Meredith was right when he said:

"We may live without poetry, music, and art;
We may live without conscience, and live without heart;
We may live without friends, we may live without books,
But civilized man cannot live without cooks."

In the fall and winter, mothers' classes on the prevention of respiratory diseases are held, at which the dangers of coughing, sneezing, and kissing, and the importance of cleanliness and fresh air, oral and nasal hygiene, and other measures, are discussed.

The weight of the baby is recorded in a special booklet given each mother, and a loss of weight, or stationary weight, is noted in red ink, a danger signal that added care and watchfulness are indicated. Literature on child care, in different languages, is also distributed.

The district is canvassed regularly by the nurses and nurses' assistants for new babies, and those of tender age, particularly under three months, are urged to attend. Almost 12 per cent. of the babies registered at the stations are under one month of age, while over 50 per cent. are under three months of age. The question of relief is kept in the background as much as possible, but when called for no effort is spared to secure it in full measure.

Cases of illness other than gastroenteritis and malnutrition are referred to private physicians, if able to pay; otherwise, they are referred to neighborhood hospitals and dispensaries. Even cases of gastroenteritis and malnutrition are referred to private physicians, if they are able to pay, and only if unable or unwilling to secure the services of a private physician are they treated at the station. Emergency treatment is given, however, to all children acutely ill, and provision is made for prompt admission to hospitals if they are unable to secure the services of a private physician.

The public have come to look upon these stations as preventoria, and not as dispensaries. During 1917 only 10 per cent. of the babies were ill with gastroenteritis upon admission, and 6 per cent.

were suffering from malnutrition. Approximately 48,000 babies under two years of age were registered at these stations in 1917, and over 85 per cent. were under one year of age. The registration has increased from year to year since the organization of this service in 1911, an expression of the confidence in which these stations are held by the public.

The fact that these educational stations or centers are open to the public the year round, that they provide for keeping babies well, that their basic policy is to encourage breast feeding, that they offer a high-grade milk for babies artificially fed, for nursing mothers and expectant mothers, at from 3½ to 4 cents below the prevailing market price, that they are community or neighborhood centers where information for the family as a unit can be readily secured, that they afford a social-service medium which brings comfort, cheer, and assistance in the needy homes, and that by systematic instruction and advice on child care and feeding they prevent diseases of the gastroenteric tract and nutrition and maintain a resistance which wards off general diseases, demonstrate what an important factor they are in the conservation of baby life.

It will be gathered from the foregoing remarks that the baby health station service combines an indoor and an outdoor or district service. As an additional safeguard surrounding the baby, the station service is supplemented by the home or district visiting of nurses during the summer months. Summertime has been termed the "baby's Waterloo," and while diarrheal diseases do not claim the large toll of infant deaths of years ago, and while we do not see so many of the severe or fulminating types of former days, the heated term calls for special precautions for the baby. Time there was when diarrheal diseases practically controlled or determined the infant-mortality curve, occupying first place in the list of baby-killing diseases. To-day we find it occupying third place, the non-enviable first position having been assumed by congenital diseases, with respiratory diseases second.

From the close until the opening of schools some of the nurses delegated to this service, one hundred and fifty in number, are assigned to special districts within or adjoining the baby health stations where the infant mortality is known to be high, and where there is a large infant population. Each nurse is held responsible for the supervision of one hundred and fifty infants throughout the summer. When, by reason of removal or death, or for other cause, a baby is no longer registered, another is taken up. Visits are made at least once every ten days in normal cases, and more frequently to those ill, puny, or delicate. Conferences are held daily with the physician in charge of the baby health station, and he visits all sick or delicate babies when needed. All necessary dietetic, hygienic, and other advice is given. Here, too, in this work, prevention is the keynote. "Keep the baby well" is the slogan.

At the end of the summer these babies are referred by special card to the nearest baby health station for a continuation course of instruction. Weak and delicate babies referred to in this way, who are not subsequently enrolled at the stations, are kept under constant supervision through home visits of the baby health station nurse, and thus

many who would be sacrificed through parental neglect are reclaimed to good health.

This service supervises, each summer, some fifteen to twenty thousand babies. Since 1911, when this work was started, 127,000 infants have been advised, of which 1,228 died, a death rate of less than 1 per cent. during the period of observation; a most encouraging showing, and an index of what could be accomplished if a sufficient nursing force were available to carry on this work the year round.

I have stated before that to reach by personal contact the 141,000 babies born annually in New York City is no easy task. We are, however, reaching in an educational way every newborn baby registered with the Department of Health by forwarding to the mother within ten days after receipt of the notification of birth an acknowledgment of such report, in the form of a letter signed by the Commissioner of Health, calling attention to the need and importance of infant care, together with a transcript of the birth record, signed by the Mayor and the Commissioner of Health, together with educational literature on preventive measures, in the form of a pamphlet entitled "Ten Commandments for Keeping the Baby Well," including a list of the baby health stations. This innovation was the result of an analysis made by the department, which showed that the mortality among children of native mothers was higher than among those of the so-called tenement population, which had been followed up by intensive work for many years.

While we are of the opinion that the best form of educational propaganda is through personal contact with the mother, in the absence of a sufficient force to reach every mother of the city we feel that this method will at least point the way to the facilities offered by the department, and awaken them to a realization of the importance of saving babies.

It would carry me too far afield of the limits of this paper to discuss at length the other measures adopted by the Bureau of Child Hygiene for the conservation of baby life in the tenements. A mere summary, therefore, will suffice:

1. A rigid supervision and control of 1,635 midwives, responsible for bringing into the world over 45,000 babies annually.
2. Licensing and supervision of some five thousand foster mothers, having under their immediate charge about eight thousand children, under permits issued by the Department of Health, which are revokable for cause.
3. Maintenance in public schools and baby health stations of Little Mothers' Leagues, organizations consisting of girls twelve years of age and over, upon whom the responsibility for the care of their little brothers and sisters frequently rests. These girls are given didactic and practical instruction in child diet and child care, and are made volunteer departmental allies in the saving of infant life. They take better care of their charges, they bring education into the home, and become better prepared for future motherhood.
4. Supervision of day nurseries—110 in number, with a registration of over 7,000 children—and temporary shelters where mothers who are forced to work or to enter hospitals for oper-

ations, illness, confinement, or other cause, may leave their babies during the day or night, thus securing that comfort and peace of mind which make for speedy convalescence.

5. Maintenance of an emergency corps of inspectors on duty day and night the year round, for first-aid treatment of sick babies, and for their prompt admission into hospitals and institutions.
6. Provision, through co-operation of philanthropic agencies, for the free distribution of ice, milk, and fuel, for boat excursions during the summer, for stay at summer convalescent homes or hospitals in case of need.
7. An organization known as the Babies' Welfare Association, a federation of over one hundred and thirty agencies interested in child welfare, with a central office in the Department of Health, which acts as a clearing house for all these agencies, unifying child-welfare activities without interfering with the individuality of any of them. Through this organization provision is made for the care of pregnant women prior to and after delivery, for prompt admission of sick babies into hospitals and institutions, for admission of babies into temporary shelters and nurseries, distribution of free ice, cooperation of relief agencies, a wet nurse registry, admission to baby health stations of babies discharged from maternity institutions or from outdoor maternity service or nurses' settlements. This type of organization should commend itself to all communities, and is applicable to cities of all sizes. This organization exemplifies the "one-for-all-and-all-for-one" principle, and has been a contributing factor of no small moment in the reduction of infant mortality in New York City in recent years.
8. Lectures, lantern-slide demonstrations, moving-picture exhibitions throughout the year by doctors and nurses at schools, settlements, churches, playgrounds, etc.

You will naturally ask, "What has all this accomplished?" Without desiring to burden you with statistics, permit me to say that the infant mortality rate in New York City was

In 1902.....	181
In 1907.....	144
In 1910.....	125
In 1917.....	88.8

In fifteen years the infant mortality rate in New York City has been more than cut in half. In terms of baby lives this means that if the rate of 1902 had prevailed in 1917, with its 141,000 births, over twelve thousand more babies would have died than was actually the case.

Perhaps it may not be amiss to state that in 1914 New York City had the lowest infant mortality rate of any of the ten largest cities of the United States, while in 1915, 1916, and 1917 St. Louis was the only one of the large cities that surpassed it. And even then, if we consider the Boroughs of Brooklyn and the Bronx, both of which have larger populations and higher birth rates than St. Louis, we find that both of them had lower infant mortality in 1916, and the Bronx a lower one in 1917, than

St. Louis. When it is remembered that New York is the most cosmopolitan city in the world, this record must be considered no small achievement.

But some will maintain that many of these babies may have died in the second, third, or later years, and that these results during the first year were transitory. It is conceded that the true index of efficient infant mortality control is the effect which such propaganda has upon the health and life of later childhood, and it is, therefore, all the more gratifying to be able to point to the fact that while the reduction of infant mortality from 1910 to 1917 was 29 per cent., the reduction between one and two years of age was 42 per cent., between two and five years of age 41 per cent., and under five years of age 36 per cent.

It is unfortunate that we have not at hand any available method for computing the reduction of infant and child morbidity brought about by this work, and that we must, of necessity, present mortality statistics. If, as has been estimated, there are at least ten cases of illness for every death—and there were 12,568 infant deaths during 1917—the economic gain or saving to the community, to say nothing of the prevention of family worry, anxiety, and unrest caused by illness, through the results of this work, is apparently enormous.

There is a natural order of things from which we cannot escape, and which follows in sequence as surely as does the night the day—better parents, better babies, better school children, better fathers and mothers, better citizens, better city, state, and nation. It is to this sequence that the saving of baby life is dedicated.

If the life of the baby in the tenement is to be safeguarded in war time, efforts at its conservation must be strengthened rather than relaxed, for when sacrifices come, as come they will, they must be made by the adult population in the interests of the baby.

The mortality rate of the community is usually considered a criterion for its municipal housekeeping. With one-sixth of all deaths at all ages occurring during the first year of life, and almost one-fourth at all ages occurring under five years of age, it can readily be understood what an important factor in the general mortality situation the conservation of baby life becomes.

Yes, the most dangerous occupation in the world is that of being a baby. Few hazards can compare with it. Less chance to live a week than a man of ninety; less likely to live a year than a man of eighty; less probability of surviving his first year than an aviator making ascensions daily for a year has of being alive at the end of that period, do you wonder how precarious an existence is that of a baby, and how necessary it is to forge about him every possible effort for the conservation of his health and life?

Family Grafts.—According to Perthes the supposed superiority of heterografts from near blood relatives over those from aliens does not work out always in practice. Upon a girl who had been scalped by a machinery accident transplants from her own skin and those from her sister were made side by side; but while the autotransplants healed in well the others were all absorbed. —*Correspondenz-Blatt für Schweizer Aerzte.*

AN EXPLANATION OF THE AUSTIN FLINT MURMUR; ALSO OF THE PRESYSTOLIC MURMUR OF MITRAL STENOSIS.

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SINCE Austin Flint¹ described his observation of a presystolic apex murmur occurring in aortic regurgitation without associated disease of the mitral valve it has been confirmed repeatedly, especially by American clinicians; and from time to time there have been discussions as to how a presystolic thrill and murmur similar to those of mitral stenosis are produced in aortic regurgitation. The explanation of its occurrence, as given by Flint, is that in the extreme dilatation of the ventricle during diastole the mitral segments cannot be forced back against the wall, and, therefore, remaining in the blood current, that they produce a sort of relative narrowing and, in consequence, a vibratory murmur not unlike in quality the presystolic murmur of mitral stenosis. Broadbent, on the other hand, has suggested that the regurgitant current from the aorta impinging upon the anterior or aortic flap of the mitral valve may set it in vibration and thus produce the murmur. Gee² says that the explanation of this presystolic apex murmur first noted by Austin Flint is uncertain. Cabot³ writes: "How it is that a presystolic murmur can be produced at the apex in cases of aortic regurgitation has been much debated, but remains unknown." DaCosta⁴ offers the following explanation: "For its production dilatation of the left ventricle and incompetence of the aortic valve are regarded as the essential factors. Owing to the enlargement of the ventricular cavity, the anterior cusp of the mitral valve is displaced, during diastole, from its accustomed mural position, so that it projects into the rising tide of blood within the ventricle, and consequently becomes the target of two blood-streams coming from opposite directions—one regurgitating through a leaky aortic orifice and the other issuing (normally) from the mitral opening. By this mechanism vibrations of the cusp are set up toward the middle or end of the diastole, with the generation of a presystolic murmur and thrill appreciable at the apex." Futcher,⁵ in addition to mentioning the two possible causes cited above, states that the cause of the Flint murmur is given sometimes as the interference of two blood-streams. Elsner,⁶ after calling attention to the controversy over the true cause and significance of the Flint murmur, favors Flint's original contention, namely, that a functional narrowing of the mitral orifice during diastole (auricular systole) due to the pressure of the regurgitant stream on the underside of the mitral flap is the cause.

That the presystolic thrill and murmur of aortic insufficiency must more than likely be produced somewhat in the same manner as the presystolic thrill and murmur of mitral stenosis is true because it is generally agreed by careful observers that the Austin Flint murmur has the typical rumbling quality exactly like the murmur of mitral stenosis and that likewise it, too, is accompanied by a palpable thrill. It was quite natural that Flint

should have explained it by a so-called relative or functional stenosis of the mitral valve, that is, a stenosis due to one flap being partially closed by the force of the regurgitant stream from the aortic valve. (The term relative stenosis should be reserved to designate the case of an auriculo-ventricular ring being relatively smaller than it should be in proportion to the size of the auricle and the ventricle, although it is actually larger than a normal ring.) But there is another explanation which seems to me quite as plausible, viz.: The thrill and presystolic murmur at the mitral area are due to the vibrations set up by the churning of the blood in the ventricle by the small stream squirted into it from the small mitral orifice by the force of the hypertrophied and distended auricle in the case of mitral stenosis; or squirted back from the leaky aortic valve into the blood in the ventricle in the case of aortic regurgitation. In both cases the stream is squirted with considerable force, but it is only toward the end of diastole when the ventricle is practically full that the stream meets with considerable resistance. The stream shoots across the blood-filled ventricle in the direction of the apex, where it strikes the wall of the heart, causing the localized thrill and rumble.

The following rather crude experiment will serve to elucidate: Two rubber bulbs are connected by a nozzle; to begin with, one is squeezed empty and the other is filled with water, then the water in the latter is forced into the collapsed bulb. The natural aspirating effect of the latter facilitates the filling and there is little resistance to the inflowing stream until the bulb is almost full, when the churning caused by the stream in its transit through the water and its striking of and reflection from the wall give rise to the vibration which may be felt and heard at the site. The aspirating effect of the empty bulb is not unlike the aspirating effect of the ventricular walls as they relax. (Students should be cautioned against thinking of the blood as entering an empty space in the ventricle during diastole. It enters synchronously with the creation of the space, just as in the above experiment the water enters the collapsed bulb.)

In aortic incompetence the long diastolic blowing murmur is due to the vibration caused by the escape of the small stream, and this is not to be confounded with the *telediastolic*, i.e. presystolic thrill and rumble at the mitral area any more than if you will permit a crude comparison, the sizzle vibration of a garden hose nozzle is to be confounded with the rumble its stream causes when the nozzle is submerged in a bucket of water. If you were to apply your stethoscope at the nozzle you would hear the noise produced by the escape of the water under pressure; if you were to listen at the bottom of the bucket you would hear the loud rumble caused by the impact of the stream against the water in the bucket and also against the wall of the bucket.

In mitral stenosis we sometimes can distinguish the two different sounds produced by the stream: In early diastole we may hear at the mitral area the soft blowing murmur caused by the escape of the stream from the stenosed orifice; but in the later part of diastole this is masked by the rumble caused by the churning of the blood and the impact of this stream against the wall.

REFERENCES.

1. Flint, A.: *Lancet*, March 8, 1884, p. 418.
2. Gee, S. J.: *Auscultation and Percussion*, 1908, p. 248.
3. Cabot, Richard C.: *Physical Diagnosis*, 1915, p. 216.
4. DaCosta, John C., Jr.: *Physical Diagnosis*, 1913, p. 360.
5. Fletcher, T. B.: *Outlines of Physical Diagnosis*, 1915, p. 63.
6. Elsner, Henry L.: *Monographic Medicine*, 1916, p. 500.
7. Barker, Lewellys F.: *Monographic Medicine*, 1916, p. 890.
8. Butler, Glentworth Reeve: *Diagnostics of Internal Medicine*, 1915, p. 372.
9. Osler, William: *Practice of Medicine*, 1901, p. 712.

BEDFORD HILLS, N. Y.

Medicolegal Notes.

"Practicing Medicine"—Removing Superfluous Hair.
—The New York Appellate Division holds, in an action to recover a balance alleged to be due on a contract for "professional services," that where the plaintiff stated to the defendant and her niece that she could remove superfluous hair from the niece's face, and undertook to treat and operate for such physical condition with the electric needle, she "practiced medicine" without being a licensed and registered physician, thus violating Public Health Law (Consol. Laws c. 45) art. 8, and could not recover. The practice of medicine is defined in the act as follows: "A person practises medicine within the meaning of this article, except as hereinafter stated, who holds himself out as being able to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity, or physical condition, and who shall either offer or undertake, by any means or method, to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity, or physical condition." §160, sub. 7. The court said: "The plaintiff urges that the treatment given by her does not come within the purview of the Public Health Law any more than would be the case if she employed what is known as massage; but it is obvious that the manipulation or rubbing or kneading of the surface of the body as used in massage is quite distinct from the treatment which the plaintiff gave. It is true that the General Term of the Supreme Court, in the case of *Smith v. Lane*, 24 Hun, 632, held that the practice of massage was not prohibited by the statute then in force regulating the practice of medicine, and that it was merely a species of nursing; but the rule laid down in that case was strongly criticised in the case of *People v. Allcutt*, 117 App. Div. 546, 102 N. Y. Supp. 678, where it was held that it was not necessary either to administer medicine or to use surgical instruments in order to come within the provisions of the Public Health Law. In the case of *Territory v. Newman*, 13 N. M. 98, 79 Pac. 706, 813, 68 L. R. A. 783, it was held by the Supreme Court of New Mexico, in a well-considered opinion, that even the method of treatment employed in that case, which was known as 'magnetic healing,' given by a man who advertised himself as a 'drugless doctor,' came within the prohibition of the statute of that state.

"In the case of *People v. John H. Woodbury Dermatological Institute* (N. Y. Law Journal, Jan. 15, 1908), where the Court of Special Sessions of the City of New York held the defendants, a corporation and its president, guilty of advertising to practice medicine within the meaning of Laws of 1907, c. 344, which contained in section 15 a definition of the practice of medicine similar to that in the present law, the record of the case on appeal shows that one of the deformities which the defendants advertised to cure was superfluous hair."

The court, after citing this and some other advertising matter, said:

"We do not need the statutory definition to determine that this is advertising 'to practice medicine' by a non-registered physician.

"The conviction was affirmed by the Appellate Division (*People v. John H. Woodbury Dermatological Institute*, 124 App. Div. 877, 109 N. Y. Supp. 578), and

by the Court of Appeals (*Id.*, 192 N. Y. 454, 85 N. E. 697)." The recent case of *People v. Cole*, 219 N. Y. 98, 113 N. E. 790, L. R. A. 1917, c. 816, is authority for the proposition that the statute applies to "every means and method that could * * * be used or claimed to be used to relieve or cure disease and infirmity," unless such means or method is within the exceptions contained in section 173 of the Public Health Law. It was not contended that the plaintiff in the present case was within any of these exceptions. The statute further provides that any person who shall practice medicine without license and registration or in violation of the provisions of the article shall be guilty of a misdemeanor, §174. "The definition of the term 'practice of medicine' contained in the statute and quoted above may be thought by some persons to be highly artificial. It includes, and was designed to include, many things not popularly considered as medical practice. But the wisdom of the law, if it be constitutional (and its constitutionality is not attacked in this case), is a matter for the consideration of the Legislature and not of the courts. Their duty is confined to the interpretation of the laws, or, in proper cases, to the determination of their constitutionality. It may well be argued that four years of medical study, including a thorough knowledge of anatomy, materia medica, hygiene, etc., in all their branches, are not requisite to equip a person properly to remove superfluous hair alone. Yet it can hardly be contended that persons engaging in that occupation should not be subject to some sort of regulation to insure proper skill and sanitation, such at least as the regulations affecting the practice of chiropody. Public Health Law, art. 13. The Legislature has seen fit to set a much higher standard, as I have attempted to show, and until the statute herein discussed is amended or abrogated the courts have no discretion but to enforce it."—*Engel v. Gerstenfeld*, 168 N. Y. Supp. 434.

Selling Instruments for Prevention of Conception.
Appeal was taken from a conviction for a violation of section 1142 of the New York Penal Law making it a misdemeanor for a person to sell or give away, or to advertise or offer for sale, any instrument or article, drug or medicine, for the prevention of conception, or to give information orally, stating when, where, or how such an instrument, article or medicine can be purchased or obtained. The appellant claimed that if this law is broad enough to prevent a physician from giving advice and help to his married patients in a proper case, it is an unreasonable police regulation, and therefore unconstitutional. It was held by the New York Court of Appeals, first, that as the defendant was not a physician, the rule applied that no one can plead the unconstitutionality of a law except the person affected thereby. Secondly, by section 1145 of the Penal Code, physicians are excepted from the provisions of this act under circumstances therein mentioned. This section reads: "An article or instrument used or applied by physicians lawfully practicing, or by their direction or prescription, for the cure or prevention of disease, is not an article of indecent or immoral nature or use, within this article. The supplying of such articles to such physicians or by their direction or prescription, is not an offense under this article." This exception in behalf of physicians does not permit advertisements regarding such matters, nor promiscuous advice to patients irrespective of their condition, but it is broad enough to protect the physician who in good faith gives such help or advice to a married person to cure or prevent disease. The protection thus afforded the physician would also extend to the druggist or vendor acting upon the physician's prescription or order. The judgment appealed from was affirmed.—*People vs. Sanger* (N. Y.) 118 N. E. 637.

Employment of Physician by Health Commission.
The Indiana Appellate Court holds that under the state statute of 1909, relating to county health commissioners, the act of a health commissioner in employing a physician to take care of and quarantine smallpox patients is binding on the county, in the absence of fraud, and the fact that the patients happen to be indigent, or that there is a township physician, is immaterial and not affected by the statute of 1914, providing that township trustees shall take care of the sick poor in a prompt, efficient manner.—*Board of Commissioners vs. Keine* (Ind.) 118 N. E. 595.

Military Medicine.

PATHOLOGY OF THE BLACK SOLDIER IN FRANCE.

IN *Le Caducée* for February 15 is a brief account of this subject, abstracted from the *Bulletin de la Société de Pathologie exotique* for November. The soldiers referred to are the Senegalese and others from French Africa, as studied in two camps, and the results may not hold good for all of these troops or for the American or British negro soldier. Pneumococcal disease in some form is extremely common, and gives rise to bronchopneumonias, meningitis, generalized sepsis, and another condition readily intelligible, but hitherto not known to exist, to wit: *pneumococcal erysipelas* (for want of a better name), as well as gangrenous lesions and acute pemphigus. It became evident also that men of the white race might develop some of these forms of cutaneous pneumococcal disease. The same germ is also capable of causing pneumococcal phlegmon or abscess and panophthalmitis.

Of a total of 52 cases of cerebrospinal meningitis in these blacks, 22 were examples of primary pneumococcus localization. These cases all ended fatally. There was never any cumulative incidence or suggestion of transmission. A frequent complication was nasal sinusitis, while general sepsis was at times present. The pneumonia cases were often septic, and the sepsis was sometimes primary. The Senegalese, in some cases, had the disease "standing," and these ambulatory cases were admitted only after the disease had fully developed so that its mode of evolution was unknown.

It was found that no less than 57 per cent. of the total morbidity of the blacks was due to the pneumococcus. This argues for the existence of a special sensitiveness to this germ due chiefly to change in climate and environment, but also very largely to defective hygiene—alcoholism, nicotinism, syphilis, and malaria being predisposing factors.

War Surgery in the Indian General Hospital in Mesopotamia.—Percival S. Connellan, I. M. S., writing in the *Bristol Medico-Chirurgical Journal* for December, 1917, says that during the advance to Bagdad it fell to his lot to treat a considerable number of wounded in the Indian General Hospital to which he was attached. They were situated about half way down the lines of communication and to a large extent their work was that of a clearing hospital combined with some of the advantages in equipment and staff of a general hospital. The difficulties of transport in this country are well known. So far as the sick and wounded were concerned it was done almost entirely by means of river steamers over a length of line of 300 miles, which suddenly became extended to over 500 miles in the short space of about two weeks. The conveyance of wounded was arranged by stages of one or two days, followed by a night's rest, until they reached Amarah, where for the first time they were able to get a bath and be put in some comfort into beds. Little can be done on a river transport ship beyond the feeding and changing of the dressings of the more serious cases. Much good

work was done in the field ambulances and clearing hospitals up the line, where every wound was dressed and urgent operations performed.

The equipment was that of a general hospital in tents, with an improvised operating theater in a hut containing good theater furniture, including two operating tables, and a high pressure sterilizer. A first class x-ray outfit was invaluable. The staff was small compared with that of a British hospital, Connellan's section of 200 beds having two medical officers, two subassistant surgeons—that valuable class of Indians trained in medicine and surgery, eight Sepoy ward orderlies, a couple of dressers, some servants, and finally one nursing sister, to whose care and devotion some of the patients owed their lives.

The character of the Indian Sepoy patient differs widely from that of the British "Tommy," though their anatomy and physiology are the same. One has to bear in mind that they are practically ignorant of the ways of western medicine, and broadly speaking, they have little faith in it, but they are capable of a great deal of faith in the individual who is administering that treatment, and the writer found well to do nothing to discourage that faith, which maxim might be said to hold good in one's attitude toward one's patient of whatever creed or nationality. Then, too, they are impatient to get home and have but one guide to progress, the presence or absence of pain, leaving their shattered limbs to the care of the doctor, so long as they remain painless, but often removing splints and dressings regardless of the consequences if uncomfortable, very much as a dumb animal would. Their physical power of endurance is great, but of mental resistance to disease there is very little.

The wounded arrived in batches, and as a general rule, they were found to be tired from the discomforts of their long journey and suffering from a condition of mental exhaustion that made them very irritable. They were at once put to bed with a complete change into hospital clothing.

The next essential was food, so each man was given a meal of whatever suited his condition best; for the more serious cases milk was the most asked for, as milk is to the Indian almost a stimulant and certainly a tonic. Hot soups or ordinary meals of meats, bread, and vegetables were provided for others. When the patients were comfortably fed and rested in their beds Connellan made it a practice to change every dressing; but he tried to do this with as little disturbance to the patient as possible, and only on rare occasions had he found it necessary or advisable to change the form of splinting or give the patient an anesthetic on the day of his arrival in hospital. His belief was that more harm than good is done by disturbing the man's first night's sleep in a comfortable bed by the nauseating taste of chloroform or the change in position of a somewhat stiffened or cramped limb. Morphine and soporifics were given unsparingly on the first night. By the next morning the patient's outlook on life is considerably improved, and he looks on his doctor with more confidence when he

finds that he does not think of his wound alone, and he is more ready to bear the pain involved in the more thorough cleaning of his wound or submit to being carried to the operating theater, which to the Sepoy on his first visit is more like a chamber of horrors than a place for a practice of the healing art.

In dealing with wounds Connellan's practice was to interfere with nature as little as is consistent with the ordinary laws of surgery and a due regard to the ultimate condition and usefulness of the wounded part. He regarded general resistance of the patient to sepsis as one of the most important factors in the healing of these wounds, and in this respect it has been observed that the Sepoy is more resistant to sepsis than the British soldier, perhaps, owing to years of untreated cuts and bruises in his work at home in the fields giving him a certain power of immunity in the same way as he undoubtedly has a higher immunity to water-borne and fly-carried disease.

Connellan looks to the mental condition as an important part of the general resistance to disease, and to this end he tried to keep the minds of his patients as healthily occupied and as free from worry as was possible in a country about which it has been said that "the devil owned Mesopotamia and hell, and he elected to live in hell and leave Mesopotamia to us."

Some Points in the Diagnosis of Amebic Dysentery.—Capt. John Spears, M.S., writing in the *Dublin Journal of Medical Sciences* for January, 1918, says that he heard a very distinguished protozoologist, Colonel Wenyon, state that in his opinion in the next great European war, if unfortunately such an event should come to pass, each soldier would be provided with an incinerator which would automatically destroy his feces. If one can picture to oneself a laboratory worker in the Mediterranean war zone, in the height of a dysenteric epidemic, with a daily dose of fifty to eighty stools to examine, and fully conscious that history will repeat itself on the following morning, one will gather that there is some basis for Wenyon's remarks. Referring to the laboratory examination of feces there are two essentials to success: (1) The stool must be fresh. (2) If possible, it should not be contaminated with urine, castor oil, lysol, etc. The full-grown *Entameba histolytica*, which alone appears in the stool during the acute attack is difficult to distinguish from *Entameba coli*. The points to watch are: (1) *Entameba histolytica* is more refractile and more greenish in appearance. (2) It is stated to be more active. This is a doubtful matter if the specimen is not fresh. (3) Its nucleus is harder to see, and its nuclear membrane has not as coarse granules as that of *Entameba coli*. (4) The contrast between ectoplasm and endoplasm is more marked in the *Entameba histolytica* type. (5) The most important and reliable point is that the *Entameba histolytica* ingests red blood cells, whereas the *Entameba coli* may ingest bacteria but not red blood cells. Spears states that this difference is the only one on which it is wise to base a diagnosis.

Infection is spread by the cysts alone; they are somewhat resistant, and can live outside the body

for quite a period of time, especially if kept damp. Flies are, in particular, conveyors of infection, as Wenyon's experiments in Alexandria proved. He fed flies on feces containing cysts and then gave the flies temporary diarrhea by means of a treacle mixture. On examining the flies' stools he found the cysts had been passed unchanged. Lastly, Spears mentions that in cases of those important complications of amebic dysentery, hepatitis and liver abscesses, the diagnosis should not depend on laboratory examination of stools. It is uncommon to find cysts in the stools when hepatitis has commenced, especially if only one smear of one stool is examined. In such cases the examination should be done in bulk, and a negative report should not have too much weight.

Rent for Cape May Hotel Too High.—The War Department finds that the rent for the Cape May, N. J., hotel is too high and has ordered the hotel returned to the owners at the expiration of the lease at the end of the fiscal year.

Army Medical Department Activities.—A review of the work done under Surgeon-General Gorgas during the first year of the war shows that the number of army hospitals in the United States has been increased from 7 to 63, and others are to be added. In the United States the bed capacity has been increased from 5,000 to 58,000, and is to be made 88,000 or 100,000. In France the bed capacity has been increased from nothing to 20 or 25 per cent. of the Expeditionary Forces. The total strength of the personnel of the Medical Department has been increased from 8,000 to 106,000. The officers have been increased from 900 to 18,000; the Army nurses from 375 to 7,000; the Ambulance Service from nothing to 6,000. The number of large Army laboratories has been increased from 12 to 150, and laboratories of all sizes from 100 to 500. The capacity of the Medical Training School has been increased from nothing to 21,000. During this time 150,000 psychological examinations have been made in addition to the ordinary physical examinations. The old idea of the Medical Department's work was to fix up sick and wounded men who could be returned to active service and to discharge the rest. Now the department must handle men chosen from civil life, under physical requirements far less rigidly than formerly, and work for the upbuilding of their fitness. Its work goes through all the stages of preparation for war and continues through until the war's sick and wounded are refitted for useful and remunerative places in civil life. The Medical Department plans all the hospitals and supplies all the personnel. It undertakes to raise the hygienic standards of the soldiers in camps, in transit, and in trench. Its recommendations largely determine matters of camp sanitation, including water supply, drainage, fly and mosquito menaces, and the disposal of waste. Since the declaration of war the Medical Department has developed a gas mask at least equivalent to that of any belligerent. These are now being manufactured by the Government. Gas defense schools have been established in every camp. Nutrition surveys have been made of all the larger

military camps, most of the aviation camps, and some posts and officers' training camps. Reconstruction hospitals are being provided on a more extensive scale than any other nation at war has attempted. The men taken from civil life into the army showed a death rate from disease of 6.6 per thousand for the week ending March 8, which is below that of men of military age in civil life, which the Census Bureau gives as 6.7. From September 1, through the winter the death rate varied from 2 to 15 per thousand per year, averaging just over 8 per thousand per year; the rate in civil life by months is not available. The prevalence of respiratory diseases has now reached so low a mark that they are no longer considered a problem. The general health of the troops is now excellent and the percentage of men out on sick report would be markedly low but for mumps, venereal disease, and some other ailments which have practically no death rate. This report describes among other things the work that is being done to furnish proper recreation and entertainment for the soldiers and states that mass athletics have been developed in the camps for their recreational value and their bearing on bettering the fighting efficiency of the men. Baseball, football, soccer, and boxing are the most popular camp pastimes. Athletic fields have been constructed in all the camps. There is not a red light district existing to-day within an effective radius of any war camp, according to Chairman Fosdick.

Work for Disabled Soldiers.—The National Association of Manufacturers is making a survey of the industrial field to determine in which branches of industry crippled and disabled soldiers will best fit. This organization has placed itself on record as opposed to having the problem of placing disabled soldiers handled by charitable organizations and believes that the industries should help these men to help themselves. Thus far the survey indicates that places may be found for these men in boiler making, machinery building, plate glass making, printing, watch making, coopering, cement manufacturing, band sawing, and clerical work.

Glass in Army Supplies.—Announcement is made from San Antonio, Texas, that the presence of ground glass in nine different articles of food shipped to the Ninetieth Division Commissary at Camp Travis has been definitely proven. Fifty members of officers' families and enlisted men have been made ill by eating of these articles of food. In the course of the investigation which has been in progress for several weeks it was found that one Austrian, two Germans, and a Turk were among the chemist's assistants who have been examining food samples until recently.

Campaign Against Coughing, Spitting, and Sneezing.—The Army Medical Corps, under the direction of Surgeon-General Gorgas, is undertaking an educational campaign against promiscuous coughing, sneezing, and spitting. Surgeon-General Gorgas emphasizes the fact that this campaign cannot be made a success without the fullest cooperation of the press and the public in keeping constantly before our soldiers and the public the menace which promiscuous coughing, sneezing, and spitting offer. He makes the formal state-

ment that "Respiratory diseases have caused practically all the sick and death rate in the Nation's new armies and this is the reason for a campaign which will be instrumental in diminishing the incidence of pneumonia, measles, diphtheria, mumps, meningitis, infantile paralysis, influenza, and tuberculosis."

Typhoid and Dysentery No Longer Menace Camps.—Figures given out from the office of the Surgeon-General of the Army show that there have been but eight deaths from typhoid fever in the army camps in the United States since September 17, 1917. There has not been a single death from dysentery and there are no cases under observation. The records show that but a single suspected case of typhoid fever is at present under observation. During the Spanish-American War the death rate from typhoid fever was 8.79 per thousand. If that rate were effective to-day the American armies, on the basis of 1,500,000 in the service, would have lost from 13,000 to 15,000 men from the ravages of these diseases alone.

Zionist Hospital Unit Ready.—The Zionist Hospital unit, equipped by the women's branch of the Zionist movement, at a cost of \$250,000, will sail for Palestine within a few days. The personnel of the unit consists of 41, of whom 15 are physicians. A hospital in Jerusalem has already been placed at the disposal of the unit, and a dispensary will be opened at once.

Women's Hospital Staff Ordered to Bordeaux.—Dr. Alice Gregory of the Women's Overseas Hospitals and a part of her staff, who have their headquarters at Paris, have been ordered to a station near Bordeaux, where they are to care for 3,000 refugees. The nurses remaining on this side have been called for and some of them have already sailed.

American Red Cross Work in France.—In connection with the announcement that the American Red Cross intends shortly to call for a further subscription of \$100,000,000 it presents a report from its Department for Military Affairs in France. The report notes a large development of canteen, rest stations, and other activities behind the American front line trenches. The recent German drive has created a new refugee problem for Paris, and the Department of Military Affairs has detailed a number of its workers to assist the civil authorities in caring for the refugees from the battle zone. The report gives in detail the large amount of food and clothing dispensed to the soldiers. A new hospital has been opened for American Army and Navy officers on the French coast and another hospital with 370 beds has been opened for enlisted men. The Bureau of Farms is now operating ten farms varying from three to one hundred acres in size, attached to different hospitals. The general hospital supplies service provides equipment for nearly 4,000 hospitals in France and recently has fitted a hospital train with the most modern apparatus for the French Army. In five villages back of the lines reconstruction work is well under way. At Marseilles the American Red Cross is establishing hospitals and nurseries in furtherance of its work for the welfare of French children.

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MAYOR HYLAN'S ATTACK ON THE HEALTH DEPARTMENT.

THE time of the freebooter in political life has evidently not passed even yet. We must still be as watchful and wakeful and vigilant as we ever were lest he destroy the usefulness and efficacy of the institutions we have built up in all these years with anxious care and civic devotion. Just now there is a determined effort on the part of the present New York City administration to disrupt the Health Department. The bureaus of Laboratories, Public Health Education, Hospitals, Preventable Diseases, Foods and Drugs, Administration, and Child Hygiene have been declared to be under the ban of the law because they were created without an amendment of the City Charter. But twice, in 1911 and again in 1914, different Corporation Counsels of the city rendered opinions that the bureaus in question, created by the Board of Health and sanctioned by both the Board of Estimate and Apportionment and the Board of Aldermen, were instituted in conformity with the law. Section 1181 of the City Charter provides that: ". . . The board of health may likewise establish such other additional offices as it shall deem necessary for the proper discharge of the duties and powers of the health department in the several boroughs, with such force as may be essential thereto throughout the city as constituted by this act, but shall always maintain its chief office in the borough of Manhattan."

When the Charter was adopted our conception of public health work was not so broad as it is today, and only two bureaus in the Department of Health were specified, namely, the Bureau of the Registrar of Records and the Bureau of the Sanitary Superintendent. As the importance of certain activities became recognized, and the mechanism attendant upon geographical administration became more cumbersome and uneconomical, certain branches of the work were put on a functional basis. The contagious disease hospitals, the laboratories, the Municipal Sanatorium at Otisville, and later the bureau of child hygiene were gradually differentiated into separate divisions of the Department. In 1914, for purposes of proper coordination and securing greater efficiency of

service, all the activities of the Department of Health were subdivided into nine bureaus with clearly defined fields of work, duties, and responsibilities. It was a long step in the right direction and under it the Department of Health was able to render more effective service than ever before.

There is no perfect institution, and the organization of the Department of Health can undoubtedly be changed to make it still more effective. But this is evidently not the purpose of our worthy Mayor. His object in abolishing the bureaus is quite clearly to get rid of the directors, who, being civil service employees, cannot be discharged except for acts of incompetence or insubordination properly established; but if the bureaus are abolished, the directors will automatically cease to be.

The Mayor can then "reorganize" the Department and appoint "chiefs" to carry on its manifold duties. All of these chiefs will head new offices and can be appointed either without civil service examination, or if examinations should be required they can be conducted in a "proper" manner. This is what underlies the reorganization of the Health Department, ostensibly undertaken in the interests of "economy" and in strict compliance with the letter of the law. When the plan of the recent "investigation" of the Health Department became known, arousing intense popular indignation against its investigators, certain ingenious subordinates alleged "graft" in the Department as a basis for the contemplated sweeping reforms. This is an already somewhat overworked dodge, for it will be recalled that when Mayor Hylan planned to evade the law and appoint a coroner friend of his as Chief Medical Examiner of the City, criminal acts were imputed to the successful candidates on the certified Civil Service lists.

It is to the Public Health Committee of the New York Academy of Medicine that we owe the exposure of this attack on the Health Department, and it is in the publicity so brought about that the only hope of defeating the Mayor's attempt to deform this most important department of the city administration lies. The labor organizations have been quick to scent the danger to the lives of the children of the city that would follow the undoing of Dr. Josephine Baker's excellent work in the bureau of child hygiene (see, for example, the timely article by Dr. Sobel on p. 676), and the medical societies are equally prompt in insisting that the hand of the predatory politician be kept off. What has Commissioner Amster to say about this detestable work? Is he willing to forfeit by acquiescence in it, the good opinion of his colleagues and the reputation for honesty of endeavor which they have up to now accorded him?

THE DECLINING BIRTH RATE AND ITS SIGNIFICANCE.

THE declining birth rate for some long time has been a fruitful theme for discussion. The subject has been brought into greater prominence by the

war, which has greatly accentuated the value of child life; and at the same time, owing to the progressing scarcity of suitable food, has increased child mortality, and is having a serious effect on the physique and vitality of growing children. Before the war, in certain countries, the declining birth rate was a matter of great concern, and in Europe the subject of very careful investigation. In virtually every country of the civilized world the birth rate has declined during the past fifty years. France has exhibited the phenomenon in the most extreme degree.

An address of Louis L. Dublin, on the declining birth rate, given before the American Association for Advancement of Science, last December, is published in *Science*, March 1, 1918. He points out that in western Europe, at the beginning of the nineteenth century, France was the first of the three leading countries in population, the states now comprising the German Empire were second on the list, and the United Kingdom third. A century later the German Empire headed the list, and France was last. While the population of the German Empire had nearly trebled, and the United Kingdom had increased to two and one-half times its earlier numbers, the population of France had increased by less than one-half. This was due mainly to its declining birth rate. Great Britain had been affected in the same direction, but to a less extent, while the birth rate of the German Empire had declined the least of the three countries.

In America, the problem of the declining birth rate is somewhat ominous because of the decline among the native stock. True, the picture of the American population growth is favorable from a superficial standpoint, but this increase in our total population is chiefly owing to two factors: First, immigration; second, a high rate of increase in the foreign born. For example, in the New England States the proportion of the native white stock decreased from 52.3 per cent. of the total white population in 1890 to 40.3 per cent. in 1910. The decline in the birth rate in the United States has been selective. Dublin draws attention to the fact that in Massachusetts, where the most accurate statistics on birth rates can be found, there has been a continuous decrease in the birth rate during the past forty years, and moreover the decrease has been most marked in the native stock. The annual reports on births, marriages, and deaths of the Commonwealth of Massachusetts for 1914 show that in 1910 the native stock had a birth rate of 14.9 per thousand; the foreign-born birth rate was 49.1 per thousand. The selective nature of the declining birth rate is also demonstrated in special studies on the size of families of college graduates and of men of science. The graduates of colleges for women show the lowest birth-rate statistics.

In order that the stock may maintain itself without increase or decrease, according to Sprague ("Education and Race Suicide," *Journal of Hered-*

ity, April, 1915), the average number of children per family which must be born is increased to close on four. Dublin therefore asserts without hesitation that a large part of the native stock of this country is in this sense not maintaining itself. It is not producing the average number of children necessary to perpetuate the stock.

The writer is of the opinion that the State is largely responsible for this condition, because it has not provided for the youth of the country a system of education calculated to inculcate national ideals. Our young people have been taught to look out for the individual and not in terms of the common good. Dublin further thinks that the State should make provision to reward, either substantially or with esteem, the women who, realizing their obligation to the State, are willing to bring up families of normal size.

Materialism and selfishness are at the bottom the source of the evil. An increasingly large number of men and women will not marry, or, if they do marry, restrict the size of their family because they do not care to spend money on their education and bringing up. It is certain that unless the native-born Americans have more children than of late years the character of the population cannot but greatly alter. Quality may count more than quantity, but on the other hand quantity may swamp quality, and, after all, there would seem to be no valid reason why quality and quantity should not be combined.

GUNSHOT WOUNDS OF THE KNEE JOINT.

DURING the past year or so there have been many radical changes in the methods of treating certain varieties of gunshot wounds, and one of the most striking is the change which has taken place in the treatment of injuries of the knee-joint. About a year ago Sir Anthony Bowlby (*British Medical Journal*, June 2, 1917) called attention to the fact that a great change for the better had taken place in the results obtained in the treatment of wounded joints. He said that the first improvement was the abandonment of intraarticular drains. The next was the excision of the wound, the removal of any foreign body, the flushing of the joint, and in some cases the closure of the capsule and the insertion of a superficial drain. This finally led to the third step in advance, which he described as follows: "As soon as possible after the receipt of the injury—that is, in the casualty clearing station—the wound was excised, the joint opened, cleaned and irrigated, and then the whole wound in the synovial sac and superficial tissues was tightly closed." It was astonishing, he said, how seldom infection followed such treatment, even when fragments of shell or pieces of clothing had been removed from the joint; but for its success it was essential that the incisions around the wound edges should be carried clear of all infected tissues and that the strictest asepsis should be maintained.

A further important contribution to this subject by Capt. E. Tissington Tatlow, R.A.M.C.(T). appeared in the *British Journal of Surgery* for January, 1918. He reports in detail on 100 consecutive cases of gunshot wounds of the knee-joint which came under his care in one of the base hospitals in France. The following varieties of lesions were encountered in these 100 cases: Tear of the capsule only, 9 cases; through-and-through wound without bone injury, 13; through-and-through wound with bone injury, 25; retained foreign body in the joint without bone injury, 24; retained foreign body with bone injury 29 cases. The nature of the missile causing the injury was: Revolver bullet, 1; machine-gun bullets, 4; rifle bullets, 9; shrapnel balls, 9; and high-explosive fragments, 77. In this series 68 men had been operated upon at the casualty clearing station, and of these 14 required reoperation at the base hospital. The remaining 32 men had not been operated upon when they reached the base, and 20 of these were operated upon there. In his statistical summary Tatlow states that of the 100 cases 2 died, both after amputations; 4 were successfully amputated; 9 were successfully resected; and 12 were not operated upon. The remaining 73 cases were evacuated to England, after operation either at the base or at the clearing station, with a normal temperature and either healed or granulating wounds or, at most, a small discharging sinus.

Regarding the method of treatment at the base hospital Tatlow says that when there is a large foreign body free in the joint or protruding out of bone into the joint cavity it must be removed. He has made it a practice to remove any such foreign body of large size immediately, and states that the operative procedure has included excision of the tract, employment of a fresh set of instruments for the removal of the foreign body, a gentle mechanical flushing of the area in which it lay, the placing of about 15 grains of bismuth, iodoform, and paraffin paste into the joint, and, whenever possible, the suturing of the capsule and the complete closure of the wound. Special attention is paid to any bone injury and, after careful curettage, the paste above mentioned is placed in the resulting bone cavity. He believes that resection is the best treatment for streptococcal arthritis, but says that the ideal procedure would be so to treat every case at the casualty clearing station that secondary resection would be unnecessary. Acute arthritis due to the staphylococcus group, he states, can easily be treated by simple drainage methods; where there is no bone injury simple incision usually suffices, but if there is bone injury the Carrel-Dakin treatment gives the best results. He finds cases of pure *B. perfringens* infection of the joint very amenable to treatment; and usually after the removal of the foreign body and lavage these joints can be sutured; pyemic infection of the knee-joint by the streptococcus or other organism can be successfully treated by incision, mechanical lavage, the application of 15

grains of the bismuth-iodoform-paraffin paste, suture of the capsule, and skin closure. He also finds that in all these cases absolute immobilization of the joints is necessary.

If the above described methods are capable of giving such brilliant results under the conditions that obtain in the trenches and on the battlefield, it would certainly seem logical to adopt them in the treatment of joint injuries in civil practice. It will be interesting to note the attitude ultimately taken by American surgeons in France on this point; and if their experience coincides with that of the British and French surgeons, a great improvement in the results of treatment of joint injuries in civil practice after the war seems assured.

RAPID CURE OF SCARLET FEVER.

MARGOTTA writes on this subject in the *Giornale di Medicina Militare* for January 31. Professor Alecce has long experimented along lines suggested by the favorable results obtained years ago with phenol by Heubner and Eichhorst. The former injected the substance into the parenchyma of the tonsil at the outset of the disease, while the latter employed injections of 5 per cent. phenol. Alecce, having derived no marked benefit from serums, sought a sterilizing substance like salvarsan, and to a basis of chlorophenol he added quinine and camphor, the first named perhaps because of its supposed power over certain protozoa. These substances are so combined as to make a stable chemical substance, which is injected into the gluteal musculature. Many cases have now been treated, including the severe and severest. The effect was not a mere attenuation of symptoms, but a change in the clinical picture, which the author thinks confirms the belief that the active cause of the disease has been reached.

Margotta gives an outline of seven case histories. One youthful soldier was attacked May 7 with sore throat and fever, with pseudomembrane and exanthem. The first injection at once caused deferescence, but no change could be seen otherwise. In 24 hours a second injection was followed by paling of the rash and improvement in the throat. On the third day the improvement was held, and no further injections were given. The patient was pronounced cured on the eighth day. In a second case convalescence began on the sixth or seventh day. In most of the cases three injections were all that were needed. The patients were pronounced cured or convalescent in six to eight days; in one patient, who developed an otitis, the interval was ten days. The remedy appears in some way to antidote the circulating toxins, as shown by the sudden fall of temperature and improvement in the mental state. The positive result upon the exanthem, which pales out, appears to show a direct attack upon the principle which has caused the hyperemia. Naturally the injections should be begun at the onset of the disease.

OZONE IN THE PURIFICATION OF SWIMMING POOLS.

THE swimming pool and public bath must often be the means of spreading infection, and even were they not it would be desirable from the esthetic standpoint that the water in these public conveniences should be clean. Public Health Reports for March 1, 1918, contain a paper by Dr. Wallace A. Manheimer, in which is discussed the application of ozone to the purification of swimming pools. The conclusions are as follows: (1) Refiltration combined with disinfection of swimming-pool water is a standard procedure in the sanitary control of swimming pools. (2) The methods of disinfection hitherto employed are objectionable on one score or another. Ultraviolet light in actual practice has proved ineffective; copper sulphate in low dilutions is unreliable and in high concentration is not only costly, but produces a water disagreeable to swim in; chlorine compounds, while effective as disinfectants, require a technical control not available in swimming pools, and when used in excess produce objectionable taste and odor in the water. (3) Ozone when properly applied to the water of a swimming pool effectively purifies the water. When one part of ozone per million parts of water is used the result is sterile water. When half part ozone per million parts of water is used, a bacterial reduction of 99.8 per cent. results, except when too great an excess of air is introduced with the ozone. (4) A study of the cost of operation of the ozonator has shown that a current consumption of 2 kilowatts per day with alternating current and of 4 kilowatts per day with direct current, plus 1 cent calcium chloride represents the total operating cost for 60,000-gallon pool. This amounts to 11 to 15 cents per day with alternating current and to 21 to 29 cents a day with direct current. The cost of refilling the pool is at least \$30. The use of the ozonator decreases the number of times the pool must be emptied to such an extent that the cost of the installation is soon paid for. (5) The application of ozone to the purification of swimming pools is automatic in control, reliable in action, and inexpensive in application.

News of the Week.

A Protest Against Crippling the Health Department.—Dr. Walter B. James, president of the New York Academy of Medicine, Dr. Howard Canning Taylor, president of the Medical Society of the County of New York, Dr. Frederick C. Holden, president of the Medical Society of the County of Kings, and Dr. Abraham Jacobi joined in a public protest against Mayor Hylan's so-called investigation of the Health Department. This protest is in part as follows: "The proposal on the part of the city administration a few days ago to discharge the directors of seven of the nine bureaus of the Department of Health, first as a sweeping measure of economy and later, following an outburst of public indignation, on the ground that these bureaus are illegal, gives to the people of New York and especially to the poorer people, food for serious thought. . . . The Mayor's bitter aversion to all experts, testified to in numerous utterances both before and since the election, must

now cause a shudder of apprehension among all intelligent persons. . . . The New York City Health Department has always been the acknowledged leader among Health Departments of the country, and has been used as a model in the development of countless others. . . . It has never had to be ashamed of its achievements. Under its administration the death rate, especially the death rate of children, has steadily decreased until now New York has one of the lowest in the world. The sickness rate among the children of the poor has been enormously lowered. Typhoid fever, a disease of carelessness and filth, once a scourge here, has become an almost rare malady. Tuberculosis, cholera infantum, diphtheria, and other diseases all show a corresponding loss of numbers, and to-day one may give to the little children, with confidence, water from the tap and milk from the corner grocery, and it can no longer be said that in New York your babies are not safe unless you can buy bottled water for them or raise their milk on your own farm. This has not been brought about without the services of experts, and, like safety on the subways, it cannot be maintained except by experts. . . . The public is informed by the press that an investigation of the Department of Health is being carried on behind closed doors, and to this we object, for, as the department serves all the people and is paid for by the people, so the people have a right to know every move that is being made for it or against it. . . . We earnestly protest, in the name of the medical profession, against the discharge of the experienced and expert heads of divisions in the Department of Health unless after the most careful and unprejudiced consideration, and we assure the people of this city, first, that under the existing conditions competent substitutes for these skilled employees cannot be secured to-day at any price; and second, that any falling off in the quality of the work done by the Health Department will make this city again an intolerable place of abode except for the rich."

Bill Providing for Medical Inspection of Schools Withdrawn.—The Department of the Health of the State of Massachusetts has withdrawn from the Legislature its bill providing for extending medical inspection in the public and parochial schools of the State under the supervision of a state director. According to reports in the lay press no one appeared in behalf of the bill, while the medical profession recorded vigorous opposition to it. It was argued that the bill would be against the interests of the family physician and would impose a prohibitive cost on the cities and towns of the state.

Physicians Ask Hearing on Whitney Drug Bill.—The Medical Society of the State of New York, the Federation of Medical Economic Leagues, and the Association for Medical Defense of New York, through the acting president of the Society, Dr. Thomas H. Halsted of Syracuse, Dr. John A. Cutter, and Dr. John P. Davin of New York City have requested Governor Whitman to grant a hearing on the Whitney Drug bill before he takes action on the measure. It is claimed that among other objections the measure is revolutionary, unconstitutional, and dangerous to the welfare of the community and that

it will in effect bring about a lay and political control of purely medical duties at a time when medical men of military age are serving with the colors or else at home as volunteers for every kind of medical service required of them by the Government, and in consequence less able to act energetically in defense of their rights.

The Metropolitan Throat Hospital has just presented its annual report for last year which shows that it has given 5,851 treatments at the hospital during the year. In presenting the report announcement is made that the hospital is ready to contribute its resources to the Government for the treatment of soldiers and sailors and that the Government is considering the question of using the hospital.

Civil Service Examinations.—The Municipal Civil Service Commission of New York City announces three medical examinations for which application may be made at Room 1400, Municipal Building, Manhattan. Applicants must be citizens of the United States and residents of New York State. These examinations are as follows: 1. For *Assistant Medical Examiner*, at a salary of \$3,000 a year. Applications will be received until May 1, 1918, at 4 P. M. 2. For *Deputy Medical Superintendent, Grade 3 and 4*, at salaries varying from \$1,800 to \$2,400. There are at present two vacancies in the Department of Charities at \$2,520 per annum with maintenance. Applications will be received until April 29. 3. For *Pathologist* the duties of the position being to exercise independent judgment and to be responsible for pathological examinations and to perform research work under supervision. Applications will be received until April 30. For further particulars apply to the Municipal Civil Service Commission at the address given above.

The New London County Medical Association, at its annual meeting in New London Conn., on April 4, elected the following officers: *President*, Dr. L. F. LaPierre of Norwich; *Vice-President*, Dr. Daniel Sullivan of New London; *Secretary*, Dr. H. H. Heyer of New London; *Councilor*, Dr. C. C. Gildersleeve of Norwich.

New Maternity Center in New York.—As a part of the Baby Year work the Women's City Club is establishing a maternity center at 218 East Seventy-fourth Street. The work will include provision for securing expert treatment of symptoms indicating the development of abnormalities and special disease and aid for mothers and babies needing special care, special surgical supplies, etc. The committee is also working on a plan to provide food at a nominal cost for expectant mothers and to send working housekeepers to women with young babies, who otherwise would have to do the family work the second or third day after confinement.

Lepers Escape Guard.—A despatch from Bogota, Colombia, states that 300 lepers confined at the leper colony at Agua de Dios, near Bogota, have escaped their keepers and scattered through the surrounding district. The reason for their going is said to be dissatisfaction with the food furnished them.

Obituary Notes.—Dr. PERCIVAL LOUIS NAGIN, a graduate of the Long Island College Hospital, in 1914, died at his home in New York City, on April 5, aged 32 years.

Dr. ROBERT S. STEDMAN, a retired physician, living in Brooklyn, N. Y., died suddenly of heart disease on April 13. Dr. Stedman was born in Hartford in 1842 and was a graduate of the Medical Department of Columbia University (College of Physicians and Surgeons) in New York City.

Dr. SILVIO H. VON RUCK of Asheville, N. C., died of pneumonia in New York City on April 7, aged 42 years. He was a graduate of Bellevue Hospital Medical College, in 1899, and completed his studies in Europe. He was associated with his father, Dr. Karl Von Ruck, in the management of the Wingah Sanatorium and the Von Ruck Research Laboratory at Asheville, and the two had collaborated in several publications on tuberculosis.

Dr. CHARLES G. JOLLIFFE of Hasbrouck Heights, N. J., a graduate of the College of Physicians and Surgeons, Baltimore, in 1872 died in the Hackensack Hospital, on April 7, aged 69 years.

Dr. MAURICE J. SILVERMAN of New York City died suddenly of heart disease, while visiting a patient, on April 11, aged 53 years. He was a graduate of the New York University Medical School.

Dr. EDWARD MOTT MOORE, a graduate of the Buffalo Medical College, in 1874, a member of the American Surgical Association and the American Academy of Medicine, died at his home in Rochester, N. Y., on April 5, aged 68 years.

Dr. EDGAR P. LITTLE of Manor, Ga., died after a lingering illness in a local sanitarium, on March 14, aged 50 years. He was a graduate of the Atlanta Medical College in 1892.

Dr. B. F. JONES, a graduate of the Medical Department of Tulane University in 1878, died suddenly at his home in Goldfield, Colo., on March 18, aged 64 years.

Dr. JUSTUS R. CONKLING of Omaha, Neb., died of apoplexy at Dunedin, Fla., on March 20, aged 83 years. He was a graduate of Rush Medical College in 1859.

Dr. J. W. DUNCAN, one of the oldest physicians in Atlanta, Ga., a graduate of the Atlanta Medical College in 1868, died on March 11, aged 76 years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE QUESTION OF VOLUNTARY HOSPITALS—CARE OF THE MOTHER AND INFANT BY THE STATE—THE INDIAN MEDICAL SERVICE—SIR JOHN PHILLIPS—DEATH OF DR. JAMES PEDDIE STEELE.

LONDON, March 28, 1918.

THE voluntary hospitals of London, forming a pattern for many institutions in other provincial capitals and large cities, have always been among the chief glories of the metropolis, and it is impossible to view their present financial condition without uneasiness, if only because that condition is in some cases so parlous that the very system under which they have hitherto thriven is threatened. In London this position, rendered obvious to every eye by the extra strain put upon the charities in so many directions by the war, has its particular difficulty because, despite the existence of many new and excellent provincial universities, London remains the center of the medical education of England and Wales, while largely ministering to the needs of

Scottish and Irish students; and the whole organization of the medical education of the kingdom is founded upon the voluntary hospital system. These are, briefly, the principles on which the association between the great voluntary hospitals and the great medical schools of London depends. The hospitals, relying upon voluntary subscriptions, donations, and legacies, owe no allegiance to local civic government. The money destined for them is administered by an unpaid committee of practical philanthropists, who recognize their responsibility toward the public by insuring that the funds are expended in carrying out the object of the donors, namely, in providing medical aid for the sick poor. The medical schools grew up around the hospitals because to the hospitals went the best exponents of medical art and science, and within their walls were to be found, and there only, multiple and ever-recurring examples of all the evils which the student, when duly qualified, would have to remedy among his patients. The staffs of the hospitals, being unpaid directly, have been and are paid indirectly by vending to that portion of the public who can afford to purchase, the experience gathered among their gratuitous charges; and the channel by which these distinguished doctors are placed in communication with the paying public is the students, who, having gone into medical practice, summon their old teachers to consultation, or recommend the public to apply to them when in trouble. The students, on their side, pay heavy fees for their medical education, concluded in the wards of a hospital, because in no other way can they be properly trained. School, student, staff, patient, and hospital under the voluntary system receive mutual benefits. The patient forms the material for the school, and is treated for nothing; the staff indirectly draw income through the students and give the treatment for nothing; the student pays a heavy fee for his education, but gets a very good one. The whole of this scheme is founded on the supposition, as far as the great London schools are concerned, that voluntary support will be forthcoming for the charities. Failing this, the state or the local taxes will have to finance the hospitals; the medical staffs will sooner or later be selected by laymen, for the staffs will have to be paid, and those who find the salaries will naturally want to find the men; the staffs will fall off in quality, and while the patients may be adequately treated, the standard of the teaching will inevitably decline. That is the outlook for the pessimist of the change in the management of the London hospitals, which poverty suggests may be near at hand; but a far wider outlook is permissible in view of the approaching Ministry of Health. Under a coordinating health authority any jurisdiction under which hospital management may come will receive the supervision of a powerful state department, and one of the first cares of this department will be to see that the facilities for medical education shall be as great as possible, and that the standards shall be high and easily maintained at a high level. There should, therefore, be no apprehension that owing to private interest or lack of the best attraction the important posts of the hospital staffs should fall into the wrong hands.

A bill, entitled the Maternity and Child Welfare

Bill, has been introduced in the House of Commons by Mr. Hayes Fisher, the president of the Local Government Board, and will come on for immediate debate, with a view to early legislation. It had been feared that for political convenience, or with the hope of saving time, the bill would be delayed until the promised bill proposing to enact the establishment of a Health Ministry was introduced, and it is a great relief to all who know the subject intimately to find that it is proposed at once to take steps to deal with the threat of increasing infant mortality. The bill applies, at any rate in its first stage, to any local authorities in England and Wales having the necessary powers, and these authorities are enjoined under it to immediately establish maternity and child-welfare centers. The expenses of the work will be defrayed by the provision of the existing act for the notification of births, and the results will be: first, the coordination in advanced localities of the many existing and differing charities and movements for the safeguarding of the lives of pregnant and parturient women and their offspring; and secondly, the initiation of such charities and movement in localities where hitherto they have not existed. The government will be congratulated by all medical men on having decided to tackle a task of supreme urgency.

The position of the Indian Medical Service has for some years now been a question of difficulty in many directions. The record of the service is a particularly fine one from the national point of view. Owing to the activity of the officers of the Service the amelioration of public health and climatic conditions in India has kept pace for over 100 years with the extension of the British rule, and where vast spreading diseases—an enormous epidemic of plague, for example—famines, or an outbreak of cholera have occurred, the officers of the Service have been resourceful and self-sacrificing beyond praise in their endeavors to stay the disasters and minimize their consequences. But the Service by its own activities, and by the scientific and administrative talent which it has been able to command, has created for itself in the most honorable way one enormous difficulty. Medical colleges have been founded in India, have been staffed by the officers of the Indian Medical Service, and as a result a large number of native students have been educated to a professional point at which they are perfectly able to discharge all ordinary medical and surgical functions in their native land, but to those native-educated men the Indian Medical Service itself is closed unless the entrance examination to it has been passed in the usual way, and *after* obtaining a position on the British Register by passing one of the statutory examinations for the purpose. The regulations, therefore, rule out almost all native talent from competition. Further, the officers of the Indian Medical Service are the only people with a statutory right to hold many of the medical appointments in India which carry the higher dignities and commensurate pay. The dilemma is obvious. On the one hand, for what purpose are the Indian students being educated to such a degree of proficiency if they are not allowed access to the prizes of the profession? On the other hand, what inducement is there for the young British doctor to expatriate himself, and to do very hard work in uncon-

genial circumstances for no great pay, if certain professional prizes are not thereby, and *thereby* only, placed within his reach. For a long time the Indian Medical Service was kept well manned, but it begins to look as though the position will not be maintained, the question of pay being the detrimental factor in the situation. The Indian Medical Service officer, comparing his position with members of the various branches of the Indian Civil Service, finds that he is underpaid and badly used in the matter of allowances, of holidays, and of promotion. He has not forgotten to make his side of the question well known, with the result that at the various British medical schools the Indian Medical Service is being no longer recommended by the teachers to their pupils, who are, on the contrary, advised that they can probably carry their talents to a better market. Therefore, the Service is not full; therefore, the chances of furlough and privilege for the existing members are slighter, and an added grievance results. If the personnel of the Indian Medical Service is to be kept full the Indian Government will have to make up its mind either to make concessions to native demand for greater scope or to grant higher pay to the European officers. Recent public pronouncements made by the Secretary of State for India say, in so many words, that Europeans are still required in the I. M. S., and that there is not an adequacy of trained Indians to hold all civil, military, and executive charges in India. The view appears to have been arrived at after quite fair consideration of the native claims, when it seems to follow as a matter of course that the pay and promotion of the I. M. S. will be improved. At the present moment the I. M. S. men do not share the benefits of other Indian services; their temporary allowances, specialists' pay, and so on, are calculated at a lower scale, and since the war broke out these inequalities have been aggravated. The Indian Government would be well advised to give the matter early consideration.

Sir John Phillips, one of the best-known gynecologists in London, and obstetric physician to Kings College Hospital, has been appointed physician to the Queen.

Dr. James Peddie Steele, for 40 years the correspondent in Italy of *The Lancet*, died suddenly some months ago. He was a famous Latin scholar and a poet, a collection of his elegant verses having just been published by Pillans and Wilson of Edinburgh.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

RECEPTION TO MAJOR MURPHY—RED CROSS RESCUES AVIATORS—HOSPITAL OF THE LAKESIDE UNIT—AMATEUR PLAYS—MORAL CONDITIONS EXCELLENT.

PARIS, March 4, 1918

MAJOR GRAYSON M. P. MURPHY, formerly American Red Cross Commissioner for Europe, who resigned several weeks ago in order to take an active commission in the army on General Pershing's staff, was given a reception at the American Red Cross headquarters, 4 Place de la Concorde, yesterday evening, and was presented with a token by his former associates. Major Murphy made a speech, in which he thanked them, and spoke of his very pleasant recollections of the work.

From a town in the Aisne comes news of a recent fire which destroyed the camp of a French aviation squadron. The fire occurred in the middle of the night, and members of the squadrilla lost all their effects. The resident delegate of the American Red Cross (Bureau of Reconstruction) was able to fit up the aviators with coats, trousers, mufflers, sweaters, socks, shoes, and even things like mattresses and cooking utensils. As the fliers had lost everything they had, this service of their American friends was keenly appreciated.

The American Red Cross reports that moving-picture machines and film service have been established in three more hospitals. The film service provides for the exhibition of three pictures each week. During the past month phonographs and records were sent to twenty new rest rooms at hospitals and camps in the American Army zone. Twenty-two additional hospitals also received a supply of games, such as checkers, chess, playing cards, puzzles, etc. About 2,000 novels were collected and sent to different hospitals. During January 700 magazines and 20,000 newspapers were distributed among the hospitals; in addition to these, several thousand old magazines and newspapers were sent out from headquarters.

The supply of tobacco at various hospitals was maintained. Each day many requests for recreational material of various kinds are being filed, including musical instruments, dictionaries, atlases, rubber stamps, stationery, sheet music, boxing gloves, wrestling mats, medicine balls, baseball outfit, etc. All members of the Red Cross organization are urged to contribute material to this department and inform their friends of the opportunity that is offered to make the hours of American soldiers in the hospitals more comfortable and enjoyable.

The administering of medicine and the dressing of wounds are the chief features of a base hospital. The Lakeside unit, in service in France since May, 1917, has found another side to base hospitaling. It has transformed one of its dining-rooms into a recreation room and theater. Now the wards are deserted during the day, save for the more seriously ill and wounded, and the barrack rooms are likewise empty, except at the check at night. The tables have been moved from the hall, a stage built at one end, the walls decorated, the floor oiled, curtains put up at the windows, and games and books installed. There are tables for the patients to write on, easy chairs to rest in and refight the battles in which they were wounded, magazines to read, games to play, etc. A billiard table has been placed in the hall.

A wounded sergeant has had charge of the redecorating of the hall and the construction of the stage. He has painted a complete set of scenery and a new curtain and has aided in the production of the plays. One of the features of the theatrical end of the new hall is that every member of the camp must take part. Sergeant Charles Couch is in charge of the production of the plays. So well received have been the first few sketches which the boys have put on that they are now working on a big minstrel show, real American style, which will make a tour of the camps and hospitals after it has been shown at their own hospital. On entertainment nights the officers and nurses are invited to

view the productions. Special matinees are held in the afternoon for the patients. Every man in the unit has done his share in making this new part of the hospital life a success, and every patient that goes away from the hospital is "strong" for the recreation hall and the theater. The nurses, too, have done their share. They have presented one sketch and have made silk amber shades and beads for the lamps in the room.

Much has been said and written about the moral conditions existing in France since the commencement of the war, and it is gratifying to have such a favorable report from one well qualified and who has made a special tour of our camps to study actual conditions. The Rev. W. M. Woodfin, Pittsburgh, Pa., associate secretary of the Presbyterian Board of Temperance, who came to France to study social conditions in relation to the United States Expeditionary Force, has completed his survey of the army. He says that he has found conditions very satisfactory, so far as morals are concerned. The facts, as he has gathered them, are even more gratifying than the official statements given out by the military authorities. He says that he has come into contact with thousands of soldiers and has found the moral conditions of the army very good.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

March 28, 1918.

1. The Place of the Home, the Dispensary, the Sanatorium or Hospital in the Treatment of Tuberculosis (Value of Diet, Rest, Fresh Air, etc.). Edward O. Otis.
2. Some Modern Medical Problems. Timothy Leary.
3. Revised Ideas Concerning Foot Defects and Orthopedic Footwear. Herman W. Marshall.
4. Dispensaries in Massachusetts, Particularly in Boston. Michael M. Davis, Jr.
5. On the Possible Nature of Measles. Leverett D. Bristol.

1. The Place of the Home, the Dispensary, the Sanatorium or Hospital in the Treatment of Tuberculosis (Value of Diet, Rest, Fresh Air, etc.).—Edward O. Otis points out that in clinical tuberculosis the basic principles of treatment are the same whether at home or in the sanatorium. The psychological element must be considered, however, and while one patient will do better in a sanatorium another will have a greater chance of recovery if treated at home. Rest, diet, fresh air, exercise, and the prompt correction of any complications comprise the treatment, but the painstaking and constant supervision of the physician is most essential wherever the treatment is given. The province of the dispensary is to make the diagnosis and to arrange for treatment, not to give treatment. When it is compelled to provide treatment, however, the dispensary must proceed on much the same plan as the "Class-Method" so successfully developed by Dr. Pratt. The Consumptive Hospital is intended primarily for advanced cases, and warm, well ventilated wards where the patients may be comfortable are the essential thing; open-air equipment is not necessary. The Sanatorium possesses certain advantages which do not exist in the home treatment, namely, favorable location, the presence of a skilled physician in case of emergency; the facts that the diet is arranged more scientifically in sanatoria where a dietitian is employed; that specific forms of treatment, such as the use of tuberculin or the employment of artificial pneumothorax, can best be carried out in an institution by experienced physicians, and that better discipline can be maintained in the case of patients with little self-control; and the force of example. On the other hand, where a large number of patients are treated *en masse* there must be a certain rigidity in the treatment and the patient may not be able to obtain the kind of food he has been accustomed to; moreover the monotony of diet tends to

loss of appetite, and there may be loneliness and homesickness. *Diet*: The average tuberculous patient requires from 500 to 700 calories of proteids, 1200 to 1500 calories of carbohydrates and 1300 to 1500 calories of fats. The physician should arrange the daily menu or at least give a list of nutritious and proper foods from which a selection may be made. It must be remembered that "a consumptive who does not eat is doomed." *Rest*: Absolute rest is indicated where there is an afternoon temperature above 99.5°. In any case patients should rest a considerable portion of the day, and at the commencement of the treatment it is wise to keep the patient at rest for two weeks. The disadvantage of complete rest throughout the course of treatment, although it may effect a cure, is that the morale of the patient is so enfeebled that his future usefulness is destroyed. It is of supreme importance, however, that absolute rest be enforced when there is fever. *Exercise*: This should be carefully prescribed, both as to kind and time, and constantly supervised; and should never be permitted while there is fever. Otis believes that gymnastic and breathing exercises are of no special value and may do harm. *Clothing*: The tuberculous subject usually requires more clothing than the normal person, but an excessive amount should not be worn. Finally, Otis points out that though the fundamental principles of treatment are few and simple, their successful application requires careful, painstaking and constant attention to the many details involved, and an individualization of each patient.

The Boston Medical and Surgical Journal.

April 4, 1918.

1. The Serum-Conserved Dressing for Industrial Wounds. Fred R. Williams.
2. Health in War Industries. Thomas F. Harrington.
3. Some Relations of Exercise to Nutrition. George Van Ness Dearborn.
4. The Venereal Problem—The Army Viewpoint. Elmore M. McKee.

2. Health in War Industries.—Thomas F. Harrington points out the danger of overwork under the strain of the burden produced by the exigencies of the war, and shows that the great question of to-day is not whether the workers in war industries are standing, without evident injury, the strain of overtime, long shifts, Sunday and night work employment, but whether they can stand it for a long period; and, secondly, whether the toll to be collected later in the ill health, lack of efficiency, and in the development of organic disease can, in any measure, be compensated by the temporary increase in income and wages for any overtime employment. He also voices a warning as to the danger of nervous and physical shipwreck confronting leaders in public life, finance, and science, in this country, and states that a reorganization of the working program of these leaders is one of the most pressing problems of the day. Referring to the experience of European countries since the beginning of the war, Harrington speaks of the great danger from fatigue and the importance of so arranging periods of rest for industrial workers that the nervous system may have an opportunity of ridding itself of the accumulated poisons. The true signs of fatigue are diminished capacity; the output rapidly diminishes when the work period is carried beyond certain limits. In the case of women and young persons, particularly, long hours are both injurious and unprofitable; women cannot work continuously and profitably for more than five hours. Sunday work for both men and women has been proved to be neither profitable, healthful nor economical. The writer considers, however, that although night work has never been considered economical for men even, the time may come when women will have to undertake such work. Much could be done to conserve the health and efficiency of night workers by providing warm food for them during the night. Such workers require light, appetizing food that is easily digested.

New York Medical Journal.

April 6, 1918.

1. Lues and the War. William P. Cunningham.
2. Earache and Its Management. Rufus B. Scarlett.

3. The Surgical Treatment in Thyroid Conditions. Arthur S. Brinkley.
4. Chronic Diarrhea. Roy Upham.
5. Uterine Subinvolution (With One Illustration). Ferdinand Herb.
6. X-Ray Findings in the Gastrointestinal Tract (With Six Illustrations). Lewis J. Friedman.
7. The Place of the Pharmacist in the Army. J. Madison Taylor.
8. Gunshot Wounds of the Extremities (With Ten Illustrations). J. Rudis-Jeinsky.

2. **Earache and Its Management.**—Rufus B. Scarlett draws attention to the significance of earache, with its complications, and states that its seriousness is often not recognized. The character and location of the pain may be confusing in at least three conditions. (1) In furunculosis, it may be distinguished by the patient as anterior to the middle ear and as becoming more intense as the lobe of the ear is disturbed. (2) The distress in middle ear infection is usually centered in the ear, and not necessarily affected by motion of the lobe. (3) When the Eustachian tube is involved in an inflammatory process pain and tenderness usually extend down the neck along the course of the tube. Scarlett states that every physician should be able to detect the existence of any pathological condition of the drum or its neighboring structures and points out that sagging of the wall of the external canal is suggestive of involvement of the mastoid cells. For the relief of pain a saline cathartic should be given and dry heat applied; moist applications favor venous engorgement, soften the tissues, and hasten local necrosis. Rest in bed is essential. Attention to the nasopharynx and depletion of the tissues surrounding the orifice of the Eustachian tube is important in order to encourage drainage from the middle ear. The dropping of oily solutions into the external auditory canal is unwise. Should relief not be obtained within twelve hours an incision should be made in the tympanic membrane, especially if the presence of fluid in the middle ear is detected. In the majority of cases this can be done under local anesthesia, and to produce this various preparations have been suggested; the author has found a combination of the crystals of cocaine, carbolic acid, and menthol most satisfactory. Local applications of cocaine, eucaine, or alpin to an intact tympanic membrane produce little effect, as the external surface of the drum is covered by a dermal layer. Such solutions are effective if injected beneath the skin at or near the point of incision, but the injection is almost as painful as the incision would be without anesthesia. A preparation consisting of cocaine crystals, aniline oil, and absolute alcohol, and extensively advocated a few years ago, has been found to produce toxic symptoms. Should general anesthesia be deemed advisable, chloroform, ethyl chloride, or somnoform may be used; nitrous oxide is more troublesome. A free incision should be made by a *sharp-pointed* miniature bistoury at the point of greatest bulging. Care must be taken to avoid injury to the incus and stapes, and the point of the bistoury must not penetrate too deeply. After the incision has been made the canal should be mopped dry and a small wick of gauze loosely inserted to encourage drainage. The canal must subsequently be frequently cleansed with cotton, and as much moisture as possible eliminated. Should the discharge become copious a mild antiseptic is of value. Care of the nose and throat is essential, and as a certain relaxation of the drum membrane and intratympanic ligaments follows inflammation, precautions must be taken to guard against complications. The middle ear should be carefully inflated, at first daily, until all traces of congestion have disappeared, hearing has been restored, and the tympanic membrane retains its normal position.

Journal of the American Medical Association.

April 6, 1918.

1. Angina Pectoris. E. Fletcher Ingals, with the collaboration of William R. Meeker.
2. Pathology of Angina Pectoris. E. R. LeCount.
3. Are Diptheroids a Factor in Female Sterility? T. C. Stollwagen, Jr., and P. S. Pelouse.
4. The Formation and Composition of the Cerebrospinal Fluid: A Simple Method of Detecting Acidosis and Determining Hydrogen Ion Concentration. J. F. McClendon.
5. A Case of Tin Poisoning. Moses Salzer.
6. Surgical Treatment of Epididymitis. Richard L. Cook.

7. Tuberculin as a Diagnostic Test of Tuberculosis in Man. L. M. Ryan.
8. Obstructive Dysmenorrhea and Sterility: A New Operation. Jacob Frank.
9. Elephantiasis: Report of a Case. Reinhard E. Wobus and E. L. Opie.
10. The Use of Celluloid in the Correction of Nasal Deformities. G. B. New.

1. **Angina Pectoris.**—E. Fletcher Ingals, with the collaboration of William R. Meeker, presents the results of his observations from a clinical standpoint on sixty cases of angina pectoris, of which thirty-two were true angina and twenty-eight pseudo angina. These cases were considered in conjunction with a careful study of Allbutt's work. The author points out that the pain in angina pectoris is not usually in the heart and the left arm, but rather along the course of the aorta and larger arteries and, in many cases, appears to have no relation to the condition of the myocardium or to the obstruction of the coronary arteries. He considers that the theory that the real seat of the disease is usually in the arterial walls and often in the external coat accounts for the incidence of the pain much better than the older view that the disease resulted from an affection of the coronary arteries with degeneration of the myocardium. The prognosis is more hopeful than is generally believed, under proper care and treatment, *a very important part of which is abundant rest with heart tonics as needed.* In the treatment, nitrates are among the most valuable remedies, but they are usually given in insufficient doses. The sublingual administration of fresh hypodermic tablets of nitroglycerine is of great value in relieving pain. It is of the utmost importance that these tablets should be fresh and that they should be given in sufficiently large doses. Given sublingually, the full effect of these tablets is experienced in from one to three minutes, whereas taken into the stomach the efficiency is reduced by half and the effect delayed for about ten minutes. When an attack comes on two or more tablets of 1/100 grain of nitroglycerine should be taken at once and repeated every few minutes until the desired effect is obtained. In one case, one hundred of these tablets were taken in one day in order to relieve a severe angina, and the pain did not return for three years. This remedy is of doubtful utility when given only three times a day in the conventional dose of 1/100 grain. The effect of amyl nitrite is not as certain as nitroglycerine. Sodium nitrite seems to possess some toxic property and is liable to disturb the stomach. Erythrol tetranitrate was found to cause more headache and did not relieve the pain as promptly as nitroglycerine, although its effects may be of longer duration. The heart may be protected against inhibition shock by the use of atropine in doses of 2 mg., or even 3/100 grain may be needed for some adults. Where there is a history of syphilis, potassium iodide or some arsenical preparation should be given. In a prolonged and severe attack, morphine or morphine and atropine may be given hypodermically, but they disturb the digestion, and it is better to rely on the nitrates if they will answer the purpose. Whiskey in quantities of about 3 ounces will also give relief. Hot applications over the sternum are helpful. The inhalation of chloroform has been recommended by Balfour, but is considered dangerous by Allbutt. In cases where the heart's action remains normal, the use of digitalis is contraindicated; it may be used with nux vomica if the action of the heart is feeble. The patient should lead a regular life, avoid overexertion, mental excitement, over-eating, and the use of tobacco, coffee, and sometimes tea and, what is of supreme importance, should rest, especially when the attacks are frequent. Essentially the same baths as those given at Nauheim may be taken at home, if nine pounds of sea salt and ten ounces of commercial calcium chloride are added to forty gallons of water, with or without carbonic acid gas.

The Lancet.

March 16, 1918.

1. An Address on the Selection of Candidates for the Air Service. Delivered before the Medical Society of London on March 11, 1918. H. Graeme Anderson.
2. Trench Fever. Captains C. E. Sundell and A. T. Nankivell.

3. Protozoological Affections of the Intestine: The Treatment of the Amebic Carrier. Captain H. L. Watson-Wemyss and T. Bentham.
4. Knee-joint Wounds at a Casualty Clearing Station. Captain R. Garside Dixon.
5. The Operative Correction or Deformity in Gunshot Fractures. Captains James Taylor and A. G. McLeod.
6. Notes on a Case of Poisoning by Corrosive Sublimite. Gibbon Fitzgibbon.

I. An Address on the Selection of Candidates for the Air Service. Delivered Before the Medical Society of London on March 11, 1918.—H. Graeme Anderson pays a high tribute to the flying men. He says: "Nothing is too good for them, and it is up to us as a profession to strive in every way we can to save them from disaster, and should disaster overtake them to find the means to restore them to health again." He indicates the ways in which medical officers can help—by knowing the requirements of the aviator's life, by studying the psychology and physiology of flying, and by investigating the maladies commonly found among flying men. By such means standards of fitness could be drawn up, subject to modification from time to time, for the various flying duties. The aviator's duties subject him to the most intense strain to which the human nervous system can be subjected. As it has been aptly put, an aviator's life consists of "long spells of idleness punctuated by moments of intense fear." His physical requirements are a sound constitution, free from organic disease, and a fairly strong physique, in order to withstand altitude effects, such as cold, fatigue, and diminished oxygen. It is essential that there should be normal hearing and good muscle and equilibration sense. Good eyesight is of the utmost importance, and next to vision the most important question is that of temperament. The ideal aviator must have good judgment, be courageous, and not upset by fear, although conscious of the perils of his work. He must be cool in emergency, quick to decide and act, and alert; and a well-controlled imagination may be of advantage. Previous training in sports is usually found to be an advantage. An inquiry into the family history, as well as into the previous health of the candidate, will give an indication as to whether he will be able to stand the strain or not. Candidates for the Air Service should be made to undergo (1) a surgical examination, (2) a medical examination, (3) a special sense examination, preferably by experts in each line, and the final selection made on the total results by a medical selection committee. In the surgical examination the age, height, weight and general physique are considered. The age should be between 18 and 30 years; 24 is about the best age. As to height, if under 5 feet 2 inches the candidate would have difficulty in reaching the rudder bar or looking over the cockpit of the aeroplane. The weight does not count for so much as it formerly did, owing to the increased speed and climb of aeroplanes, but the lighter the candidate is the better. In considering the general physique particular attention should be paid to the abdominal muscles, where lack of tone would allow of splanchnic flooding and the possibility of fainting in the air. Any surgical defect, however slight, should be recorded. Any evidence of epilepsy, vertigo, migraine, persistent headaches, lack of concentration, or easily induced fatigue, whether the result of injury or not, should disqualify. Loss of cranial vault need not disqualify. Trunk injuries may disqualify, depending upon the amount of disablement and deformity. Cases of gunshot wounds of the thorax should not be rejected unless they fail to pass the altitude tests devised by Major M. Flack. Whether or not disabilities of the extremities should cause rejection depends upon the extent to which they interfere with the power to work the controls or use the machine gun. Old infantile paralysis cases should be rejected, and candidates suffering from venereal disease should be rejected temporarily. Before proceeding with the medical examination a careful record should be made of the candidate's previous occupation, habits, and mode of life; previous health, and family history. Anderson believes that excess in alcohol will ultimately beat the aviator and states that there seems little doubt that the action of alcohol is accentuated in the air. It is his experience that malarial cases rarely do well in aviation, and if they are allowed to fly at all he thinks they should do so in warm climates, as the cold precipitates malarial attacks. As is to be expected, candidates

with a history of neurasthenia, nervous breakdown, or shell shock do not do well. A history of recent tuberculosis of the lungs, asthma, chronic bronchitis, or pleurisy should cause rejection at once. The writer considers cases of real air-sickness to be rare and states that such are usually discovered while the candidate is still under dual control instruction; sea-sickness and train sickness are not grounds for rejection except for balloon work. In a consideration of the family history, the strain of war flying must be borne in mind. The renal, digestive, circulatory, respiratory and nervous systems must all be investigated and the presence of albumin and sugar in the urine, organic disease of the heart, or instability of the vasomotor system considered cause for rejection. Anderson refers to the valuable work done by Major Flack in working out tests of the candidate's respiratory capacity. The breath-holding test, in which the candidate is told to expire once as fully as possible, then to inspire fully and hold his breath, has proved of practical value. In this test a clip is placed on the nose and it has been found that a good pilot is able to hold his breath for from 45 to 60 seconds. The respiratory capacity should be 3000 c.c. or more. In the special sense examination vision is the first thing to be considered. There should be unaided normal vision in both eyes, and also normal color vision. Testing for night blindness is only of importance in grading pilots for night bombing. It is hardly necessary to test for stereoscopic vision. The condition of the teeth, throat, and nose is of importance, as most aviators fly with the mouth slightly open and a minor degree of oral sepsis is soon accentuated by the cold rush of air in flying. Septal deviation or enlarged turbinates will probably induce headache; and cases with adenoids, nasal polypi, or infective sinuses should be rejected until the necessary treatment has been carried out. It is important that hearing should be normal; each ear should be tested by forced whisper at a distance of 20 feet. Defective hearing in the pilot or air mechanic may lead to serious injury or even death, as should the aviator fail to catch the words "contact" or "switch off," in starting the engine preparatory to a flight the propeller may back fire and injure or kill the mechanic. Cases of chronic suppurative disease of the middle ear, or perforation of the tympanic membrane or cicatrices should be rejected. Anderson has found by experiment that the aviator is for the most part dependent on impressions conveyed through the eyes for his sense of balance during a flight; but he adds that further investigation is required in this direction. He gives the tests usually employed in considering the candidate's equilibration, muscle sense and vestibular reactions, and describes a test devised by himself which is similar to the D'Arsonval chronometer employed in France by Camus, Nepper, and Binet. Anderson suggests that a special flying school should be instituted where border-line pupils could be instructed in flying and that the results should be carefully recorded by a medical officer particularly interested in aviation.

British Medical Journal.

March 16, 1918.

1. Notes on Surgery at Salonica. Colonel Sir T. Crisp English and Colonel R. E. Kelly.
2. Infected Wounds of the Knee-joint. Major K. W. Monsarrat.
3. The Prevention of the Spread of Epidemic Disease at Schools. Major H. Morley Fletcher.
4. Quinine in the Treatment of Anal Fissure. Helen G. Leyton.
5. A Case of Maggots in the Nose. Captain David Rauken.

3. The Prevention of the Spread of Epidemic Disease at Schools.—Major H. Morley Fletcher draws attention to the value of steam spraying, nasal douching and gargling in the prevention of epidemics. He suggests that a routine treatment of this nature would be of the utmost value in schools and institutions of all kinds, particularly in case of an outbreak of measles. A steam spraying apparatus was designed by Major Hine, the disinfecting agent used being chloramine-T. This agent, however, was later superseded by a zinc sulphate solution, as the latter was to be equally efficacious and better tolerated by most individuals. The method was introduced by Lieutenant-Colonel Gordon to disinfect carriers of cerebrospinal meningitis. Gordon also

introduced a system of nasal douching and gargling with potassium permanganate solution in normal saline, the solution being poured into the palm of the hand and snuffed up first one nostril and then the other. The fluid which passed down the naso-pharynx was spat out and the patient then gargled thoroughly with a fresh quantity of the fluid. This method was first used in the prevention of other infections in an outbreak of measles on a transport ship; the results were striking—no further cases occurred. Fletcher first tried the nasal douching in the First London General Hospital in December, 1917, when a soldier with fever and bronchitis was admitted to an overcrowded ward of forty-six beds. On the third day the soldier developed typical measles. No further cases of the infection occurred, with the exception of one, which developed in a V. A. D. nurse, who was the only person on the floor who had failed to carry out the measures ordered. Since then whenever a case of measles has occurred in the hospital the same precautions have been taken and have proved efficacious. No further contacts have developed. Apparatus for steam spraying is being installed at various naval and military centers and at Osborne and Dartmouth Naval Colleges. One has also been fitted up at St. Bartholomew's Hospital. With the approval of the Medical Research Committee and the assistance of Major Hine, Fletcher has fitted up an experimental boiler for steam spraying at one of the public schools in England, where 1 1/4 per cent. zinc sulphate is employed. At the same time a simple routine of nasal douching and gargling is carried out with 1 in 4000 potassium permanganate. A nasal glass tube or irrigator is used instead of the snuffing method. Cases of rubella, measles and chicken-pox have occurred without any secondary cases developing, but as yet it is too early to draw any definite conclusions. The results of the experiment will be published later. Fletcher, however, believes that frequent outbreaks of epidemic disease in schools, with the consequent loss of time and money, and even lives, could certainly be prevented by such measures as are indicated above.

Berliner klinische Wochenschrift.

January 21, 1918.

The Therapeutics of Strychnine.—E. Neisser remarks that use of strychnine has fallen into discredit among German physicians, while its use in other countries, particularly France, is becoming more and more general. Neisser does not hesitate to urge his confrères to employ this alkaloid more freely than in the past, its most frequent indications being: Traumatic shock, prolonged fevers, particularly typhoid; toxic coma from chloral, opium, or alcohol; neurasthenia and atonic cardiac states. (Neisser is evidently not in touch with George Crile's great work, for otherwise he could hardly advise strychnine in traumatic shock.) Intraspinal injections might be essayed in Neisser's opinion, for example, when spinal anesthesia assumes alarming conditions, the morbid process menacing the bulb. It may also be tried in infantile spinal paralysis. In this process Neisser injects strychnine in the spinal canal as soon as paralytic symptoms appear, even in very young infants.

Eosinophilia, Anaphylaxis, and the Nervous System.—D. Klinkert reviews the various conditions in which anaphylaxis, as well as eosinophilia, occur. The writer believes that clinically these conditions always become grafted on a weak point of the nervous system. Thus clinically one may unite the various forms of asthma, epilepsy, mucous colitides, angioneurotic edema, etc. Anaphylaxis in itself essentially consists in an "acquired idiosyncrasy." Klinkert next refers to analogous states which are realized in certain cumulative intoxications (quinine, salvarsan). Bringing together all these facts, the writer concludes that the idiosyncrasy is the result of a cumulative effect resulting from decreased or absent elimination. In the case of seric anaphylaxis the clinical phenomena measure the time taken by the organism to destroy the antigen until it can be eliminated by the urine. Klinkert endeavors to prove that the phenomena of passive anaphylaxis and antianaphylaxis bear out this view.

Münchener medizinische Wochenschrift.

January 22, 1918.

The Experimental Forcing Out of the Malarial Parasites into the Circulation.—S. Neuschlosz has been able to demonstrate that the exhibition of substances causing the spleen to contract (adrenalin, ergot, ext. of the hypophysis) can cause the malarial organisms contained in the splenic parenchyma to make their exit and enter the circulation. This blood infection, which allows one to detect latent malaria, is not accompanied by a typical thermic paroxysm. The organisms enter the blood from four to six hours after the injection, and this occurs more quickly when adrenalin has been used, but they remain longer in the blood after an injection of extract of hypophysis.

The Functional Exploration of the Renal Gland in Disease.—Schlayer and Beckmann esteem that the ordinary procedures for exploring the renal functions are greatly exaggerated and incapable of detecting the more minute changes. This reproach applies to qualitative methods which study the elimination of a given substance, as well as to quantitative methods which estimate the renal capacity to concentrate or dilute the urine. The writers resort to the study by employing the procedure of "the renal test meal" and from numerous researches partially reproduced in the form of diagrams they are led to the following conclusions: The normal kidney reacts to the test meal by great oscillations in hydric elimination and of concentration. On the other hand, the diseased kidney gives an elimination curve with less marked extremes and the tracings tend to approach a horizontal line. The test meals are thus distributed:

First breakfast: Coffee, 300 c.c.; 1 roll.

Second breakfast: Milk, 300 c.c.; 1 roll.

Noon lunch: Plate of broth, 150 c.c.; beefsteak, 150 gram.; potatoes.

Afternoon lunch: Coffee, 150 c.c.; 1 roll.

Supper: Mashed vegetables, 500 to 600 grams.

Total quantity of liquid = 1800 c.c.

Going still farther, the writers have studied the effect of another test meal diet containing the same total amount of liquid without any diuretic constituents. The comparative results of the two diets give data as to the degree of the pathological irritation undergone by the renal epithelium.

Deutsche medizinische Wochenschrift.

January 24, 1918.

The Diagnosis and Prognosis of Pulmonary Tuberculosis.—Goldscheider passes in review the various elements of diagnosis, as well as the estimate of the degrees of activity of tuberculous processes. He brings forward personal considerations only relating to the question of differential percussion of the apices, and states that the lesions are all the more extensive the greater their evidence obtained from a more energetic percussion of both apices. Exploration by lateral percussion of the apices during inspiratory ampliation of the lung may likewise detect very slight changes. Goldscheider also insists, among other things, on the little value of focus reaction produced by the injection of tuberculin, since this method relies too much on the subjective appreciation to be of any certain value. It is of great utility to determine the clinical type of the disease in each particular case.

The Prognosis of Pulmonary Tuberculosis.—F. Kraus believes that the prognosis can be established according to the clinical, pathological, or functional conditions offered, and it would appear that the latter are of more importance in this respect. Ranke has divided the evolution of tuberculosis into several phases, according to the bodily condition in various periods of infection. Lesions near the hilum due to the primary infection are quite possible to be seen by radiographs, and to distinguish them from latter outbreaks of the process. Such investigations will allow one to sort out those cases which will benefit by treatment in sanatoria. However, Kraus reproaches Ranke for not giving sufficient importance to the soil, and to the degree of predisposition offered by the patient. He likewise recalls that he has described a special form of tubercu-

losis undergoing evolution in "lymphatic" subjects (Kraus has evidently not read Trousseau's clinics, published over a half century ago, or he could not claim to have described a particular form of tuberculosis in "lymphatic" subjects, for the first time). For the practical application of his considerations Kraus refers the reader to De la Camp's work (Jena, 1917).

Experiences with Dysentery and Its Specific Serum.—J. Beyer believes that the useful effect of the serum has been proved, and is all the greater the sooner it is injected. He treats the more serious cases with bolus alba, or similar medication, combined with serotherapy.

Wiener medizinische Wochenschrift.

January 19, 1918.

Post-Operative Treatment.—H. S. Spitz in his article continued from the preceding issue, considers the question of the medico-mechanical procedures. More important than orthopedic apparatuses, which are becoming more and more complicated in construction, is a trained hospital personnel. By manual procedures, such a personnel can supplant almost any form of mechanical treatment. Finally, treatment by manual labor has the great advantage of giving the wounded man those movements which are the most essential, while its bad side is that the patient will often not use the injured limb, putting all the work on the uninjured ones. The corrective of this is to combine this treatment with mechanical measures. By these means it is possible to send back most cases of contractures to the service, likewise a number of paralytics. However, in the majority of the latter cases the results obtained by treatment only render the men fit for civil activities. Finally, a good stimulant for complete recovery is to give a leave of absence for one year after the patients leave the hospital.

The Treatment of Malignant Neoplasms of the Pharynx and Nasal Fossae with Radium.—L. Rethi relates the case of a man with a tumor of the palatine tonsil (lympho-sarcoma). An operation, combined with radium irradiations, completely cleaned up the pharyngeal cavity. The writer continued to treat the case by incising the enlarged lymph-nodes and then inserting radium tubes into them.

Two other cases were likewise satisfactorily treated by the same technique. Rethi lays down the general principles as follows: Cases which as still operable should be first treated surgically without any pre-operative treatment with radium, and only the inoperable cases are to be treated at once with radium. The writer questions whether or not certain operable cases are not improved by immediate radium treatment.

Wiener medizinische Wochenschrift.

February 2, 1918.

The Results of a New System of Infant Feeding.—C. von Pirquet, on account of the lack of foodstuffs due to war and the resulting difficulty for hospitals to nourish their patients, has been led to examine the question of infant feeding and has obtained good results from the viewpoint of development, as well as realizing a considerable saving by the application of the following general method: (1) The estimate, in nutritive unities, of foods, taking 1 gramme of milk as a standard; (2) the proportionality of the quantity of food estimated by the absorbing surface of the intestine. This is calculated after the square of the seated body (vertex-ischion distance). The tables made after the writer's calculations also allow one to estimate the best utilization of foods. Another advantage resides in the fact that the children, when they return to their homes, do not receive food of inferior quality to that given them at the hospital. The benefit acquired is not interfered with when the child returns to its familial feeding.

Fractures of the Upper Portion of the Femur from Rifle Bullets.—F. Kaspar has employed both Bardenheuer and Florschütz's methods of extension and suspension. He refers to the good results which are possible to attain without having to resort to other more complicated methods, such as those of Steinmann, Klapp, or Zuppinger, which are useful at base hospitals

at the rear. Fracture cases should be evacuated as soon as possible from the ambulances at the front to the rear. One should abstain from attempts at reduction in recently infected fractures, as permanent extension has a much more favorable effect.

Wiener medizinische Wochenschrift.

February 9, 1918.

Thalassotherapy in the Wounded.—J. Glaz states that a stay at the seaside is beneficial (1) for cases of pulmonary tuberculosis, on the condition that process of induration is at an end; catarrhal pneumonia, "humid" lesions at the apices and bronchial and tracheal catarrhal processes are to be excluded. (2) For cardiovascular affections, which abound among soldiers, partly due to moral shocks and still more to tobacco. (3) For the wounded, in cases of suppurating wounds, or ankyloses. (4) For neurasthenics and loss of general vitality. Rheumatic and malarial cases are not to be sent to the seaside.

Surgical Observations on the Oriental Front.—W. Koerting regards as principal factors in wound evolution: The first dressing and the kind of transportation offered. He insists upon the necessity of heat for shock cases or after hemorrhage. Heat may be supplied by hot drinks, bottles filled with hot water, heated bricks, etc. The writer describes an improvised water tank supplied with pedals. He is well pleased with the essays he has made in treating profusely secreting wounds with animal carbon, while the addition of iodoform still more favors the development of granulations. (Isotonic sea water has been employed in the French ambulances and base hospitals for the past three years with success in suppurating wounds. Sea water can be sterilized without in any way deteriorating its therapeutic effects. Maurice de Fleury has particularly studied the question in a paper published in 1915.)

Crónica Médico-Quirúrgica de la Habana.

February, 1918.

1. Pan-American Intelligence Among Medical Men. J. E. Lopez.
2. Presidential Address at the Cuban Medical Congress. Dr. A. Agramonte.
3. Inaugural Address as Secretary of Public Health. Dr. F. Mendez Capote.
4. The Medical Press as an Educational Agent. J. Santos Fernandez.
5. On Congenital Syphilis. Braulio Saenz.
6. Medical Instruction and Medical Papers. G. Aldereguia.
7. The National Bulletin of Hospitals. J. Soler Baillo.
8. A Voyage to Spain for Ophthalmic Purposes. J. Santos Fernandez.
9. Smallpox in Buenos Aires. Emilio R. Coni.
10. Medical Problems of the Great War. F. M. Fernandez.

5. On Congenital Syphilis.—Braulio Saenz, comparing the influence of the various generators of congenital syphilis, sums up his work by stating that after all the rôle played by the mother in the transmission of syphilis is very much more important than that of the father. In Saenz's opinion the mother is almost always responsible for the cases of congenital syphilis; although his opinion is not so radical as that of Matzenauer, who believes that paternal infection is impossible, yet he believes that the chances of infection through the father are really small.

Persistent Botal's Foramen in a Man Aged Fifty Years.—Menetrier and Wolff reported the case of a man admitted to the clinic with cyanosis, dyspnea and inability to speak. Despite cardiac stimulants he soon succumbed. Autopsy showed the presence of the above mentioned defect. The man had worked throughout at a laborious calling.—*La Presse Médicale*.

Kitt's Nephritis in Calves and Its Relationship to Human Nephritis.—Sakaguchi investigated the macular diffuse fibroplastic nephritis of the calf (Kitt) and pronounces it to be a true inflammatory process with lymphocytes, leucocytes and plasma cells. Confluence of the spots causes diffuse nephritis. But for the absence of vascular alterations this affection might end in the cirrhotic kidney. The affection can persist in the adult bovine, but as a rule involution occurs—a phenomenon which may also be possible in man.—*Frankfurter Zeitschrift f. Pathologie*.

Book Reviews.

MEDICAL WAR MANUAL NO. 3. MILITARY OPHTHALMIC SURGERY. By ALLEN GREENWOOD, M.D. Including a Chapter on Trachoma and Other Contagious Conjunctival Diseases by G. E. DE SCHWEINITZ, M.D., and a Chapter on Ocular Malingering by WALTER R. PARKER, M.D. Price, \$1.50. Philadelphia and London: Lea & Febiger, 1917.

THE joint authors of this volume are engaged in active military service and Dr. Greenwood has served at the fighting front in a British command. As a result the book gives the reader the entire benefit of the experience of British military oculists. The volume contains eight plates and sixteen text figures, most of the former illustrating trachoma. To the reviewer, who has had the opportunity of following up the literature of military ophthalmological surgery since the beginning of the war, the subject does not seem to be fully covered, to say nothing of exhausted. For example, there is no allusion to hemeralopia and other forms of trench blindness nor of syphilis as it affects the eye. We doubt the expediency of excluding medical affections in a work of this kind, for there is only one science of ophthalmology.

TECHNIC OF THE IRRIGATION TREATMENT OF WAR WOUNDS BY THE CARREL METHOD. By J. DUMAS and ANNE CARREL. Authorized translation by ADRIAN V. S. LAMBERT, M.D., Acting Professor of Surgery in the College of Physicians and Surgeons (Columbia University), New York. With an Introduction by W. W. KEEN, M.D., LL.D., F.R.C.S.(Hon.). Pages, 90, with 11 plates. Price, \$1.25. New York: Paul B. Hoeber, 1917.

THIS little book by Dumas and Dr. Alexis Carrel's wife was written primarily for the instruction of nurses and assistants, in order that they might have a clear and concise account of the various details of the technique and an accurate description of the apparatus used in carrying it out. The language is simple and direct and shorn of all theoretical considerations. There are six short sections, two appendices and a glossary of terms in French-English and English-French. A transcription of the section and appendix heading will sufficiently indicate the scope of the work. These are: "Materials used in the dressings; Preliminary remarks on the purpose of the microscopical examination of the wound secretions; The dressing; The irrigating apparatus; Setting up of the irrigating apparatus, and The technic of irrigation." The appendices cover the preparation of Dakin's solution (Daufresne's technique) and the microscopical examination of war wounds by the Carrel method (Dr. Vincent). The book gives a very clear idea of the Carrel method and the technique of its use.

A TEXT-BOOK ON GONORRHEA AND ITS COMPLICATIONS. By Dr. GEORGE LUYB. Late Assistant to the Urological Clinique, Hôpital Lariboisière, Paris; Prizeman of the Faculté de Médecine, Paris; Chief Medical Officer of the Urological Center at the Military Hospital, Versailles. Translated and Edited by ARTHUR FOERSTER, Captain R. A. M. C. (T. C.), M. R. C. S., L. R. C. P. (Lond); Late Resident Medical Officer, London Lock Hospital. Second Revised Edition, with 201 illustrations and three colored plates. Price, \$6.00. New York: William Wood and Co., 1917.

THE review of the original book, "Traité de la Blennorrhagie et de ses Complications," published in these columns, March 2, 1912, and the review of the first English Edition, published November 29, 1913, well apply to this second English edition. The translator confesses that he has "introduced but minor changes," which is due to the fact that "no radical advance in the knowledge and treatment of gonorrhea has been made during the last few years." These changes consist of an amplification of the sections on vaccine therapy, the use of colloidal silver preparations, and a short discussion of some procedures of questionable worth, such as galvanism, diathermy, and ionization. The arrangement of chapters has not been changed, neither is there extensive alteration in the text. The figures showing instruments of German manufacture have been omitted or replaced. The three colored plates, each containing

six figures, are very beautiful and true to nature. The first shows various parts of a normal urethra; the two others show pathological urethral lesions. The author must be congratulated on his continued optimism, for nowhere in the text or in the spirit of the book does one acquire a hint or a suspicion of the existence of an incurable urethral or prostatic gonorrhea. Because of its general excellence this edition will enjoy a continued popularity.

BALDNESS. Its Causes, Its Treatment and Its Prevention. By RICHARD W. MÜLLER, M.D. Price, \$2.00. New York: E. P. Dutton & Co., 1917.

THIS little work is written for the general practitioner and layman, and is therefore provided with a glossary of technical terms. It contains 121 illustrations in its 173 pages, and is based entirely upon the teachings of the leading authorities on alopecia, with several of whom the author has had personal correspondence. The list includes the names of Sabourand, Jackson (deceased), Joseph, and Darier. The quality of the book is therefore beyond criticism. The difficult subject of treatment is well handled and the author, from a large personal experience, commends the use of the Nagelschmidt lamp.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By JAMES M. ANDERS, M.D., Ph.D., LL.D., Professor of Medicine, Medico-Chirurgical College Graduate School, University of Pennsylvania; Consulting Physician to the Jewish Hospital and to the Widener Home for Crippled Children; Officier de l'Instruction Publique, etc. Thirteenth Edition, with the Assistance of JOHN H. MUSSEN, Jr., B.S., M.D.; Associate in Medicine, University of Pennsylvania; Assistant Physician and Chief of Dispensary, Presbyterian Hospital. Price, \$7.50. Philadelphia and London: W. B. Saunders Company, 1917.

THERE is not much to be said of a thirteenth edition. When a work has gone through so many editions it may be taken for granted that it has filled a lack and that it has been kept up to date. However, the present edition has been thoroughly revised, some parts rewritten, and a considerable amount of new material added. The additions are treatment of tetanus, acidosis in dialyses chylothorax, etiology of aortic incompetency, treatment of asthma, diverticulitis, functional tests of hepatic insufficiency, Gaucher's disease, estimation of renal function, anaphylaxis of food intoxication, the pneumococci infections, focal sepsis, rat-bite fever, febris Wolhynica, and pyorrhea alveolaris. The section on diseases of the nervous system was practically rewritten by Dr. Charles S. Potts. Dr. John H. Mussen, Jr., had much to do with revising the various sections of the work.

The present edition of Dr. Anders' work well upholds the high reputation gained by former editions.

A COMPLETE SYSTEM OF NURSING. By A. MILLICENT ASHDOWN, Certificated King's College Hospital and Royal London Ophthalmic Hospital, Moorfields; Examiner in Nurses' Practical Work to Guy's Hospital, London, and the West London Hospital; Formerly Lecturer to the Nurses on Bandaging, etc., at King's College Hospital. With Numerous Illustrations and Diagrams. Price, \$5.00 net. London and Toronto: J. M. Dent and Sons, Ltd.; New York: E. P. Dutton and Co., 1917.

MISS HONNOR MORTEN some years ago wrote and published a very excellent work, entitled "A Complete System of Nursing." However, good as this book was, it became somewhat out of date, for nursing, like medicine and surgery, is ever progressing. Miss Ashdown, therefore, while preserving the title of Miss Morten's work, has rewritten it throughout. A large amount of useful information has been added and the value of the book has been enhanced by illustrations. In its present form "A Complete System of Nursing" fully lives up to its title, for it covers the whole range of nursing. The language employed is concise and to the point, all extraneous matter having been strictly excluded. The work can be strongly recommended to the notice of those desiring to learn all that comes within the province of the nurse. It is literally overflowing with valuable information compressed within a limited space.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting Held March 21, 1918.

THE SECOND VICE-PRESIDENT, DR. EDWIN B. CRAGIN,
IN THE CHAIR.

Physical Reconstruction.—Dr. PAUL BUDD MAGNUSON, Major, M.R.C.U.S.A., made this address, in which he stated that there was nothing particularly new in the reconstruction work as planned by the Surgeon General's Office; it was simply the co-ordination of a number of things that we had been doing over a considerable period of time. Many industries had been carrying on this work in a fashion for ten or fifteen years. In order to follow this reconstruction work from the beginning it might be well to follow the course of one of these men from the time he received his injury in the firing line. At the first dressing station a man was turned over to a group of specialists who were specially trained to care for the type of injury from which he was suffering. If, for instance, the man had an orthopedic injury he was cared for by a group of orthopedists. This was done because it was important that the man should be started right from the first. He should have the proper splints put on and have his injury properly immobilized at the first dressing station in order that he might be transported as comfortably as possible and that shock might be avoided as far as possible. In this way he would arrive at the evacuation hospital in better condition than if he had been subjected to much pain and discomfort during transportation. This was the first step in reconstruction. The evacuation hospital was equipped to do the surgery which the front line hospital could not do, and here more permanent dressings were applied. After twenty-four to forty-eight hours the man was taken back to the base hospital, and placed in charge of specialists in that class of injury to which he belonged. To ensure good care for the men very complete records were kept of every patient, and if a military surgeon had too many bad results he was removed from active duty. The men at the base hospitals who were permanently disabled were invalided home as soon as possible, because it was easier and cheaper to care for and feed them here than abroad. If a man was permanently unfitted for front line duty they contemplated putting him back to duty where he could be useful, as in clerical work, or in some special line of work as, for instance, stretching material on airplane wings. By following this procedure 100,000 now engaged in clerical work and in special work might be released for front line duty. Because a man was wounded was no reason to expect that he would immediately be discharged from the Army. For the reconstruction work the men would be sent to hospitals as near their former homes as possible, and it was planned to have these reconstruction hospitals so located that one could be reached from any part of the United States within twenty-four hours. The reconstruction of the disabled man at these hospitals did not mean only bone and joint work, but it meant making over every class of cripple, whether the disability required medical or surgical treatment. It meant fitting the man who had tuberculosis to make his living as well as the man who had had an amputation. These hospitals would be in charge of the best men who could be obtained, and as surgeons of this type were not very plentiful the hospitals would be large and there would be a number of assistant surgeons, and this would also leave more high-grade surgeons to care for the civil population. At these reconstruction hospitals a secondary amputation would often be found necessary, and in doing these the attempt would be made to obtain an end bearing stump. Then three or four weeks after the secondary amputation it was planned to fit the leg with a joint peg leg. Sixty to 70 per cent. of the leg amputations were above the knee. A peg leg suitable for this kind of an amputation had recently been invented by Major David M. Silver of Pittsburgh. It was a much better artificial leg than the Government had hitherto been able to get for \$100, and it cost but \$25. In this one thing alone Dr. Silver had earned his

salary as Major many times over. This joint peg leg was made of fiber and rubber. It was in three parts, a thigh, a lower leg, and a foot. Each part was so made that it could be cut off and shortened to the degree required by the individual case. There was no joint at the ankle, but a dowel on the ankle fitted into a socket in the lower leg. An instep hinge with a plug of rubber made a substitute for the ankle joint. With the leg clothed it would be very difficult for an observer to detect this peg leg on a practised user. Of the soldiers who returned to Canada 80 per cent. were capable of returning to their former occupation, and 20 per cent. required re-education. We had come to think of a hospital as a place where everyone was sick. These men in the reconstruction hospitals were not sick; aside from their crippling disability they were healthy, normal men. The only men who were really sick were the tuberculous, the shell shocked and the insane. Hence, the plan was to give these men work as soon as their disability permitted them to be about. It must be remembered that these soldiers had been looked upon as heroes, and a great deal made of them, and unless they were given something to do as soon as they were able to do it they were likely to become lazy and to wish to continue being simply heroes all the rest of their lives. Instruction could be begun in many instances along certain lines, while the men were still in bed. The patients were started on some form of re-education as soon as the surgeons decided that it was safe. This was directed from the surgical standpoint by the medical officer in consultation with the vocational officer and the disabled men themselves. Various factors must be taken into consideration in determining the disabled man's future occupation, such as the ability of the individual to perform certain kinds of labor from the physical standpoint as well as his mental equipment. In determining upon an occupation the local labor markets must be taken into consideration. The vocational officer must therefore be a diplomat in order to be able to direct the men wisely. Major Magnuson laid special emphasis on the fact that the men were turned out from the reconstruction schools 100 per cent. efficient in whatever line they took up, although they might be physically unfit for other lines. They would not turn out a man who could not compete successfully with other men in the same industry. For the purpose of making this known to manufacturers a campaign of education and publicity should be carried on. A fact worth bringing before the employer was that a man who was disabled was limited to one trade and he must needs stick to it, while the able-bodied man felt that he did not have to keep his job, as he could easily get another, for this reason the crippled man would often be found more efficient than a man not thus handicapped. In order to further a campaign of publicity they were now having moving pictures taken showing how the artificial appliances could be used and how cripples were enabled to do everything that a normal person could do. Instances were cited of what the crippled men who had posed for these pictures had accomplished. Much had been done in the way of reconstruction work abroad but there was no literature describing the details of the methods whereby an individual might become expert in using the various artificial appliances. They were now preparing a book giving pointers as to how to use artificial limbs. The reconstruction hospitals would be fully equipped to do high-class work in every department. They would be prepared to give hydro and electrotherapeutic treatment and massage, and there would be some little gymnasium apparatus, but not a great deal, as the plan was to use the curative workshop rather than the gymnasium in the therapeutic work. For instance, if a man had a stiff ankle, instead of being put on a Zander apparatus he was put to work on the lathe, or the gig saw, or any one of a hundred other things in which he might have an interest. He was then producing something concrete, and at the same time was deriving a therapeutic benefit from it. This was much better for the man mentally and also physically, for a massage treatment lasted but an hour, while with an employment he forgot any slight physical discomfort and did a great deal more than he would have done if he had been taking exercise simply as a therapeutic measure. As had been stated

above, only high-grade medical and surgical men would be put in charge of the reconstruction hospitals, for the country would not excuse any slipshod work. The medical profession would have the opportunity to make or break itself in this war. This reconstruction work that was to be done during the war brought up the question, "What is this going to do for industrial medicine and industrial surgery after the war?" Most of the work in industrial medicine and surgery had been done by young men who did it to get experience, and it had been more or less looked down upon by the profession. One reason for this was that the industries did not appreciate the value of this service, and did not pay enough to get high-class men. This was the time to prove to the industries that high-class medical and surgical care saved money and saved life, and if the medical profession grasped its opportunity the former condition of affairs would be changed after the war. The man engaged in industry was entitled to the best medical and surgical treatment obtainable. The man who was crippled in industry should be sent to an industrial school to be trained. The casualties in industries amounted to 17.2 per cent. of those engaged in industry, while in active warfare the casualties were only 25 per cent. Hence the problem of reconstruction for the cripples in industry was as great as that for the cripples caused by the war. There would be more men crippled in industry this year than the entire number of casualties in the American forces up to next January. We must not go back again to the slipshod and careless methods hitherto used with those injured in industry.

The Technical and Educational Side of Curative Work in Military Hospitals.—MAJOR MICHAEL W. MURRAY presented this paper in which he discussed the problem of re-establishing the soldier's morale and of returning him to civil life with such powers that he might again take his place as an independent wage earner. It was impossible to make a sharp distinction between the medical and the educational phases of the problem. At the beginning the work was wholly medical and surgical; at the end in most instances it had become entirely educational. The educator could perform a double service in the work of reconstruction by (1) assisting the medical officer in providing means of occupational therapy and (2) by readjusting the soldier or sailor to the requirements of civil life so that he might return to wage earning with the brightest possible future. Generally speaking the best therapeutic work would be that which aimed most directly and most visibly at increasing the man's wage-earning capacity, and at giving him a sense of increased power in his social and occupational relationships. While a man was lying in bed wondering what he would do in the future was the best time to make him resolve to do more than he had done in the past. Major Murray mentioned the various classes of men that would be met in the reconstruction hospitals, namely, machinists, carpenters, plumbers, automobile repairers, chauffeurs, metal workers, electricians, illiterate men, unskilled men, men with simply a common school education and no special training, men who had simply been doing odd jobs, etc., and showed what could be done with each class, either to improve the men technically for their own line of work, if they were physically capable of following it, or, if not able to follow their former occupations, to train them for a different line of work. The boy who left school at the age of fourteen, without completing his grammar school education and had worked at odd jobs, constituted a tremendously large class. These boys needed practical vocational guidance by men who knew what they could be taught and were acquainted with the industrial and commercial opportunities which existed, so that they might not be started in a line of work for which they were not fitted and in which there was little opportunity. The man with a common school education who had worked on a farm all his life and who was crippled with rheumatism for instance, so that he could do little actual work, and who wanted to follow no other occupation could be given special training on the scientific side of agriculture, simple practical farm accounts, and business management, and he would thus be fitted to manage a farm, working more with his head than with his hands. The educated man presented no difficult problem. He followed some line of commercial work,

such as accounting, salesmanship, teaching, and the other professions. The uneducated man, unable to use his hands in any skilled labor, presented a much more difficult problem. Major Murray related a number of instances in which men after the loss of one or more limbs had been able to earn more because of special training than they had earned before meeting with their accidents. He told of one man, a type of which we should probably have hundreds, who lost both legs. He had a splendid mind and had been half way through a chemistry course. While he was in the hospital it was suggested to him that he return to college and complete his course. He was delighted with the opportunity and took a new hold on life. There should be no break between the time these fellows were discharged from the hospital and the time they re-entered the schools or colleges which they left. It was to be hoped that such boys in addition to their compensation would be given an order which would amount to free tuition in some suitable school or college. The mental cases from all classes should be gotten out of doors for suitable agricultural and greenhouse work. A certain number of these men could undoubtedly do some of the occupational work such as basketry, willow work, rug braiding, knitting, etc. For this class of work special care should be taken in the selection of the occupation and the tools. For the educational work occupational therapists would be needed who had a wide knowledge of all phases of education, acquaintance with industrial demands and opportunities, familiarity with labor conditions, knowledge of educational means and possibilities, wide experience in educational administration, especially with the newer phases of education, as commercial, agricultural, vocational, and technical, knowledge of psychology, pedagogy and the realization that in a broader sense the work was all a part of the medical problem and that the man was not truly cured until he was back at work. The organization and equipment needed to maintain this problem consisted in personnel, buildings, equipment, including shops, drawing rooms, drafting, commercial facilities, and an equipment of the kind in all these lines that could be taken to the bedside. The speaker dwelt upon the advantages of interesting the men during convalescence in real work and on the necessity for the continuation of training after discharge under the advice of educators in industry or established schools. The reconstruction of the wounded soldier would undoubtedly demonstrate the value of this work in connection with army hospitals. It should show that if soldiers could be educated in hospitals, they could also be educated outside of the hospitals; and whether we had universal military training in the future or not, it should result in a strong educational division in the army.

Dr. W. GILL WYLIE expressed himself as much interested in the subjects presented, since they had a parallel in his experience. The Civil War demonstrated the value of the trained nurse in the Army and opened a field of usefulness for her in civil life. Dr. Wylie described conditions at Bellevue Hospital after the Civil War, related the circumstances under which the first training school for nurses in this country was established in connection with Bellevue Hospital, and told of his part in introducing the innovation. The introduction of the trained nurse into the hospital had improved the whole moral atmosphere, completely changing hospital life. He thought the reconstruction life as described, if carried into civil life, would work as great an improvement to society as the introduction of the trained nurse had done after the Civil War.

Dr. REGINALD H. SAYRE said that if the gentlemen had ever been in the lower part of the Grand Central Station they had seen a practical carrying out of a plan whereby men who had been damaged in railroad service were reinstated and were earning their own living. A large part of the work of the station was being carried on by men more or less damaged by railroad accidents. The corporation for many reasons kept these men out of sight, but they were doing the work of the station as well as anybody else could do it and in a way that was satisfactory to the corporation. The question of workmen's compensation had been touched upon. It was true that many corporations hesitated to give employment to anyone having a disability because they felt that if the employee had a disability at the start and then was in-

jured in their service the financial responsibility of the corporation would be augmented. Dr. Wiley had mentioned conditions after the Civil War, when at every street corner there was a man who had lost an arm or a leg grinding a hand organ. The establishment of the curative workshops would be an excellent thing to prevent the repetition of that tragedy, and of their therapeutic value there could be no doubt. In the treatment of infantile paralysis it had been repeatedly demonstrated that a child made much more progress if he could get the exercise he required by means of some toy or by riding a bicycle than merely by certain prescribed exercises and massage. The same principle was carried out in the treatment of spastic paraplegia, where they had the patient train his muscles by playing jack-straws. Working a lathe or jack plane was very much more interesting to a man than using a Zander apparatus.

Dr. S. ADOLPHUS KNOPF asked if he had understood Major Magnuson to say that they trained mechanics with tuberculosis to do clerical work. He thought that would be unwise, as a mechanic was accustomed to being out of doors and it would be a mistake to put him at an indoor occupation. Dr. Knopf asked what was being done for the tuberculosis patients employed in the workshops.

LIEUTENANT RUSSELL of Fort Jefferson thought that most of those who had joined the Army must have had before their minds a picture of the rank and file of the old soldiers of the Civil War. Those who had lost limbs had never been competent since the war and it was very discouraging to our young men to have the prospect of such helplessness before them. The plan that had been presented this evening should be published very widely so that young men thinking of entering the service might know what the Government was planning for them. Young men would be much more willing to join the Army if they knew that the Government would help them to make a livelihood if crippled after they quit the service.

MAJOR MAGNUSON, in reply to Captain Knopf's question, said that when he spoke of tuberculous men in the work shops, he had meant to convey the idea that the man suffering from tuberculosis was to receive the care and training he required to cure and reinstate him just as was the man who had had an amputation. The man suffering from tuberculosis would not be asked to do anything not conducive to his cure. He would not be given any work except under the guidance of the medical and vocational officers. There were certain kinds of outdoor work that would be very valuable to him. He would be treated along the lines now employed in the best tuberculosis sanatoria, and would be allowed to use up no energy until the tuberculous condition was quiescent. It was to be hoped that there would be two outcomes from the adoption of this plan. The one was that there would be no hand organs on the corners, that every cripple would be able to earn a livelihood, and the other was that in the future industrial cripples would have an equal opportunity with those crippled in the war. There was no reason why we should not take care of industrial cripples, for they were making just as much a sacrifice for their country as was the soldier, they were working in the service of humanity and of the Government, producing the things that were essential for the maintenance and comfort of their fellowmen. The slight extra cost of reconstruction for industrial cripples would amount to comparatively very little and when the schools previously described had once been established their operation would result in a very distinct saving, both to the State and to the individuals who would be trained there.

MAJOR MURRAY, in closing, emphasized the importance of having the educational work begin early during the convalescent period. He said he had been surprised at the amount that could be accomplished by a man who was able to sit up in bed. When a man was able to sit up in bed he could begin learning typewriting, drafting, and practically everything but shop work. Men had been able to learn a great deal about the mechanics of articles or apparatus that was not bulky while they were still in bed. By this plan of reconstruction there was no question that many men would be better off than though they had never had an accident that disabled them.

SECTION ON GYNECOLOGY AND OBSTETRICS.

Stated Meeting, Held February 26, 1918.

DR. WILBUR WARD IN THE CHAIR.

Hydatid Mole.—Dr. ALFRED M. HELLMAN reported this case, which occurred in a woman forty-four years of age, the mother of four children, the youngest being ten years of age. He said the history of this patient showed that four months ago menstruation was delayed a little. She then started spotting and thought she was pregnant. After examining the patient he, too, thought she was pregnant and that probably there was a fibroid back of the pregnancy. He advised that pregnancy be interrupted and this was decided upon. In removing the secundines a bunch of hydatids were caught in the forceps. On account of the patient's age and the possibility of the hydatid becoming malignant, a complete hysterectomy was performed. The uterus was found to be a little larger than it should have been.

Dr. M. A. SCHLENKER recalled three similar cases to the one just reported which occurred in the service of Dr. Knight. In the first of these the patient had just passed the menopause, and in this instance the cyst was discharged in its entirety. In the second case the woman went eight weeks past her menstrual period, then discharged part of her mole, and later another mass was discharged. The patient was then curetted, but there was very little mole remaining. The third patient was profoundly anemic and cachectic and, fearing malignancy, a hysterectomy was done. Hysterectomy was rather a radical procedure for this condition. If the uterus were emptied and the patient kept under observation the uterus might undergo involution and no further trouble follow; at the same time it was well known that some of these hydatids did undergo malignant degeneration.

Dr. ARNOLD STURMDORF asked Dr. Hellman whether he did a vaginal or abdominal hysterectomy and what condition of the ovaries was demonstrated. Clinically the cases of hydatid mole might be divided into two classes—namely, those in which the mole was spontaneously expelled *in toto* and those in which it was adherent from invasion of the uterine musculature. There was a certain established relationship between cystic ovaries, hydatid mole, and chorio-epithelioma. The exact nature of this relationship and its transitional stages were not clear, but it occurred with sufficient regularity to justify a hysterectomy in every case in which spontaneous expulsion of the mole had not occurred.

Dr. ARTHUR STEIN said that in a case of hydatid mole he did not think we should wait before resorting to a radical procedure. The right procedure in many cases was to do a total hysterectomy. Anyone who had watched this type of cases and had seen how rapidly they became malignant would agree that a total hysterectomy was a safe procedure. It was remarkable how a very little polyp of a hydatid mole left in the uterus would spread and degenerate into a chorio-epithelioma and reach a stage where it was inoperable; therefore, it was advisable to do a total hysterectomy in time.

Dr. S. WIENER said he wished to recall the other side of the picture. He had seen a large hydatid mole in a woman thirty-four years of age apparently firmly adherent, in which the uterus was thoroughly cleaned out and the woman had no further trouble. He did not think the teaching should be allowed to go out from this section that every case of hydatid mole should be subjected to hysterectomy. Dr. Wiener said he had personal knowledge of several cases in young women with hydatid moles in which the uterus was thoroughly cleaned out and the women had remained perfectly well and afterward had given birth to normal children. While he did not believe that we should perform a hysterectomy in every case of hydatid mole, he did believe that every such case should be kept under observation for months. With this precaution he believed that a fair proportion of hydatid moles could be treated by simple removal of the mole and, furthermore, as far as technic was concerned, one could perform a vaginal hysterectomy if it was advisable to investigate the entire endometrial surface to be sure

that the mole had been thoroughly removed, or that there was not a beginning chorio-epithelioma.

Dr. HELLMAN, in closing, replied that he did an abdominal hysterectomy. He sewed the cervix together and painted the entire vagina with iodine and then did the abdominal hysterectomy because he thought he could do a better and quicker operation in that way. In this case, taking into consideration the age of the patient and the fact that she had lost weight, a hysterectomy seemed the best thing to do. The specimen presented showed that there were a number of cysts on both the ovaries and the tubes.

Hydrosalpinx with Twisted Pedicle Simulating Ectopic Pregnancy.—Dr. ARTHUR STEIN reported this case. He stated that the woman was thirty-nine years of age, had one child and had never been pregnant since that time. The woman gave a history of having had a period September 12, then the middle of October, and again the beginning of November. He saw her for the first time on November 23, after she had been seized with excruciating pain in the lower abdomen and hemorrhage from the vagina. She was at that time in a state of collapse. Her temperature was normal, pulse 84. Examination showed that she had a retroflexed uterus and to the left, occupying the site of the adnexa, was an indefinite mass, about the size of a small cucumber. The diagnosis of ectopic pregnancy was made and the patient transferred to the hospital. Upon opening the abdomen the mass was found which was shown in the specimen. The mass was dark red in color and twisted around the pedicle four times. The right tube was also diseased, being transformed into a hydrosalpinx. A double salpingectomy was done. Examination of the specimen showed it to be a hydrosalpinx which had become twisted and hemorrhagic.

Dr. STEIN exhibited a second specimen, which he said fitted in very well with this one. The patient from whom the specimen was removed was a woman, thirty-three years of age, who was never pregnant. She was seized with acute pain in the lower left abdomen. On examination a large mass was found and a diagnosis was made of tumor on the left side. It was thought to be an ectopic pregnancy. On opening the abdomen a tumor with a twisted pedicle was found and on opening this it was found to be an old pyosalpinx which produced symptoms simulating an ectopic pregnancy. These specimens were presented because they were interesting and not very common. A fact that was also of interest was that nowhere were there any adhesions whatsoever.

Gangrene of the Uterus Due to Twisted Pedicle of Small Submucous Myoma.—Dr. ARTHUR STEIN presented this specimen, which he said was taken from a woman sixty-one years of age. She was examined by the speaker three years ago and was perfectly well. When she was again seen she gave a history of having had a foul pussy discharge for five weeks. On examination the uterus was found to be enlarged to about twice the size of the specimen. A curettage was done. Examination of the scrapings showed deep-seated multiple abscesses in the uterine wall. At the time of the curettage very foul pus was evacuated. After the curettage there was a rise in temperature to 103, 104 and 105 F., and there was a great increase in the amount of the discharge, as one would have expected, the amount being tremendous and the odor intolerable. A total extirpation of the uterus was then done. The uterus was dark, deep black, and soft. The entire uterine wall up to the peritoneum was absolutely black. The diagnosis was clearly gangrene of the entire uterus. It had started from a little myoma and the entire uterus had become infected. The pelvic veins were free. The patient made an absolutely smooth recovery.

Dr. THOMPSON T. SWEENEY said that Dr. Stein in his first case mentioned that there were rather marked pus tubes and no adhesions. This was interesting, as it showed that the infection was being overcome and that there was no exudate. He mentioned this because it was an example of the way in which nature would absorb an exudate and to call attention to the fact that in mild forms of gonorrheal salpingitis it was always wise to give the tubes a chance to recover through natural processes. There were many women who had

had a gonorrheal salpingitis who had overcome the infection and had borne children afterward. It was interesting to see how in these cases nature would absorb the exudate and protect the ovaries and tubes from permanent damage.

Dr. GRAN mentioned that cases of infected tubes were of two distinct classes; in one class adhesions formed and in the other they did not. It was in the cases in which adhesions did not form that the twist occurred. The type of case that Dr. Stein presented was that in which the pus tubes did not cause an exudate and no adhesions formed.

Dr. STEIN, in closing, said he also thought there never were any adhesions. The appearance of the specimen would lead one to believe that there had been no adhesions. The most interesting feature of the case was that, while there was a pus tube on one side, the tube on the opposite side was so hard that it gave one the impression that he was dealing with a myoma. The specimens were shown to demonstrate that it was not always easy even with the specimen before one's eyes to say whether he had hemato-hydrosalpinx or an ectopic pregnancy. In both of these cases they thought they were dealing with an ectopic and found later that they were mistaken.

A Case of Cesarean Section in Twin Pregnancy with Unusual Complications.—Dr. WALT P. CONWAY of Atlantic City presented this communication. He said the patient was forty-one and a half years of age. Her earlier history had no bearing on the case. She was married at the age of forty years and had had no miscarriages or abortions. During the last two months of pregnancy she suffered from considerable pain over the abdomen, constipation, and loss of appetite. For a week prior to her admission to the hospital she was ill with peritonitis. She was admitted to the Atlantic City Hospital on May 30, 1917, with a diagnosis of twin pregnancy at term and peritonitis. She had a slight albuminuria and a two plus Wassermann. After she had had pains for forty-eight hours and was almost exhausted an attempt was made to dilate and deliver with forceps under general anesthesia. The os was so rigid that delivery at this time was abandoned. Though the condition of the patient was not satisfactory, cesarean section was decided upon in the interest of the child, although a dead fetus was expected. On opening the abdomen an enormous uterus was found, very adherent to the parietal peritoneum and with the mesentery adherent to the fundus. After freeing the uterus from its inflammatory adhesions, an incision was made through the fundus and with some difficulty, on account of a caput succedaneum, from the constriction ring of the cervix, a well developed male child weighing 6½ pounds was delivered. The placenta was adherent, thrombosed in many places and apparently diseased. Another baby, which weighed 5½ pounds, was delivered a few seconds later. This placenta was not abnormally adherent or diseased. The first baby was resuscitated with considerable difficulty. The mother's appendix was postcecal, drumstick in shape, and imbedded in an inflammatory mass. In the writer's opinion the peritonitis originated in this appendix. On account of the diseased condition of the uterus a hysterectomy seemed to be indicated, but the patient was in such a dangerous condition that nothing was done except to place double ligatures on each tube in the hope of preventing future pregnancies. The abdomen was closed in tier sutures as quickly as possible. Sixteen ounces of physiological saline solution was given intravenously in each arm during the operation. The patient left the operating room in extreme shock and had a rather serious convalescence. The operative interference seemed to aggravate the peritonitis. The day following the operation the patient's temperature rose to 103 3/5 F. and continued high for ten days. She had frequent chills, excessive sweats, and a heart action that was most unfavorable. A bowel movement was not secured for four days, but peristalsis was finally reestablished, largely, the writer believed, through the effect of small doses of pituitrin administered regularly every two hours. Pus formed and gravitated to the cul-de-sac, where it was easily removed by vaginal puncture and drainage. Following this the patient improved rapidly. She left the hospital in good condition, and with two fairly healthy looking

babies on June 26. The father reported during the holidays that the mother and babies were well and thriving.

Dr. WALTER B. MOUNT called attention to a complication which was possible in a cesarean section done after a woman had been in labor a long time, where the cervix was undilated and the head was wedged in the pelvis. He had had such a case, in which pituitrin was given just as the operation was begun, and before the head was freed from the uterus had contracted so that it became necessary to enlarge the wound. It was well to keep the possibility of such an occurrence in mind in connection with the administration of pituitrin and cesarean section.

Dr. HERMANN GRAD said Dr. Conway was to be congratulated on the outcome of this most desperate case. If he had done a craniotomy the acute appendicitis would not have been discovered and relieved and the lives of the infants would not have been saved.

Spontaneous Evolution of a Transverse Presentation. Dr. WALTER B. MOUNT of Montclair, N. J., reported this case. He stated that the patient was forty-two years of age, colored, and the mother of nine children. She had been married twenty-three years and had had no miscarriages. The first six children were delivered by a midwife. The last pregnancy, five years ago, was not as comfortable as the others. The patient complained of weakness, edema of the feet, and a little vomiting. She was admitted to the hospital on March 22, 1914, in the second stage of labor and it was thought that they were dealing with a breech presentation. During the second stage of labor the bleeding became less, the placenta was not felt, the cord was prolapsed and was not pulsating; it was replaced and remained above the presenting part. The fetal heart could not be made out at any time. As the presenting part appeared it looked like a head without hair. The pains became very severe, and at 9:37 P. M. the child and placenta were delivered at once as a transverse delivery, a so-called spontaneous evolution. The cord was short, being only about 12½ inches in length. As the child was delivered the scapular region presented first.

Forceps Delivery After a Cesarean Section.—Dr. MOUNT reported this case also. He said that the patient, a large woman, thirty-one years of age, with good pelvic measurements, fell into labor at term, on August 23, 1915. At 2 P. M. the cervix was two fingers dilated, the membrane ruptured, and the presentation seemed to be vertex. At 10 P. M. the cervix was over three fingers dilated and the brow was presenting. The fundus was high and very prominent, contracting hard and frequently. The fetal heart was faintly heard. The forehead was felt to the right and in front, the position being right fronto-anterior. It seemed best to do a cesarean section. The child weighed 10 pounds 14 ounces. The patient was discharged on the thirteenth day. Two years later she became pregnant again. In the meantime she had gained in weight and during the last months of this pregnancy her urine had shown she had hypertension a few times; she also had dyspnea and tachycardia. She was delivered on January 27, 1918, at term. The position was L. O. A., and after being in labor for six hours the cervix was fully dilated and the pains had become harder. The membranes were ruptured artificially. Uterine inertia then occurred and forceps were applied. The child, weighing 11½ pounds, was rather easily delivered. There was very slight post-partum hemorrhage. Lacerations were repaired and the mother and child did well.

Dr. SAMUEL J. SCADRON said that spontaneous delivery in an oblique presentation was not a frequent occurrence, especially when the shoulder presented. About a year ago a multipara in her fifth pregnancy came into the hospital and on examination the arm of the fetus was found to be prolapsed. The cervix was soft and dilatable, admitting about three fingers. The patient was apparently not in active labor. She was ordered to bed and about two hours later, when the speaker arrived and was washing preparatory to examining her, she was seized with a strong uterine contraction, and when she was examined the buttocks of the child presented, with the arm remaining prolapsed through the vagina. With the next uterine contraction the patient delivered herself spontaneously of a still

birth which was full term. It seemed to him that in his case the shoulder of the child was driven down into the pelvis and became fixed under the symphysis, while the breech, trunk, and limbs were forced past this part. The case reported seemed to him to be a birth with the body doubled up, for in a case of spontaneous evolution the arm was invariably prolapsed beforehand.

Dr. MOUNT, in closing, said he had looked up the literature on transverse presentations and did not find it very clear in reference to terminology. He did not know that this case should be called one of spontaneous evolution, but that was what De Lee called it and that was why he had taken this terminology. Criticism might be directed against doing a cesarean section in a brow presentation. There were two factors which influenced him to perform a cesarean section. The one was that he had seen two cases of brow presentation delivered by forceps with disastrous results to the baby and injury to the mother in one instance and in the other instance the baby's head was badly treated. The other reason was that the uterus was contracting rather hard and there was danger of hemorrhage or perhaps of rupture of the uterus.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting Wednesday, February 27, 1918.

THE PRESIDENT, DR. FRANK C. HAMMOND, IN THE CHAIR.

X-Ray in Fractures.—Dr. HENRY K. PANCOAST in this demonstration, with lantern demonstration, said that notwithstanding the fact that the diagnosis of fractures was one of the oldest procedures of roentgenology, improvements in technique were still being made. He thought it probable that after the war the fluoroscope would be used to a larger extent in the correction of deformities in fractures. It should not, however, be depended upon for diagnosis. Great care would have to be observed in protection against burns. The diagnosis of fractures of the skull and spine he said had been improved to a very considerable extent in recent years. In the diagnosis of spinal fractures two views of the spine should be made whenever possible. Many crushing injuries of the vertebral bodies would escape notice unless examined laterally, as an anteroposterior view frequently failed to show a fracture.

Treatment of Fractures of the Jaws by Means of Dental Appliances.—Dr. GEORGE M. DORRANCE spoke upon this subject and presented various forms of appliances described.

Correction of Deformity in Fractures.—Dr. T. TURNER THOMAS regarded as of most importance in the correction of fracture deformity the knowledge of the force producing the fracture. The theory of muscle pull, prevailing for many years, seemed to be yielding its place to the theory of the fracturing force as the cause of the deformity. Positive statements against the former or in favor of the latter, however, were yet wanting. The great difficulty he felt was encountered in accounting for the force which nearly always produced the same deformity in each of the common fractures and dislocations. The tendency was to assume that the character of the fracturing force varied widely. Were this true, however, and the deformity due to the fracturing force, the deformity would vary with the force applied. What kind of a force, he questioned, could essentially always produce the same deformity in fracture of the clavicle, dislocation of the shoulder, fracture of the surgical neck of the humerus, supracondylar fracture of the humerus, dislocation of the elbow, and Colles' fracture. The fall upon the hand he believed was the only force which could meet this condition. This was now accepted for practically all Colles' fractures and must eventually be accepted for nearly all the fractures and dislocations of the upper extremity, or the idea that their typical deformities were due to the fracturing force must be abandoned. When the fracturing force was known the deformities would be reduced by dragging the displaced fragment back into its normal place through the same path by which it was driven out, but in the opposite direction, just as

Allis did with dislocations of the hip joint. This principle had been applied by Dr. Thomas with much satisfaction in a group of fractures and dislocations.

Treatment of Fractures by the Orthopedist.—Dr. HARRY HUDSON in a paper on this subject agreed with Dr. Thomas that the mechanical cause of fractures of malposition was the blow and not the muscle pull; the deformity was merely retained by the muscle and not caused by it. He was inclined to divide the life history of a fracture into three periods: (1) The beginning of the condition, extending during the time of the acute symptoms and possibly to the beginning of the formation of callus; (2) the interval from this time to the firm fixation of bone by fibrous or bony ankylosis; (3) the time which he had been pleased to relegate to the orthopedic surgeon, unless further operative treatment was required. It was his opinion that in the first period too early effort was frequently made to reduce the fracture. There was at this time more or less bruising, muscle spasm, nervousness, etc., and naturally there would be failure to obtain the co-operation of the patient. Such difficulties might be avoided; and the dangers of a short wait, he believed, were not so great as often supposed. He was thoroughly convinced of the value of rest for the patient for a short time before undertaking the manipulations of reduction. During the period of waiting the surgeon should acquire a full knowledge of the condition and undertake the reduction with the same confidence in his methods as if he were doing a surgical operation; otherwise, he would not have the confidence of the patient often essential. In the setting of a fracture too often the surgeon had in mind some classical condition and looked for a classical method of reduction. If he would realize that something was to be gained by manipulations, molding, slow, intensive force, he would be more successful than in an effort to follow classical methods. After the setting of the fracture Dr. Hudson used with great satisfaction the plaster-of-Paris splint, easily molded to meet the indication. He believed thoroughly in massage and means designed to preserve the blood supply of the injured limb during healing; feeling that they decrease the long third period sometimes seen in the treatment of fractures.

Fractures in the Newborn.—Dr. EDWARD P. DAVIS said that fractures in the newborn might be divided into complete and partial. It was to the credit of medical science that complete fracture in the newborn is of rare occurrence. Pelvimetry and, in proper cases, cesarean section, had ruled out version in contracted pelvis, responsible for many fractures. Incomplete fractures, therefore, were as a rule those to be dealt with. In the cranium distinction must be recognized between the effects of birth pressure without fracture, and fracture. Depressed fracture of the cranium might be immediately treated by making an incision over the point of depression and raising the bone. This was followed by cessation of symptoms. Other fractures of the cranium included those of the base, produced purposely by craniotomy, and those arising in difficult extraction when the operator had misjudged the proportionate size of the child to the pelvis and attempted to drag too large a child through the pelvis. Fractures of the extremities in the newborn were almost always of the upper extremities. In dealing with fractures in the newborn the forces of development should be considered and the mistake not made of diagnosing fracture where failure in development of the fetal skeleton had before labor predisposed to fracture. Attention was called to the possibility of fracture in the newborn subjecting the attending physician to criticism and possibly to medicolegal action. Unless the fracture had occurred through very marked neglect in the effort to ascertain the size of the maternal pelvis, or failure to diagnose engagement, or other fault in management of the labor, it was to be recognized that in some cases injury to the skeleton was inevitable were delivery to be effected with preservation of the life of the mother and child. At the present time, however, fracture in the newborn had become exceedingly rare.

Dr. RICHARD C. NORRIS referred to Dr. Davis' statement that while fractures in the newborn had been greatly lessened there was still a group to be seen in spite of the obstetrician's skill. In all cases in which

he suspected fracture it was his rule not to depend upon physical examination but to resort to the use of the x-ray. This was especially applicable in suspected fracture of the clavicle. Fracture of the humerus would sometimes occur in extending the arms in the breech case. In cases in which after a difficult labor there was the slightest sign of deformity an x-ray was taken. In the medicolegal aspects it was to be remembered that the most skillful man would sometimes have fractures and that there were changes in the bones in some infants predisposing to fracture. Any physician on the stand as a witness in a damage suit should be most cautious in expression of his opinion that in any particular case the injury was due to lack of knowledge or precaution.

Dr. GEORGE P. MÜLLER, referring to Dr. Dorrance's statement that many fractures of the lower jaw were not reduced, said that he had been able to make such reduction but had difficulty in keeping them reduced. It was, therefore, his custom to send them to Dr. Dorrance who had the apparatus for maintaining reduction. Dr. Müller agreed with Dr. Hudson upon the advantage in not at once reducing fractures. While early reduction had previously been his custom he now thought it better to wait for 24 or even 48 hours, and then with full knowledge of the case proceed with as much care as in the consideration of duodenal ulcer. Emphasis was placed upon the importance of massage and exercise in the after-treatment.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

LOCALISATION ET EXTRACTION DES PROJECTILES. Par L. OMBREDANNE ET R. LEDOUX-LEBARD. 305 pages. Illustrated. Price, 4 fr. Published by Masson et Cie., Paris.

EVOLUTION DE LA PLAIE DE GUERRE. Par A. POLICARD. 189 pages. Illustrated. Price, 4 fr. Published by Masson et Cie., Paris.

STUDIES IN THE ANATOMY AND SURGERY OF THE NOSE AND EAR. By ADAM E. SMITH, M.D. 157 pages. Illustrated. Price, \$4.00. Published by Paul B. Hoeber, New York.

OPERATIVE SURGERY. By WILLIAM IRELAND DE C. WHEELER. 364 pages. Illustrated. Price, \$3.50. Published by William Wood & Company, New York.

MINOR MALADIES. By Dr. LEONARD WILLIAMS. 402 pages. Fourth edition. Price, \$2.75. Published by William Wood & Company, New York.

THE MEDICAL CLINICS OF NORTH AMERICA, January, 1918, issue. Published bi-monthly. 1214 pages. Illustrated. Price, \$10.00 per year. Published by W. B. Saunders Company, Philadelphia and London.

PROGRESSIVE MEDICINE, March 1, 1918, issue. Edited by HOBART AMORY HARE, M. D. Assisted by LEIGHTON F. APPLEMAN, M. D. 307 pages. Illustrated. Price, \$6.00 per annum. Published by Lea & Febiger, Philadelphia and New York.

THE PHYSICAL CHEMISTRY OF THE PROTEINS. By T. BRAILSFORD ROBERTSON, Ph.D., D.Sc. 483 pages. Illustrated. Price, \$5.00. Published by Longmans, Green & Company, New York.

THE SURGICAL CLINICS OF CHICAGO, February, 1918, Volume II., No. 1. 226 pages. Illustrated. Price, \$10.00 a year. Published bi-monthly by W. B. Saunders Company, Philadelphia and London.

MILITARY SURGERY. By DUNLAP PEARCE PENHALLOW, S.B., M.D. 555 pages. Illustrated. Published by Oxford University Press, American Branch, New York.

THE SISTER OF A CERTAIN SOLDIER. By STEPHEN J. MAHER. 48 pages. Price, 25 cents. Published by Tuttle, Moreham & Taylor Company, New Haven, Conn.

MODERN UROLOGY. By HUGH CABOT, M.D., F.A.C.S. In two volumes. Vol. I, 743 pages; Vol. II, 708 pages. Illustrated. Price, \$14.00. Published by Lea & Febiger, Philadelphia and New York.

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Original Articles.

TEN CASES OF THYROID DISEASE.

By S. P. BEEBE, Ph.D., M.D.,
NEW YORK.

It happens not infrequently that general principles of therapeutics are best presented by illustrative cases. The young medical practitioner, as a matter of fact, soon learns that he is obliged to treat a patient, and not infrequently the patient's relatives and friends, rather than a classic well-defined disorder in a mechanism of uniform construction and invariable uniform response. By experience he learns the numerous exceptions to the rule and appreciates the marvelous complexities of the mechanism which he tries to modify by the various agencies that form the weapons of present day therapeutics. Actual cases, therefore, not only permit generalization, but they serve to show the limitations and exceptions to sweeping conclusions. It is the purpose of the writer in presenting the ten cases of thyroid disease to illustrate some of the conditions that demand relief, and to describe in some detail the methods that have been followed in their treatment. In the writer's experience no one method is suitable for all cases and the good effects as well as the limitations of methods now in common use will best be presented with actual cases to serve as a text.

CASE I.—A young school girl, aged thirteen years, sought treatment because of a beginning enlargement in the neck. Had always been in good health except for the children's diseases, measles and chicken pox, which she had had in mild form at ten years of age, and an attack of acute tonsillitis lasting ten days, six months previous to coming under observation. The recovery from the acute infection had been slow, she had passed a period of six weeks in the Berkshire Hill region during the convalescent period, but during the last three months had been in apparent good health. Patient was above normal weight for her age, had ruddy cheeks, was well developed, and menstruation had begun at the twelfth year. Appetite excellent, sleep good, bowels somewhat constipated requiring an occasional cathartic, no headaches, rather quick and jerky in her movements, tires easily on physical exertion. Thyroid gland well developed, first enlargement noted during convalescence from tonsillitis and had been progressively increasing until at present both lobes and isthmus involved and five to six times the normal size. The tonsils were found markedly enlarged with deep crypts and they, as well as the mucous membrane of the pharynx congested and inflamed. Heart overacting with characteristic thyroid thump, no murmurs, pulse rate 95 after five minutes' rest. No exophthalmos. Well developed tremor. Skin sensitive, marked dermatographia. Tongue covered with white fur with bright red edges. Patient expresses herself as feeling fine. Patient had had no joint trouble at the time of the acute tonsil infection and the heart showed no valvular lesions.

This patient was selected as No. 1 of this list because her condition is fairly typical of a large number of cases that develop at about this age, and in a large percentage of cases have the history of an acute nose and throat infection preceding the development of the gland. The writer has discussed the relation of nose and throat infections to the development of goiter in a previous publication, but approximately 40 per cent. of the cases that have come under his observation have shown such coincidence.

The parents of this patient were above the usual intelligence and were not satisfied with the judgment pronounced by a previous consultant that the enlargement was of no significance and would disappear as the child grew older. This pernicious advice is still too commonly given and, in the writer's judgment, was equalled by the subsequent advice from another source that operative removal of the gland offered the only hope of relief. At this age and in this type of gland both lines of advice are not a credit to the medical profession. The treatment applied to this patient is not difficult to administer and has proven effective in such a large number of this type of patient that it is believed a legitimate confidence may be had in it.

Treatment was as follows: First in regard to diet. Tea, coffee, and all stimulants are denied. No meat or flesh foods of any type were permitted. No meat soups or soups made from a meat stock are allowed. The bowel conditions must receive careful consideration. It is usual to find a condition of constipation. Most patients feel that if the bowels move as often as once in two days sufficient action is present. This patient was permitted to continue in school work, but was protected from all unnecessary physical exertion. All physical training in school was stopped. Long hours in bed were required. Few visitors, little excitement, no picture shows, entertainments, etc., were permitted for four months.

The medicines prescribed to this patient were as follows:

1. The official mixture of rhubarb and soda in $\bar{5}$ ii doses diluted with water after each meal.
2. Syrup of ferrous iodide in fifteen drop doses after meals.
3. The nose and throat were sprayed several times daily with the following solution: Menthol, gr. XXX; Eucalyptol, $\bar{5}$ i; Petrolatum q.s. ad $\bar{5}$ ii.
4. A cold compress applied to the neck each night for the first month.
5. The patient had a warm spray bath each morning ending with a cold shower.

The above outlined program was continued without change or modification for a period of three months. The patient had improved in every respect. The gland was about one-half the size it was at the beginning of treatment, and the heart quieter. The tremor observed at the beginning of treatment was barely noticeable. There had been no change in weight.

At this time the only change in the medicine admin-

istered was to discontinue the ferrous iodide and to substitute potassium iodide in one grain doses after each meal. Six treatments at weekly intervals with the x-ray were now added to the therapeutic measures. Two months later the tonsils were enucleated.

At the end of six months the patient was found to have no perceptible thyroid enlargement but the isthmus was still felt as a band crossing the trachea at the fourth cartilage a little broader and thicker than usual. The patient was permitted to resume normal activity gradually but no change in diet was permitted except to eat chicken twice each week. Iodin was given in the form of potassium iodide, one grain doses after meals for periods of two weeks during each month. The bowel conditions were controlled with a diet of fruit and vegetables and by appropriate exercise. At the present time, three years after beginning of the disease, the patient is in excellent health with no physical evidence of thyroid disease. This patient showed a type of thyroid enlargement that is common in this section of the country. The vast majority of these cases can be controlled by the simple medical measures enumerated and no more need to have a portion of the gland removed by surgical operation than do they need to have a breast removed because some of the gland lobules show swelling and tenderness during the menstrual period.

CASE II.—Patient was a young woman of 17 years, with a history of palpitation for the last three months with the recent development of a tremor, loss of weight, and lack of sleep. She had had no previous illness or infection to which the development of the condition could be attributed. She was five feet, three inches in height, weight 104 pounds, had a slight exophthalmos, a well developed, characteristic tremor; the heart was dilated with a well marked functional systolic murmur heard over the apex and base, the skin was very sensitive and she perspired freely; appetite excellent, always hungry, requiring twice the food of her older sister. The bowels acted freely two to three times daily and the abdomen was not sensitive but showed in the abdominal aorta and its larger branches the water hammer thump so frequently found in hyperthyroidism. The menstrual periods were regular but scanty. The thyroid was uniformly enlarged, both lobes and isthmus involved, with a marked thrill. She became breathless on slight exertion. Patient had been in bed for three weeks to prepare for operation previous to her first visit.

This patient presented a well marked characteristic condition of hyperthyroidism which had followed although perhaps not related to a severe fright she had experienced five months before.

Treatment.—Diet, the same as noted for first patient, a rigid meat-free diet, which means exclusion of all types of flesh food, fish, fowl, or beast, and of soups prepared from them. No tea, coffee, or stimulants of any sort. Cereals, eggs, milk, fruit, and cooked vegetables in abundance are permitted. Food up to the demands of the unusual appetite was not only permitted but urged.

All unnecessary activities were stopped. Patient must lie down one hour each forenoon and two hours each afternoon, with ice bag applied to neck. In bed at nine o'clock each night, arising not earlier than eight in the morning. Excitement, visitors, and unnecessary physical exertion prohibited.

Patient came to office every second day for an injection of antithyroid serum. Injections were begun with two minims, and gradually increasing to ten minims. No further medication was given during the first six weeks. The heart action became much quieter, the headaches were entirely relieved, the patient slept soundly every night, and the gland diminished rapidly in size. After six weeks of serum treatment, injections were made at longer intervals and were continued altogether for a period of four months, during which time the patient had 34 injections.

Two months after the beginning of treatment the patient was given one three-grain capsule of the neutral hydrobromide of quinine twice daily.

Three months after the first visit patient resumed normal activity and returned to work. At that time she had gained weight from 104 to 118 pounds. One year after her first visit she weighed 132 pounds, was

in excellent health, with no evidence whatsoever of her former disease. Blood pressure was at that time 118, heart normal in every respect, and no enlargement of the thyroid could be seen or palpated. The type of patient described is frequently subjected to operation. In the writer's opinion, such a method of treatment is unnecessary for the majority, although as a rule they withstand the operation, but they are readily controlled by medical means.

CASE III.—A young woman, college student, 22 years of age, who was referred by her family physician because she was believed to have goiter, which might be responsible for fainting spells noted on several occasions during the last two months. Her family history was interesting, as her mother had had a so-called simple goiter for many years. In the family were three other daughters, all of whom had goiter.

The patient had no exophthalmos; she had suffered during the last three months with severe headaches. Her bowels were constipated, and she frequently was nauseated. Her heart was irregular and markedly over-active, with a rough systolic murmur at the apex and with a rate of 120 after rest. She had had repeated attacks of tonsillitis during the last two years. At the time of her examination she had inflamed tonsils, with a congested pharynx, and the cervical glands draining the tonsils were enlarged and tender. She had lost weight, eight pounds, during the last two months. Her menstrual periods had been interrupted during that time also. A marked brownish pigmentation was well shown over the neck and cheeks and about the borders of the hair. She was physically weak, with a well-marked tremor, but had continued her college and social activities until two days previous to her first examination. The thyroid gland was four or five times its normal size, constituting a large goiter, but the isthmus was not much enlarged. The gland was smooth, fairly firm, somewhat tender, but without thrill or bruit. The right lobe was one-third larger than the left. She had a well-marked area of dullness over the thymus region. She had consulted a physician because on four occasions within the last month she had fainted during excitement, the last occasion taking place on a public street near her home, to which she was removed by a policeman who had observed the occurrence. An x-ray picture of her chest revealed the presence of an enlarged thymus gland.

Treatment.—Patient was kept continuously in bed for four weeks, and was allowed to have visitors only twice each week. The meat-free diet previously described was followed. For her bowel conditions the following mixture was given in teaspoonful doses after meals.

R Rhei pulvis	5ii
Sod. bicarb.	5iv
Fl. ext. cascara sagrada (aromat.)..	5iii
Aq. menth. pip.	q.s. ad 5vi

Her throat was sprayed several times daily with the prescription previously given. After one week's rest in bed the serum injections were begun with a dose of two minims. The injections were given at two-day intervals and the dose gradually increased to 12 minims. In one month she had very markedly improved. Her gland was about one-half the size it had been previously and she was without headaches or inflamed throat and tonsils. The pulse rate was 80 and regular when quiet, but her heart was still sensitive to exercise or excitement. She was allowed to go about some, but not to engage in social activity. The diet and medical measures were continued for two months longer. During the second month it had been observed that her muscular strength did not improve as desired and her tremor was still pronounced. At the beginning of the third month she was accordingly given one grain of potassium iodide three times daily. In a very few days the tremor was almost completely abolished and her strength improved rapidly. The writer has observed small doses of iodine to be of the greatest service in the conditions mentioned.

At the end of the third month of treatment her thyroid gland was about one-third its original size; in fact, it scarcely annoyed the patient by its size. The heart was slow and regular and she was able to stand ordinary activity without undue fatigue. She had gained

15 pounds in weight. Without my approval she now decided to drop treatment and go to the country for the summer.

The patient was not seen again for four and one-half months, during which time she had had no treatment and had lived an active social life in a popular summer colony. She cut the period short of the full term because of renewed trouble with her heart and a beginning exophthalmos of the right eye. Her gland and heart were now nearly as prominent features as before, and tremor was again present and headaches were beginning. Treatment was resumed as before, except that the patient was not put to bed. Diet, rest, bowel treatment, iodine, and serum treatment were begun. Three weeks later her tonsils were enucleated. In six weeks from the resumption of treatment she was given eight x-ray treatments at weekly intervals over the thyroid and thymus region. Following this period all treatment except diet and serum injections was discontinued. Potassium iodide was continued at intervals in the small doses described. The second period of treatment lasted six months. Altogether she had 58 serum injections. Four months after all treatment was stopped she was in excellent physical condition, having gained 30 pounds since the first examination. She had no tremor, no visible or palpable thyroid, her heart was normal, skin clear and pink, no menstrual disturbance, and no gastrointestinal difficulty. One year later she married and has now had two children. There has been no return of her former condition and no evidence of any abnormal function of her thyroid gland. During her pregnancy she continued to take one grain of potassium iodide twice daily every other day.

Some years ago the writer had occasion to advise a mother who on her first pregnancy had given birth at term to a fetus that had a malformation of the thyroid apparatus and did not live. The second pregnancy produced a hypothyroid child, almost a cretin. During the third and fourth pregnancies small doses of iodine were given and she gave birth to healthy children.

CASE IV.—A young woman, school teacher, 26 years old, with a history of goiter since her sixteenth year. She had been in good health until two years previous to her first visit. She then suffered a so-called nervous breakdown which caused her to take a rest of several months. Nervous breakdown is a term that is too frequently used to cloak a real hyperthyroidism that has escaped diagnosis. Since the period of her previous illness the patient had never been well, she fluctuated in weight, noted that her gland had increased a great deal in size, that her eyes were becoming prominent and that her loss of weight during the previous four months had been a rapid one. She was still at work, but found it very difficult to continue her activities.

Examination showed patient to be very thin; she had lost forty pounds in weight during the last six months (weight, 106 pounds); was very nervous, with a violent tremor of the whole body. She had a very pronounced exophthalmos, and the conjunctiva was inflamed. She was perspiring freely and the skin reacted markedly to the least irritation. On the sides of the neck and over the upper portion of the chest the skin showed a dark dirty brown pigmentation. She had a large nodular hard goiter involving all portions of the gland, the right lobe being much the larger. The gland showed a distinct expansile pulsation, thrill and bruit. Her heart was dilated, rapid, 130 to 150; irregular loud systolic blow at the apex and base and in the large vessels. The abdominal aorta beat violently with the characteristic water-hammer pulse. Blood pressure of 145 mm. On small exertion or excitement the heart became more irregular, increased its rate, and was very annoying to the patient.

Subjectively she had frequent headaches, occasional nausea and vomiting. She did not sleep well, was constantly annoyed by most exciting dreams. Her menstrual periods had not appeared during the last six months. She was very much depressed mentally.

From her history it became evident that her thyroid gland had been over-active for several years. She had

a severe, typical case of exophthalmic goiter, and if she had had the good fortune to have had an accurate diagnosis and appropriate treatment several years previously, the present unfortunate severe condition would have been entirely prevented. A large percentage of the so-called simple goiters in young women in this section of the country have in them all the potentialities of the case in point.

Treatment.—Complete rest for first three months. After that patient was allowed a mild degree of activity. Meat- and stimulant-free diet rigidly enforced continuously. Serum injections were begun and continued in the manner previously described, the injections being made every second day. Two months after beginning serum injections the syrup of ferrous iodide in ten-drop doses after meals was begun. This program was continued for a period of six months. The patient improved a great deal; the pulse rate fell to below 100; she had no headache, but was occasionally sleepless; she gained in strength, but did not stand exertion well. Her gland had reduced in size so much that her neck was two inches less in circumference. She had gained 24 pounds in weight. She wished to return to work at once, as her financial condition did not permit her to continue under the regime advised. She still had a large right lobe and was not in condition to return to the fatigue and excitement of school teaching. She agreed to operation. She entered the hospital with the understanding that she was to have a period of special treatment, and that if it should be found advisable the operation was to be performed. While continuing the serum injections she was given a hypodermic of salt solution each morning at 8:00 A.M. and one-half hour later some oxygen inhalations. Her entrance to the hospital was the cause of added excitement to her at first, but after two weeks she had become acquainted and accustomed to the routine.

On the morning determined for operation she was given $\frac{1}{4}$ grain of morphine and $\frac{1}{150}$ of atropine instead of the regular salt solution. One-half hour later she took the gas anesthesia quietly and without added excitement. The subsequent excision of the right lobe and isthmus was readily accomplished. Her convalescence was a slow one. She remained in the hospital four weeks after operation. The heart became gradually stronger. She gained in weight and progressed favorably in all respects. The operation was made in September, and in January she resumed teaching. She was in fair condition, but not well, and was cautioned to continue the diet, serum, and as much rest as possible. However, she became careless about these matters and in March showed a well-marked exacerbation of the disease, with the left lobe increased in size. The rigid program instituted at the beginning was again advised and to this she agreed, except that she was allowed to teach two hours daily. Improvement was rapid; the injections of serum were made at longer intervals; one grain of potassium iodide and five grains of the neutral hydrobromide of quinine were given twice daily for a period of five months. Her whole treatment lasted a year and a half, and it was continued for one year after operation. She had altogether 140 serum injections. She gained in weight 46 pounds and was in excellent good health. She was seen recently, six years after treatment began, and has no evidence of thyroid disease that can be discovered. She weighs 53 pounds more than when first seen; has all the appearance and earmarks of abundant good health.

I believe the long period of treatment after operation was essential to her recovery, and feel confident that her treatment previous to operation made this a feasible and safe procedure.

CASE V.—In the case of this patient is presented a somewhat sharp contrast to the one just preceding and one which shows how operation should not be done. The patient was a young woman, 22 years of age, with a history of goiter for six months. She had a typical picture of mild hyperthyroidism without exophthalmos. She was a stenographer, and in spite of loss in weight of 12 pounds during the last two months and increasing nervousness had kept at work. Her gland was increased to twice its normal size, both lobes and the isthmus being involved. She had a well-marked tremor,

pulse rate of 110 to 120, had a slight pigmentation of the skin, and was blessed with a good appetite and no digestive disturbance. She had a history of repeated attacks of sore throat the preceding winter. She was advised to put herself under a regime of rest and serum treatment, to which she could agree only in part, stating that she would not give up her daily work as a stenographer. After three weeks' treatment she announced that she was anxious and determined to have an operation, as she could not interfere with her work to come for serum treatment, and furthermore expected to be married and wished to be rid of the bunch in her neck as quickly as possible. She had consulted a surgeon and seemed to be a safe operative risk. Permission for operation was given. She entered one of the large hospitals the night before operation. No special attention or care was given to her, and in the hospital in question operation is a business-like proceeding with no attempt at camouflage. She spent a sleepless night and became more nervous and agitated as the hour for operation approached. She was taken to the operating room and given a straight gas-ether anesthesia by one of the internes. The surgeon was somewhat delayed in his preparations so that the patient was under the anesthetic 20 minutes before operation was begun. The patient's pulse at this time had a rate of 160. The operation did not proceed smoothly or rapidly. On one occasion a clamp slipped and a small hemorrhage ensued. Finally the right lobe and isthmus were removed, the wound closed, and the patient taken down stairs, where she died twenty minutes later.

This case is cited to show how operations of this character should not be done, and to emphasize the necessity of having all the details of the technique under control from the time the patient enters the hospital until discharged. The hyperthyroid case is exceedingly sensitive and even a mild case cannot be roughly handled with impunity.

CASE VI.—Patient was a woman, 47 years of age, who had undoubtedly had goiter for many years. Her own knowledge of the condition dated back two years. At that time she had consulted a physician for nervousness. No diagnosis had been made, but she had been given a simple tonic. Eight months previously she had consulted a specialist, who diagnosed the condition and advised x-ray and rest. She had four treatments, but because they excited her so much she had stopped them and had gone to her country home for a complete rest. After four months' quiet she had not improved and decided on further consultation. She was found to have a fairly typical case of severe, long-standing Graves' disease. She had lost weight during the last five years and had a history of always being nervous, but of being animated and constantly active. She now presented a marked exophthalmos, a small, very hard goiter involving both lobes and isthmus, a dilated, irregular, rapid, painful heart, rate of which varied from 120 to 160, a blood pressure of 155, a congested, irritated throat, great muscular weakness, with well developed tremor, frequent severe headaches, a poor appetite and constipation, very troublesome insomnia, with such periods of sleep as she did have disturbed by most vivid harrowing dreams, often causing her to cry out and to toss restlessly from side to side. She was, at times, almost maniacal and occasionally had delusions of time and place. A further disturbing factor was her menstrual periods, which occurred irregularly and were characterized by great mental depression, scanty flow, increase of insomnia, and complete loss of appetite. She had a slight temperature of 99° to 99.5° not infrequently. She had led an active social life until the last few months, and had undoubtedly needed treatment years before.

Treatment.—Absolute quiet and complete rest, meat- and stimulant-free diet; bromide and occasionally veronal were given to induce sleep. Serum injections were begun. Ice-bag to heart and over gland. Hydrotherapy in the form of a warm bath was sometimes effective in inducing sleep. Enemas and a mixture of rhubarb and soda kept the bowels active. The improvement was slow and gradual, but the heart quieted to a

rate of 85 to 95; was no longer annoying to the patient; the exophthalmos was much less noticeable; the insomnia was still troublesome at times, and four months from the beginning of treatment the conditions were progressing satisfactorily, with the exception of occasional attacks of paroxysmal tachycardia that appeared without warning and would last for periods varying from one hour to seven or eight hours. The most effective measure in controlling these attacks was an intravenous injection of morphine, $\frac{1}{4}$ grain, and digalen, 15 minims. They caused most acute distress until controlled. There had been only one menstrual period during this time, which had not greatly annoyed the patient. Shortly after the fifth month had passed and at a time when conditions were particularly favorable the patient suddenly, during a period of 48 hours, developed an acute excitation, was entirely sleepless for two days, exhibited delusions of time and place, could no longer recognize her attendants, and in spite of hypnotics was at times so violent as to require restraint. There appeared a slight menstrual flow on the third day, but the excitable delusional condition lasted for three days longer. A serum injection was due on the third day of the menstrual flow and was given. It was followed by a period of quiet sleep lasting nearly 24 hours, from which the patient awoke with her mind clear but with a complete memory blank of the events during the preceding week. She was very much weakened by this experience, but her pulse rate, gland, exophthalmos, and tremor had not been noticeably disturbed except during its continuance. The patient was removed to a nearby coast resort and the previous treatment continued. Here she gained rapidly and all phases of her condition were satisfactory. The attacks of tachycardia no longer appeared; sleep, appetite, and gain in weight were indicative of steady, favorable progress. It was decided that she should return home, but she wished to remain in New York City for two weeks. Ten weeks had now passed since the previous menstrual period. Now again there was a stormy onset lasting about 36 hours, followed by the appearance of a menstrual flow which on this occasion was profuse, in contrast to the former ones, which had been scanty. All the acute mental manifestations accompanied this period. Because of her previous good progress the serum injections were less frequent at this time, but the storm was ended by a long period of sleep; 36 hours of 48 were passed in quiet, restful sleep, without hypnotics. When she awoke she had no memory of preceding events and only when several days had passed was she clearly oriented. Two neurologists and three gynecologists were called in consultation at this time, but could offer no helpful suggestions. During the next three months this patient improved rapidly. She had one menstrual period during this time which caused no disturbance. Her gland became almost normal in size; she was given small doses of potassium iodide; her tremor was scarcely noticeable; she was beginning again to take up the thread of her normal activities. Her pulse rate when quiet was 75, but on excitement would reach 90. She slept well and was making excellent progress. It was now ten months since her treatment was first begun. She had had 88 serum injections, had gained 25 pounds in weight, and was entirely free of the distressing symptoms of the disease.

Now again a period of one week of most acute melancholia and insomnia ushered in a menstrual period which in character was like those already described. During this period she had on one occasion become uncovered and exposed to a chill wind for two hours. She developed a mild acute tonsillitis, which was controlled fairly promptly. Two days after this had subsided she developed a temperature of 101°; the cervical lymph glands were swollen, the tonsils were swollen but not painful. Throat cultures were negative for Klebs-Loeffler; blood counts showed a mild hyperlymphocytosis; blood cultures, at first negative, three days later showed a positive culture of *Streptococcus viridans*. The heart valves became involved shortly afterward; the temperature continued to run between 99° and 101°. In ten days from the time the infection was first manifested the patient died.

This patient showed a combination of conditions quite out of the ordinary. In five fatal cases oc-

curing during the last eight years the writer has had the same type of blood infection, and in each case the patient has not survived longer than two weeks after its first appearance. This is a much sharper and shorter infection than is usually noted with this organism and may denote a special susceptibility in these cases.

Since this first case of extremely toxic menstrual period complicating Graves' disease, the writer has seen three others of equal severity. They were all in women over forty years of age. In the second the ovaries were removed by vaginal section. The case continued to make a complete recovery and is now well. In the two others the condition was controlled by active treatment of the lower pelvis with x-ray. While somewhat slower in operation this procedure has been found equally effective. In the operated case the ovaries were found to have many small cysts.

The menstrual function is often disturbed in hyperthyroidism, in most cases the gland becomes more swollen, all the symptoms of the disease are more pronounced during this time, but such extremely toxic periods are quite uncommon. It is, of course, not unusual to find a complete cessation of the periods during the more active stages of the disease.

CASE VI.—A young woman, 24 years of age; first seen eighteen months after a second operation for hyperthyroidism. She had had goiter since her sixteenth year, but had not been troubled much with it until two years ago. At that time she had consulted a surgeon, who advised operation. This was done in two stages. The right superior thyroid vessels were ligated under local anesthesia. Four months later, after complete rest during that period, the major portion of the right lobe and isthmus were removed under a general anesthetic. The patient had felt better after the second operation and gained in weight. She had noted, however, that during the last few months the left lobe of the gland was rapidly growing in size. All of the old symptoms had returned in greater intensity than ever before, so that she now expressed herself as being worse off than before the operation.

She had all the typical manifestations of a text-book case of exophthalmic goiter. The heart tremor and exophthalmos symptoms formed an excellent demonstration. The scars of the former operation were very pronounced and not a particularly good recommendation of the artistic skill of the operator. Both lobes of the gland were much enlarged, though the shape of the right lobe was much distorted.

Heart dilated; irregular loud systolic blow at apex and base and over the large vessels. Blood pressure 140. Violent forcible abdominal pulsation. Heart rate 120. Skin markedly pigmented on sides of neck, cheeks, and over upper part of chest. Patient perspired very freely and skin was very sensitive to irritation. The gland showed expansile pulsation and a very unusual thrill and bruit on the operated side. There was great muscular weakness, characteristic tremor, and pronounced physical unrest. The lids could scarcely cover the eyes because of the exophthalmos.

The throat was congested, the voice weak and husky. The tongue was not coated and the patient had a most voracious appetite, good digestion, and satisfactory bowel conditions. She had no trouble with sleep and did not usually dream. The physical signs of the disease could not have been better shown, but the mental and emotional disturbance was comparatively mild.

Treatment.—This patient was not able to stop work, but did not have an exacting occupation. Her condition of recurrence was typical of that seen many times by the writer. The meat- and stimulant-free diet previously described was required, together with as much rest as her occupation would permit. For four months she had no further medication than thyroid antiserum. She was then given in addition one grain of potassium

iodide three times daily, which was continued for six months. The serum injections were continued for one year and one month, during the latter part of the time at gradually increasing intervals. She had altogether 127 serum injections, and now, two years since treatment was discontinued, is and has been perfectly well and free of all manifestations of thyroid disease except the scars in her neck from the previous operation.

CASE VIII.—A man, 32 years of age, had not noted goiter or exophthalmos until six months ago. He had then sought medical advice, with the result that x-ray treatment was advised. During the succeeding ten weeks the patient had a treatment each week. It was not possible to learn the type of machine or tube used for this purpose, but the exposed area on the neck and chest still retained a brownish pigmentation and was dry, scaly, and without hair, showing that the exposures had been intense enough to cause a mild superficial burn. Patient did not improve and had ceased all treatment during the last six months.

Patient had a very pronounced exophthalmos and a mild conjunctivitis. His tremor was so severe that he could hardly stand. It was quite impossible for him to write or to use his hands except for the coarsest movements. The knee-jerks were much exaggerated. His thyroid was low down in the neck, firm, about twice the normal size, the enlargement involving both lobes and isthmus. He had constant choking sensations and the gland was tender. His throat was red and dry, but the tonsils were not enlarged. He had a constant cough and his voice was hoarse and weak. He had a good appetite, but was very much troubled with constipation. His tongue was heavily coated and breath foul. He complained bitterly of gas in the stomach, with occasional nausea and vomiting. He did not sleep well, three to four hours' broken sleep each night. The heart was overactive, with a rough systolic murmur, and was pounding the chest with a heaving impulse that shook the examining table. The abdominal pulsation was especially well pronounced. The patient complained of pain in the heart. Blood pressure 130 rate 110 after ten minutes' rest. The skin was sensitive to slight irritation, and the skin of the face, neck, upper chest, hands, and wrists was a bright red, almost erythematous in appearance.

A further interesting feature of this case and one which is important in both etiology and treatment is found in his dietary and personal habits. This man had been drinking six to eight cups of strong coffee every day. He ate practically no fruit and very little vegetables. Meat, meat soups, smoked fish, canned fish, and salt fish, with a little bread and pastry, had been his diet for a long period. In addition he smoked two to three packages of cheap cigarettes each day.

It will be noted that in treating the cases already described, rigid exclusion of the kind of a dietary which this patient had been practising has been one of the fundamentals. It has been observed by many men that dietary conditions have an important bearing in both etiology and treatment. Watson has found that rats fed on a meat diet show thyroid hyperplasia. The relation of toxins from the intestinal tract to the origin and maintenance of hyperthyroidism has been emphasized by many writers. W. H. Thomson was one of the first to see this point, and the experimental work of McCarrison leaves no doubt of its importance. Arbuthnot Lane, Hertoghe, Ebstein, Bate, Hemmeter, have all pointed out the intimate relation between disordered intestinal function and thyroid disease based on clinical observation. It would seem that eventually the truth must penetrate that in dealing with thyroid hyperfunction we must consider the whole status of the individual and not be content with a single line of attack.

The case cited above seems to have been a fine experiment in thyroid stimulation. Because of the general weakness from the disease thyroid patients frequently

overindulge in coffee and complain bitterly when its stimulating effects are denied to them.

Treatment.—The obvious treatment was followed. Tea, coffee, and all stimulants were stopped at once. A rigid meat-free diet, with three oranges daily and a fair quantity of vegetables was prescribed. This was a dietary revolution for the patient in question. Patient reduced the smoking to six cigarettes daily. The mixture of rhubarb, soda, and cascara was prescribed with a daily enema of salt solution to keep the bowels in condition. One grain of potassium iodide was given three times daily. This patient could not get as complete rest as desired, but he spent from 7 P.M. to 5 A.M. in bed each day. All physical exertion requiring effort was stopped.

In two weeks an entirely different picture was presented. The heart was much quieter, the rate being now 80 to 90. The tremor had disappeared almost entirely. The patient slept well. His appetite and bowel conditions were good. The thyroid could scarcely be palpated and was no longer tender. The exophthalmos was much reduced. The patient had no headache.

The treatment as outlined was continued for five months, at which time the patient was well and had no evidence of thyroid disease. He had become accustomed to the new dietary and was now glad to continue it. He was cautioned about his mode of life and came in for examination once in two months. He was last seen one year ago, three years after treatment was begun, and was in excellent health.

Just how the x-ray could be effective in the treatment of this patient when no attention was paid to such obvious etiologic factors as are shown in the history of this case is not apparent. There is danger in dealing with these cases from a one-sided standpoint or a pet theory to the neglect of obvious fundamental conditions of common-sense treatment.

CASE IX.—This case is cited because the patient shows a type of gland which is quite as common as those previously described, and yet the patients do not often seek medical advice until the symptoms produced by the gland are quite pronounced.

Patient was a woman thirty-three years of age; she was in good health, had the usual children's diseases in childhood, and a curettage six years before. No pain or discomfort of any kind. She was at times a bit nervous, and occasionally had a sore throat. Her pulse rate was 90, but her heart was quite regular and in no way annoyed her, and she had none of the characteristic manifestations of hyperthyroidism and was a few pounds above her normal weight. Her thyroid gland was much enlarged, her neck measuring 15½ inches in circumference. All portions of the gland were involved and it would be described as a colloid goiter. She had had the enlargement since childhood, but during the last two years it had increased noticeably in size. Her chief interest in the matter was to be free of the cosmetic disfigurement which it caused. Such glands are nevertheless a menace to the health of the patient and ought not to be slighted.

Treatment. During the first two months the only medication received was 2 grains of potassium iodide after meals. She was placed upon the meat and stimulant free diet. Her neck at the end of this time measured 14¼ inches in circumference. She had continued in good health, but had felt the stimulating effects of the iodine. She had a mild degree of tremor, her heart was more sensitive, and skin reacted to slight irritation. The thyroid function was plainly increased during this period. There was no loss in weight, but she was more than usually sensitive to the hot weather.

During the next three months the iodide was continued in the same dosage and she was given a capsule at night of

Rhei pulvis.....gr. ii
Cascara sagrada.....gr. ii
Fel bovis.....gr. i

Beginning with the third month, she was given a series of six x-ray treatments, one treatment each week. The writer has observed that the x-ray is better borne and has a better effect on the patient if potassium

iodide has been administered previously in the manner described. At the beginning of the sixth month her neck measured 13½ inches in circumference. She was in excellent health and had no indication of hyperthyroidism. The iodine and laxative capsules were continued three months longer, when five more x-ray treatments at weekly intervals were given.

Twelve months after treatment began she had a thyroid gland not noticeable to casual inspection; her neck was 13 inches in circumference and she was in excellent health. It was still possible to palpate the enlargement in both lobes, however, and the iodide, laxative capsules, and diet were continued for four months longer. The medication continued for sixteen months.

Four months later she was carefully examined and had a neck 12¾ inches in circumference, the gland could not be seen, and only on deep palpation could a slightly enlarged left lobe be found. She was in excellent health, with no evidence of abnormal thyroid function.

Iodine, x-ray, diet, and clean bowels will relieve a large percentage of such cases, but no attempt should be made to do it in a few weeks. A gradual change is much safer for the patient. The iodine should be continued in such cases in spite of mild hyperthyroid manifestations.

Simple colloid goiter, of which this case is a type, is not necessarily a surgical condition. No type of thyroid enlargement is normal and it should not be slightly treated. Cases of the sort mentioned very frequently show at a later stage the characteristic manifestations of severe thyroid disease.

CASE X.—Patient was a small woman, aged 39, native of Austria. She first noticed enlargement in her neck in 1901, and although she suffered severely from headaches and tired very easily, especially in the summer months, she did not seek medical advice with respect to it until 1913, when she was given a simple tonic and vegetable cathartic. With the onset of hot weather in 1914, she noted that her neck was more troublesome, and in June she first came under observation. She was a small thin woman, nervous, skin flushed easily, no exophthalmos, heart sensitive, pulse rate 110, heart not dilated, constipated, with heavily coated tongue and foul breath. Throat dry and red, with hacking cough. She had a fine tremor and was muscularly very weak. The thyroid gland was about 2½ times normal size, very hard, and its surface had a shotty nodular feel. The gland was tender to palpation and caused the patient some pain. The stony hardness of the gland attracted attention, especially in the presence of mild atypical symptoms of hyperthyroidism. She was kept under careful observation for three weeks, during which time she received injections of antithyroid serum, and was given the meat- and stimulant-free diet, together with the rhubarb, soda, and cascara mixture previously mentioned. During this month the patient's general condition improved, but the gland increased a little in size and caused her more pain. Furthermore, a supraclavicular lymph node at the inner border of the sternocleidomastoid muscle was found during the last week and this gland increased in size and tenderness during the succeeding ten days. A clinical diagnosis of thyroid carcinoma was made and the patient recommended for immediate operation, to which she agreed. The right lobe, isthmus, involved lymph node, and the major portion of the small uninvolved left lobe were removed. Microscopic examination showed typical carcinoma of the right lobe, and enlarged lymph node. The left lobe was not involved.

Following the operation, patient was given several heavy doses of x-ray from the Coolidge tube, and after two months' interval a second series of x-ray treatments were given. She had the operation in August, 1914, and had been given 18 x-ray treatments by December 20 of that year. Patient made a good recovery from the operation. She gained 33 pounds in weight and except for an occasional headache continued well and was not seen again until November, 1915, a year

and three months after operation. At this time she had a typical condition of mild myxedema, and was given thyroid extract in small doses, which relieved her. The area of operation was in excellent condition and no recurrence or extension of the growth could be found. In March, 1916, the patient stated that during the last three weeks she had had pain in the right side of neck and right shoulder and had occasional attacks of palpitation. In other respects she was well. The deep tissues of the right supraclavicular space were found to be tender to pressure, and the right end of the scar was somewhat adherent to the underlying structures.

At this time the patient was given a further series of eight x-ray treatments over the operated area. She began also a series of injections of plant protein, which the writer has described elsewhere in detail. Her pain was relieved; there was no evidence of progressive involvement at the operation site. It was necessary to continue the administration of small doses of thyroid extract to control the myxedema. She was away from the city during July and August, but reported in early September, 1916, in excellent condition. The protein injections were continued during September. About December 1 the patient developed a bronchial cough and examination of her chest gave evidence of beginning involvement in the lungs. She was not seen again until March, 1917, when she was found to have lost weight, became dyspneic on slight exertion, and had a constant troublesome cough. X-ray examination of the chest revealed numerous metastases scattered through both lungs. There was no evident involvement at this time of the operated area in the neck. The patient grew worse rapidly and died from the pulmonary involvement in April, 1917, nearly three years after the original operation.

Cancer of the thyroid is nearly always superimposed upon a goiter of some years' standing. In other cases that have come under the writer's observation, thyroid enlargement without marked symptoms had been noted for several years before the change to a malignant condition was observed. In most cases thyroid carcinoma grows rapidly when once initiated, so that a period of nearly three years between operation and fatal outcome is quite unusual. The writer has had two other cases with similar treatment and similar result. He has likewise had four cases with early operation for cancer of the thyroid but no after-treatment, and death followed in all of them in less than one year and in each case there were extensive recurrence and infiltration at the site of operation.

Ehrhardt collected 200 reports of true thyroid carcinoma and in 104 the existence of previous goiter was expressly stated, and in only 21 cases was it expressly denied.

Thyroid hyperplasia, giving rise to the symptoms recognized as Graves' disease or exophthalmic goiter, has not, in the writer's observation, given rise to a later malignant growth. While the carcinomatous thyroid undoubtedly has some true thyroid function, as evidenced by the myxedematous symptoms following its removal and by the occasional observation of relief from such a condition when metastases have developed, it does not appear that the excessive activity found in Graves' disease has ever been noted in such glands. Any successful treatment of thyroid carcinoma must be prophylactic rather than curative.

These cases show a variety of types of thyroid disease and illustrate certain methods of treatment that experience has proven to have value. Each case is a problem by itself and requires a careful analysis of all the factors involved to get

the best results. Medical treatment is not a spectacular method, and the long-continued action of mild corrective measures is advisable. The gland is responsive to a variety of disturbing conditions and no method of treatment, medical or surgical, that confines its action to a direct assault on the gland, and does not remove the factors which disturb its normal functioning, can succeed in practice.

417 PARK AVENUE.

ORTHOPEDIC PRINCIPLES IN GENERAL MEDICINE.

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THE general practitioner should be the first to observe the genesis of structural abnormalities which, unless promptly corrected, might become deformities or disablements. He should become expert at corrective manipulations, adjustments; appreciative of slight morphological anomalies; also expert in the use of simple apparatus and supports, and apply them early to incipient or minor orthopedic problems.

These constitute useful agencies for prevention as well as correction. Much should be done that is not yet done by guiding growth-forces when they begin to go wrong; in preparing structures to get the best from later treatments. These also form reliable remedial agencies in controlling disorders of the static and motor constituents of the body; in conserving mechanically impaired function; in correcting actual deformity while incipient.

Skillful manipulations, adjustments, replacements, are of paramount importance in preventing the development of structural alterations which may induce derangements of growth-impulse, or reflex perversions of, or loss of, function, shown by pain, tonic, spasm, rigidity, etc., due to impairment of cooperative action of collateral parts affording support, or of permanent disability of structures. When supplemented by judicious use of simple apparatus, supports, or traction agencies, by them often can be forestalled permanent damage.

Hence the logical divisions of orthopedics: (1) prophylaxis; (2) preparatory action, breaking ground for other agencies; (3) as the chief agency, and (4) as a form of after-treatment following upon acute disease.

Mechanical remedies are often capable of relieving pain and tonic spasm as well as, or better than, an analgesic. Especially valuable here are pressures on nerve-points, manipulation of indurated masses, passive and active stretchings, torsions, and passive hyperemia. A paramount law in pathology, capable of wide application in diagnosis and treatment, is that any disorder affecting one part of the body exerts a sympathetic effect, more or less marked, on any or all other parts. Here we have the domain of transferred pains, tonic spasm, compensatory action and over-action, inducing fatigue, strains, tension pains, and disability.

In many conditions where disability has existed for some time, the motor centers require re-training, *e.g.* after immobilization, paralysis, chorea, re-

flex irritations, tabes, also a large variety of limitations of motion in the vertebral column.

When active motion is limited or lost, as in paralysis, passive movements are needed to aid nutrition and to reinforce centers long dormant; then to lead to and enforce renewal of active movements, resistance; to wake up dormant motor cells and respiratory rhythms; *e.g.* by use of constrictive hyperemia, by systematic movements, free or against resistance, or by the guiding hand.

Intelligence is needed to select the right movements or restraints; so also is plenty of time and opportunity for training and supervision.

1. *Orthopedic Prophylaxis, e.g.* in Poliomyelitis.—Here many neurons in the anterior horns are deeply hurt; some will recover fully, some partially, others not at all. After the acute stage the patient should be kept at absolute rest for many months till the inflammatory effects are well past.

Later passive movements must be made, and full active movements encouraged or enforced, by both patient and family. Every assistance must be afforded to depressed centers, beginning with rest, later using support, full or partial, till spontaneous action can be elicited and maintained to regain muscle-tone and central repair, and to prevent deformity, contracture, and atrophy. Contracture and deformity may, and often do, occur during the initial stages.

Next, the paravertebral vasomotor subcenters need manipulation to encourage local repair through increased blood impetus.

Contracture of one muscle leads to a stretching, and in the case of a paralyzed or weakened muscle to a more or less permanent lengthening, of the opposing muscle; even should there be complete recovery, the overstretched muscle will, nevertheless, lose integrity and efficiency. Hence orthopedic measures are needed in early as well as late stages of infantile paralysis. The stronger muscles must not be allowed to contract, nor to become immobilized, fixed.

Normal autogenesis must be encouraged; similarly of *cerebral paralysis and hemiplegia*. Immobilized muscles will atrophy, but this is temporary, not permanent; they will recover through restored function, rehabilitation, training.

Fixation too long applied tends to weaken extremities, hence these must be exercised by Faradism, also by educating the psychomotor function, volition, patiently, precisely, and persistently. The Zander apparatus is valuable in subacute or chronic states to prepare the parts for later movements, active and passive, by shakings, torsions, forcing pliancy and mobility in stiff joints and rigid ligaments and tendons. Recovery depends on restoration of nutrition in the cells in the spinal cord, first by adequate rest and next by gentle activation, later by compulsory and complete actions, in full accord with functional endowments.

In many septic and other acute joint-affections early passive active and resistant movements are imperative, used in connection with vaccines, bacterins, or soon after joint-opening; also heat, passive hyperemia, supporting bands, splints, casts, or traction methods (Bier, Gurdon Buck, Croly, and Bardenhauer) in fractures, dislocations, etc. In fractures of the wrist it is recommended to begin

on the fourth day; of the elbow, on the tenth or twelfth; impacted fracture of the humerus, on the second or third day; unimpacted fracture of the humerus, second or third week. Leg braces are for the purpose of facilitating walking only; also normal use of the legs and restoration of motor centers.

In *scoliosis* passive and active movements do not cure, but will aid in keeping the backbone fairly straight, and in making it somewhat straighter. Areas in vertebrae found rigid, or morbidly impaired, can be relieved by gentle, forceful hand-pressures, thrusts, repeated until mobility is restored. In a seance begin by encouraging active resistances, follow by passive compulsions, never neglecting mobilization of the spinal column, especially where it is rigid or out of alignment, which is most conspicuous in the group of vertebræ affected.

2. *Orthopedic Preparatory Treatment*.—In septic joints, and equally after trauma; often heat, immobilization, sunlight, heliotherapy, gentle passive movements, are necessary to loosen, to stretch, and reduce adhesions; then gradually secure freer mobility, and then proceed to compel active movements. One step prepares the way for the next. Often after the whole of the tissues are involved, the capsule thickened, cartilage destroyed, adhesions in the joints and tendon-sheaths formed, gentle but forceful manipulations should be used, which must not tear the reparative effects of the plastic lymph. Work slowly but persistently. *Do no harm*.

3. *Orthopedia as Chief Remedial Measure*.—In practice, often prophylactic, preparative, continuous, and persistent mechanical measures are best grouped together and employed.

At each stage decisions and acts must be clear and precise. Lateral curvature and immobilization of the thorax needs all these measures. It is a common mistake to get the idea that simple exercises will cure curvature; always special forms and directions of force are needed, often with powerful over-corrections and temporary fixations, such as spinal braces. Simple, rightly chosen means, consistently pursued, are best. The only test of program is by exact measurements and fluoroscopic watching.

The causes of scoliosis are partly lack of right action and right position, but deeper causes must be searched for. They are often found in nutritional enfeeblement in infancy; in early disease; in early tuberculosis; in tonic spasm, local or general; in central disorder or to morbid psychism; in strain, as of the sacroiliac joint.

Judicious muscle training is the key to sacroiliac treatment; first to overcome spasm; next to train the wrongly acting muscles. Antagonistic muscles must be stretched, often forcefully; also nearby tissues, adhesions, and ligaments; by hand best, also later by apparatus and by active movements. The Zander apparatus is again useful as preparation, or as a continued auxiliary measure.

Rigidities or Contractures After Injuries.—Use first manipulations or heat, or both; then passive movements; later, active and opposed movements. The guide is the degree of inflammation present, rather than the amount of pain.

Limitation of movement is commonly due to fixation of musculo-tendinous insertions, of fibrous tissues, of aponeuroses, of tendon sheaths. These should be plucked apart, lifted, separated. First of the overlying dermal and subdermal structures, reaching down to the lowest movable masses.

Progress is difficult to maintain. In atrophic joints, arthritic deformities, after removal of septic foci tonics and eliminants are also required; passive hyperemia, heat, electricity. Sometimes the chief difficulty is nutritional faults. Here voluntary movements of the truncal structures are of first importance, to be followed by passive mobilization, thrusts, torsions, etc.

In long damaged joints changes occur in epiphysis or diaphysis, hence the morphology is changed; the primary lesion often cannot be found if obstructive masses prevent. Then bone operation is indicated; a piece should be taken out.

In *hypertrophic arthritis* avoid all stimulation and go slow on action. Good hygiene is needed, careful diet, colon irrigations for not only bowel cleansing, but also for skin and kidneys; suitable hot or cold baths. Counter irritations are occasionally most helpful.

4. *Orthopedic After-Treatment*.—For all traumatic joint effects, for sprains, dislocations, fractures, acute joint- troubles, septic, hypertrophic or atrophic; for clubfoot and for wryneck (which is apt to recur) tenotomy may be needed; heat, braces, exercises to alter nutrition and stagnation in the soft structures; also of the bones of the head and neck, which are often deformed.

Spasmodic torticollis always has a psychic element. Treatment is explanation, suggestion, exercises, etc. Tenotomy is often needed here; also mobilizing of structures at the base of the skull; e.g. chiropractic thrusts. This thrust is efficient by forcefully overcoming the over-tense muscle, which acts compensatorily, protecting the original injury.

In flat-foot temporary supporting of the arch is useful; better Longstreth's "elevation." The real treatment is to walk barefooted, to exercise the small muscles between the bones, also ligaments and fascia; to walk pigeon toed; to sit upon the heels, toes straight out behind, on side of the bed. (See article by author, *New York Medical Journal*, Nov. 10, 1917.)

For tuberculous joints: fixation, dry heat, heliotherapy, quartz lamp, Hereaus, Kromeyer, Alpine sun-lamps, violet rays.

Braces or splints should never be used as curative agencies, but for two purposes: to retain a bone or joint in its proper mechanical relationships without strain, while nature, or special treatment, is doing its best to restore or to improve the mechanical efficiency of some part of the skeleton impaired by disease or accident, to facilitate normal action, as in walking.

Get the right concept of the purpose of the leg-brace. This is to enable the individual to enjoy the privilege of being to that extent nearly normal; it promotes general well-being by encouraging the sufferer to enter into so much of active life as he is able. It enables the stronger muscles to remain normal and not become hypertrophied; to act in conjunction with the weaker complement in poise. It at least does no harm. It does not cure the

source of disease. Without it, oftentimes, the child could never have been able to walk; with it, walking is much more easy, agreeable, efficient and more normal.

Uses of Adhesive Plaster.—It is an art—which also demands scientific precaution—to use adhesive plaster safely, especially when fixation is needed for as long as possible. Thorough asepticizing of the surface is necessary; hairs should be shaved and surface cleaned with benzine, turpentine, alcohol, or, as Torrance Rugh recommends, by washing with saturated solution of borax.

Skillern (*Pa. Med. Journ.*, September, 1911) uses also iodide of mercury or formaldehyde in solution to sterilize hair follicles and sebaceous glands. Much art is shown in making choice of width of strips, in reinforcing, in distribution with regard to bony and other prominences.

Postural Deformities.—Many deformities arise during the plastic years of childhood and youth due to one or more of several causes, developmental defects, faulty nutrition, metabolic disorders, demineralization, weak hearts often displaced; to ductless gland defects, along with minor mental peculiarities or defects plus faulty habits, lack of incentive to, or of opportunities for, normal activities. Also there are contributory factors more or less efficient, such as defects of sense organs, of sight, of hearing, of pressure from adenoids, pharyngeal diseases and dentural errors. These affect habits of standing or sitting or moving which aggravate and emphasize postural limitations. The products are deformities which are labeled postural. Oftentimes early rickets, not grossly marked, is the starting point.

Postural deformities occur more frequently among poor and ill cared for children, but also among the more favored classes. They may readily become serious, exerting harmful effects on organic competence, constitutional vigor, and upon mental alertness and efficiency. Among these are round and forward shoulders, curved backs, round and hollow; weak feet and ankles. Indeed weak feet are frequently at the root of errors of posture, limiting, as they do, free activities and ease of standing or walking. They also cause strange transferred pains. Minor forms of scoliosis are frequently observed.

In standing one side is "favored," hence displacements occur to one or other side, the displacements being in by far the largest number of cases to the left; the curve of the spine to the left, and the left shoulder higher than the right, the right side of the thorax is carried back, inducing a physiological rotation of the vertebræ toward the concavity of the curve, which carries the ribs back on the right side and so displaces that side of the thorax and shoulder girdle backward on the right. On lying down the curve disappears, showing it is not a structural curve.

Physiological curves are always single or local curves in contrast with the more frequent double curve of structural defects. Single structural curves do occur, the rotation being then on the convex and not the concave side. These posture curves require only nutritional and developmental measures with possibly an elevation to the shoe. The more pronounced instances of physiological curves may readily become structural.

Orthopedic surgeons exhibit discouragement in the treatment of such cases probably because they fail to secure needed domestic cooperation. The chief remedial agency is to attain full control of the child; to achieve its personal cooperation, to arouse wholesome pride and ambition. When this is secured, along with essential nutrition and other environmental betterments, good results can be counted upon.

Full correction of all determinable errors in sense organs is imperative. Opothrapy is the most efficient form of medication, though the old-fashioned and now neglected cod liver oil and phosphorus tonics are not to be omitted. Sea air, open air, full feeding, long periods of partial rest, and arousing of the play impulse, will carry one far toward restoration.

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THE PROBLEM OF VENEREAL DISEASE IN ITS RELATION TO PENAL INSTITUTIONS.*

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WHILE controversies are being carried on as to whether the honor system or self-government is more efficacious in remodeling the criminalistic man and helping him to readjust himself to social conditions, and whether a course in domestic science or an industrial training is better adapted to fit a woman to be self-dependent, the problem of venereal disease which needs no prolonged argument, is being neglected. As clear cut and as important as the problem is in the community in general, it becomes much more definite when related to the population of our prisons and jails. If society does not assume the responsibility for these individuals, and treat them adequately, it must face the fact that, later on, they will not only be a source of danger in the community, by causing the spread of the disease among innocent persons, but that a certain percentage will become so incapacitated by the disease, either mentally or physically, that they will be public charges.

Of the two venereal diseases which are the most prevalent—gonorrhea and syphilis—the latter is perhaps more far-reaching in its social aspects because it affects the succeeding as well as the present generation, and therefore seems to demand the first consideration. The following figures will show the prevalence of syphilis in some of our reformatories and penal institutions where laboratory tests have been adopted as a routine procedure in the physical examination.

Among 500 cases¹ studied at the Reformatory for Women at Framingham, Mass., 44 per cent. had positive Wassermann reactions, while 10 per cent. were doubtful. In 440 cases² studied at the New York State Reformatory for Women, at Bedford Hills, 48 per cent. gave positive results, while in Auburn prison, New York,³ the percentage among the women was 33 and among the men 16.

*Read at Willimantic, Conn., October 18, 1917, before a joint meeting of the Windham County Medical Society and the Connecticut State Medical Society, together with the Connecticut Society of Social Hygiene and the Connecticut Society for Mental Hygiene.

Dr. Davis* reports that in the Department of Correction in New York, all women admitted are given the Wassermann test. I am also indebted to her for the information that during the last year 55.83 per cent. of the women committed under the indefinite sentence were syphilitic.

Dr. Glueck* states that among 940 cases admitted to Sing Sing prison between August 1, 1916, and May 1, 1917, 18.9 per cent. gave a one, two, three, or four plus Wassermann reaction, while but 10.3 per cent. gave a four plus Wassermann reaction.

The high correlation in the percentages of syphilis in the various institutions for women quoted above is due doubtless to the large number of prostitutes included in their populations. A special study⁴ made of 243 prostitutes at Framingham showed 65 per cent. giving a positive Wassermann reaction and nearly 10 per cent. more giving a doubtful Wassermann reaction. It is interesting to compare this with an examination reported by the Baltimore Vice Commission,⁵ which shows 63.7 per cent. of 289 prostitutes to have syphilis.

From the earliest times prostitution has existed in spite of all conceivable attempts at repressing it, but it is only in recent years, with the increased knowledge of laboratory tests for the detection of venereal diseases and the increased knowledge of the diseases themselves, that true realization has come of the mental and physical devastation which has resulted from it. According to Aschaffenburg⁶ "prostitution was originally instituted by priests for the honor of the divinity and the benefit of the temple, and later put into practical form by statesmen like Solon. . . . Louis XI of France tried to abolish it altogether and founded places of refuge for fallen women. On his return from Palestine he ordered it to be completely exterminated. The concealed prostitution that immediately began to flourish everywhere, however, compelled him before a year had elapsed to repeal the order and assign certain streets to the use of prostitutes." And so it has continued till the present day, when in the year 1917, a city in our own country after repeated attempts by the citizens to effect such a procedure had failed was finally ordered by the Federal government to close its segregated district because of troops quartered in the vicinity. As a result 4,000 women who had been plying what up to that time had been considered in the city a legitimate trade were without employment and were liable to arrest if they returned to their previous occupation. Whatever the solution of the moral problem may be which has remained unsolved through so many centuries, of one thing we are certain, and that is that the spread of physical disease should be as far as possible controlled, not, however, by the physical examination of prostitutes,† which in all instances has proved ineffectual, if not a farce, but by recognizing venereal disease as contagious and infectious, and treating it accordingly.

The increased knowledge of syphilis which has come to us since Schaudinn and Hoffmann discovered the *Spirochæta pallida* in 1905, and Wasser-

*Personal communication.

†Bulkley⁷ some years ago emphasized the need of controlling the spread of venereal disease in prostitution by examining the man rather than by the old and unsatisfactory method of examining the woman.

mann, Neisser, and Bruch established the serum diagnosis of syphilis in 1906, and Plaut the Wassermann reaction of the cerebrospinal fluid in 1908, is remarkable, but would be disheartening, interesting as it is, had it not been offset by Ehrlich's discovery of salvarsan in 1909. Even before the introduction of the Wassermann test there were appalling statistics published of the prevalence of syphilis in the various countries. These ranged between estimates of from 3 to 5 per cent. in the general population of Prussia and Sweden to 45 per cent. and even 77 per cent. in groups of selected persons, such as clerks and merchants, between the ages of 18 and 28 years in certain of the German cities.³

The effect which syphilis has on the birth rate and the large numbers of women and children who are infected innocently will show to some extent the possibilities of further harm which untreated syphilitic delinquents may have in the community. Fournier⁹ describes 44 pregnancies among women recently infected with syphilis. From these there resulted 43 deaths and one living child. Four hundred and ninety-one pregnancies in syphilitic families, in which one or both parents were syphilitic, resulted in 382 deaths, or 77 per cent. Taking into account the most favored cases in which the father only was syphilitic or had had previously prolonged treatment there were 68 per cent. of deaths. Gregg¹⁰ reports in the families of 70 syphilitic patients 133 deaths, 52 miscarriages, and 8 stillbirths. Fournier also emphasizes the large number of women who are infected innocently. About 5 per cent. of 887 cases seen over a period of 27 years had syphilis of non-venereal origin, while 19 per cent. were married women who had received the infection from their husbands. In our own country we have ample evidence of the number of innocent victims of the disease. During a period of 27 months 600 children under 12 years of age passed through the venereal ward of the Cook County Hospital in Chicago.¹¹ Of these 16 per cent. had syphilis and 84 per cent. gonorrhea; 60 per cent. of the children had been innocently infected; 20 per cent. showed congenital conditions, and 25 per cent. had been assaulted by diseased persons.

Bazeley¹² shows by studies made at the Boston Psychopathic Hospital that there is increasing authority for considering the infectious psychoses and psychoneuroses to be the last offshoots of luetic heredity. He has also shown in a study of children under 15, constituting social problems, that those children showing evidence of congenital syphilis showed a larger proportion of feeble-mindedness and retardation, were more delinquent, and had greater defects of vision, hearing, and speech than the non-syphilitic group.

Perhaps the greatest danger of syphilis as a cause of social inefficiency lies in the fact that it may do so much damage to the central nervous system. Williams¹³ states that 10 per cent. of the patients who enter the Massachusetts State Hospitals for the Insane are suffering from syphilitic mental disease. In New York State there are 12.7 per cent., while in Ohio there are 12 per cent. Over 16 per cent. of 3,213 cases at the Boston Psychopathic Hospital¹⁴ show a positive or doubtful Wassermann reaction in blood serum or spinal fluid. Williams,

in an interesting study, has made a compilation of the number of years lost in the lives of 100 cases coming to autopsy at the Boston State Hospital, whose death was caused by syphilitic mental disease. He estimated that by the premature deaths a period of 2,000 years was lost in the community. Their death represented a financial loss of over \$212,000, and their medical care had cost the State over \$39,000. One hundred and nine children had been left as public charges. These estimates did not include the other dependent members of the family or the physical and mental defect of other people resulting from the 100 infections. Williams estimates that there are at present at their work in Massachusetts 1,500 persons who in the next five years will be committed to state hospitals on account of syphilitic insanities. In the State of New York there are 3,000 such individuals.

Syphilis as a cause of feeble-mindedness, of organic disease, and of ill health in general is less easy to compute. It is, as we all know, a very great factor in the community. This point has been emphasized in an exceedingly forceful and stimulating address by Sir William Osler¹⁵ on the prevention of venereal diseases, delivered last spring.

Although gonorrhea does not cause diseases of the central nervous system, its effect on the birth-rate and on vision, its pelvic and abdominal complications, and its rôle in causing cardiac conditions and arthritis, together with the greater prevalence of the disease, make it almost as formidable a social factor as syphilis. The following figures will serve to demonstrate its prevalence among delinquent women. At the Reformatory for Women at Framingham, Mass., there were 75 per cent. of gonorrheal infections among the total population.¹⁶ This was based on bacteriological evidence as well as on clinical symptoms. At the New York State Reformatory at Bedford Hills, N. Y.,¹⁷ 73 per cent. showed the presence of gonorrhea, according to the complement fixation test alone. Among 243 cases of prostitutes studied at Framingham over 98 per cent. had gonorrhea. Ninety-two and one-tenth per cent. of the 266 prostitutes studied by the Baltimore Vice Commission¹⁸ also had gonorrhea. Among alcoholics at Framingham who had not been arrested for any offense against chastity 52 per cent. showed evidence of gonorrhea. In a miscellaneous group made up of women in whose history there was no known sex promiscuity, 44 per cent. had gonorrhea. This may not seem so high when we remember that Neisser believed that 45 per cent. of all women in the community were infected with gonorrhea.¹⁹ No satisfactory statistics on this disease appear to be forthcoming from men's prisons, but we remember that Neisser²⁰ estimated gonorrheal infections among the male population in general as 75 per cent., while other authorities estimate it as high as 80 and 90 per cent.

It may be of interest to keep in mind the results of gonorrhea in the community. Norris²¹ states that by sterilization and abortions gonorrhea does more to depopulate this country than any other one cause. Other authorities say that from 30 to 50 per cent. of all childless marriages are directly caused by gonorrhea. In the opinion of over 600 physicians 40 per cent. of all gonorrheics suffer from pelvic inflammatory conditions. Six different authors believe

that 25 per cent. of acute cases and 50 per cent. of chronic cases show pelvic complications. In the reformatory cases we found that 67 per cent. presented symptoms of pelvic inflammation, while 40 per cent. became surgical cases, either having had or needing abdominal operations. We also found that the number of children in the families of gonorrheics was over one and one-half less than among families of non-gonorrheics, and that there were 35 per cent. of one-child sterilities among these infected. While the limitation of the birth-rate may be considered desirable among the delinquents themselves, it certainly will not be considered so when it follows the ramifications of the same infections as they spread out in the community.

Most of our cases seemed to run an uninterrupted course sometimes for a period of 25 years without having treatment. During that time they were continually a source of infection. Only 15 per cent. of the cases had received treatment during the first year of the disease, and, as we all know, unless a case is treated at the beginning of the infection, treatment for many months if not years, is necessary to control even clinical symptoms. Only 1 per cent. of our patients had received adequate medical treatment, and 53 per cent. had had no treatment whatever.

We must not forget the social inefficiency caused by this disease through blindness, as it is estimated that from 30 to 50 per cent. of all blindness and 80 per cent. of blindness of the newborn results from gonorrhea.

Treatment.—Various institutions in this part of the country have been treating syphilis with up-to-date methods for some years. Dr. Fernald* at the Massachusetts Reformatory at Concord, Mass., has been giving salvarsan since 1910, when he received some of the second lot sent to this country. Dr. Fernald, who has kindly allowed me to use his unpublished figures, finds an incidence of less than 7 per cent. among the inmates of the reformatory. Of the cases under treatment he believes that 50 per cent. are cured before they leave the institution. Dr. Haecox* at Auburn Prison in New York introduced the Wassermann reaction as a routine procedure in all admissions on October 1, 1915. It has also been possible for him to administer a limited amount of neosalvarsan to all cases showing a four plus reaction. Furthermore a definite appeal was made in the annual report for an adequate supply.

In our small hospital at Bedford Hills repeated doses of diarsenol are being administered once a week in the treatment of syphilis, together with a weekly injection of salicylate of mercury. While some of our patients have received from fifteen to twenty treatments of diarsenol, every luetic woman in the reformatory is receiving at an out-patient clinic of the hospital five treatments of diarsenol in addition to her other anti-syphilitic treatment. Similar treatment is being given all the syphilitics at the Reformatory at Framingham, Mass., by Dr. Sullivan. It may be asked how the money for so expensive a treatment can be procured. From our brief experience with such bodies we believe that if one goes before the legislature and explains frankly the effect of untreated cases of syphilis

*Personal communication.

returning to the community, money will be forthcoming for any amount of salvarsan or its equivalent which is desired.

Regarding the effect which energetic treatment of syphilis may have on the conduct of the patients we have only to look to our psychopathic hospitals, where such treatment is being given, to see marked improvement in behavior in cases of syphilis of the central nervous system following treatment. While syphilis itself does not often appear to be the direct cause of delinquency, the treatment of syphilis in delinquents often improves their mental condition to a marked degree, and makes it possible for them to readjust themselves to their environment. Southard⁹ mentions such a case as this which, while exhibiting from childhood a psychopathic personality, also showed evidence of a diffuse cerebrospinal syphilis. While the psychopathic personality was not markedly benefited by antisyphilitic treatment, still the additional symptoms caused by the cerebrospinal syphilis were eradicated. The patient ceased to have convulsions and, although the mental tests showed that she ranked in the subnormal class, she was apparently better equipped to make the necessary social adjustments.

We know of a woman committed several times to different institutions for forgery. Since her release from the State Reformatory several years ago she has held responsible positions in various institutions. She had cerebral lues and suffered from headaches and insomnia, which disappeared after a few treatments of salvarsan. It is difficult to say to what extent syphilis was the cause of her antisocial acts, but treatment of the disease has undoubtedly been a help in enabling her to adapt herself to the laws of the community and hold positions of responsibility.

The treatment of gonorrhea, especially in large institutions for women, presents perhaps a more difficult problem. At the Reformatory for Women in Framingham, in which the population ranges between 300 and 400 women, gynecological treatments were given twice a week to all cases of gonorrhea. At least 250 treatments weekly or 1,000 treatments a month were given. One must realize also that in many cases an eight to ten months' treatment was necessary before clinical symptoms alone disappeared. For medication, tincture of iodine or a solution of silver nitrate 10-25 per cent. has been applied to the interior of the cervix and to the vaginal mucosa. Besides this, tampon treatment has been given with boroglycerin or ichthyol and glycerin and (before the war) a solution of picric acid.

One often wonders if the unsatisfactory results obtained warrant the amount of energy expended in the treatment. However, the extreme virulence of many of the cases leaves no alternative even though the best treatment is inadequate and cure impossible. Furthermore, the effort may be considered worth while if it succeeds in emphasizing in the patient's mind the seriousness of her condition and makes her realize the necessity of further treatment after she has returned to the community.

Veneral Disease and War.—At a time when venereal disease constitutes one of our greatest war problems we may be pardoned for referring in the discussion of our smaller problem to the much

larger one which is facing society to-day. One-third to one-fourth of the British army²⁰ is said to have contracted venereal disease since the beginning of the war, and it is also said that in France the prevalence of these "plagues" (gonorrhea and syphilis) is "horrible."²¹ Gaucher²² has said that whereas before the war, at the St. Louis Hospital, one patient in ten was a recent case of syphilis, in the first months of the war, this proportion increased to one in six, while in the next eight months it was one in four.

It is interesting to look back at the history of syphilis and compare its first appearance in Europe with its prevalence at the present time, noting the close relation which has existed from the earliest times between war and the spread of the disease. It will be remembered that syphilis is supposed by some authorities to have made its appearance in Europe after Columbus returned to Spain from his discovery of the West Indies in 1492.²³ At that time Charles VIII of Spain had gathered together great mercenary armies for an invasion of Italy. Soon the disease spread not only through Italy, but also to all parts of Europe to which the soldiers traveled. Although this was over 400 years ago and although much has been learned of the disease since, especially in the last 10 years, it is even now one of the greatest problems of the present war. Gonorrhea has remained quite as much a problem through many centuries. We hear of it first from the oldest Egyptian medical records, about 1550 B.C.; in Japanese manuscripts as early as 900 B.C., and in the Old Testament in Leviticus.²⁴ It has apparently thrived from that time until the present day in spite of Neisser's discovery of the gonococcus in 1879 and later discoveries in treatment and in prophylaxis, so that at the present time it is the most prevalent of the infectious diseases with the exception perhaps of measles. To quote from a recent article by Lyster: "The gonococci have probably quite as ancient and respectable a lineage in biology as the pneumococci. The same relentless scientific measures that are used in the one case must be applied in the other, and no fake sentiment must be allowed to interfere in the efficiency of their application." However, a social conscience is being aroused and there is no better evidence of it than that the most conservative of the New York papers has printed a series of articles, which describe our failure to control the situation on the Mexican border and recount the dangers and prevalence of syphilis and gonorrhea in general.

The attitude of our War Department toward venereal disease and the emphasis laid on it is encouraging. Every effort is being made to meet the situation, with the following four methods of attack:²⁵ (a) Social measures to diminish sexual temptation. (b) Education of soldiers and civilians in regard to venereal diseases. (c) Prophylactic measures against venereal diseases. (d) Medical care.

The amount of interest shown in the subject by the general public through a variety of organizations, both medical and non-medical, is most interesting. Alcohol is being kept from the neighborhood of the camps. The attempt is made to eliminate prostitution from their vicinity. Recreation centers are being established where men may meet

their women friends and may come in touch with women of a good type. Organized sports are being made compulsory. The work of the Y. M. C. A. and also the Y. W. C. A. is of inestimable value. The whole movement is recognized frankly to be one to combat venereal disease, which in some companies of the European armies on their way to the front is said to have incapacitated more men than have been incapacitated in other companies while under shell fire. Whether or not the commanding officers will consider prostitution necessary for their men and will see to it that the vicinity of the camp is free from undesirable resorts and saloons will be largely the result of this openly expressed public opinion. Exner²⁷ reports that on the Mexican border there were but two such protected camps. He says of one: "No more contented, more orderly, better disciplined, better trained, more efficient, or more loyal body of troops could be found anywhere on the border. These facts can be readily verified from anyone conversant with the situation. Furthermore, these men were proud of the moral reputation of their regiment. Many of the men said to me, with a ring of pride, 'Oh, we have a clean bunch here.'"

The annual report of the Surgeon-General to the Secretary of War shows the incidence of venereal disease in our army during the last three decades. In the first period from 1886-1898 the incidence of venereal disease was 7.8 per cent. During the period beginning with the Spanish War in 1898 and lasting until 1909, the rate increased to a ratio which ranged between 13.5 and 17.4 per cent. With the introduction of prophylaxis and systematic measures of dealing with the situation, and with the use of the Wassermann reaction the ratio during the third period, from 1910 to 1915, again decreased to a rate which ranged from 6.5 to 10.5 per cent. Exner²⁸ shows that on the Mexican border the extent of prostitution was in direct ratio to its accessibility and that the venereal rate under prophylactic treatment, as compared with indulgence in prostitution, was surprisingly low. It is interesting to consider the attitude of the English in refusing to make use of artificial prophylaxis²⁹ even at the present time, in the fourth year of the war, after the efficiency of their army has suffered so much through venereal disease. Preventing venereal disease by prophylactic treatment may be considered in the same category as the prevention of mental disease when the earliest symptoms present themselves. Failure to do either of these things seems to us not only short-sighted, but also unethical.

Recommendations for the Control of Venereal Disease Among the Criminalistic Population.—1. We believe that wherever a physical examination is necessary in the case of individuals passing through our courts it should include laboratory tests for gonorrhea and for syphilis. A physical examination is necessary in every case which is under the care of the State for any period of time, whether it is in a penal institution, an industrial school, or a jail. All cases found to be positive should receive treatment.

There is in Massachusetts a law³⁰ which we understand also exists in Connecticut, which states that inmates of public, charitable, or penal insti-

tutions shall be held for treatment of syphilis while the disease is in a communicable form. This law is of great benefit in bringing extra pressure to bear in forcing any uncooperative individuals to receive treatment.

2. Provision should be made in the community for hospital treatment of venereal disease to encourage care of such infections in their earliest stages and for follow-up work of those cases whose treatment has been begun in institutions.

3. We should not forget that the question of mental defect in the community is closely associated with that of venereal disease, as well as with delinquency. When we realize the real need of segregating the feeble-minded and are able to care permanently for this class of social inefficients, we shall remove a great source of infectious disease from the community. Twenty-three per cent. of the women at the Reformatory at Framingham, who were fit subjects for permanent segregation on account of their mental defect, showed 90 per cent. of gonorrhea and over 60 per cent. of syphilis.

4. It is believed by authorities both in Europe¹ and in America² that before the war is over the need will be recognized for a law requiring the notification of these diseases which will place them on an equal footing with other contagious diseases, will make treatment compulsory, and will tend to lessen the danger of further infection.

5. At some future date when our probation and parole departments have adequate medical equipment, and there is more emphasis laid on therapeutics in the treatment of delinquency, examination may be made also of the families of delinquents. At the Boston Psychopathic Hospital³ an effort is made to bring to the hospital for examination the wife or husband of every syphilitic patient treated and the members of the patient's family under 18 years of age.

Stokes⁴ in a book on syphilis, which is entitled "The Third Great Plague," says: "There are no signs more hopeful of the highest destiny for humanity than that of to-day which marks the transition of disease from a personal to a social problem." When the public is told through the daily paper that gonorrhea and syphilis are the most prevalent of all diseases with the exception of measles and that while over 19,000 cases of tuberculosis were treated in the city of New York in 1916, there were over 20,000 cases of syphilis treated, it is going to be more alive to its responsibilities in the whole situation.

Paton⁵ has recently said: "The present catastrophe which threatens civilization is one of the tragic results of attempting to organize society in order to satisfy theoretical conceptions without taking cognizance of the fundamental laws which govern human nature." Again, "The priest has told us what men ought to become, the poet has recorded all his dreams of an idealized race, while the historian has given us interesting pictures of what human beings were supposed to have been; but man, as he actually is, has only recently become the subject for study." The activities of many societies and their frank attitude toward the situation are evidence of a genuine desire on the part of the public to face things as they are and to assume responsibility for them.

We must meet a situation in the European War which will call forth every bit of strength and economic efficiency possible. If by adequate treatment of our dependent population now in penal institutions we can increase their economic, as well as their social and moral efficiency, let us by all means do it. It will be one of the bits for the men and women who stay at home to push with all the resources at their disposal. The great awakening toward the problem in the war should be a tremendous aid in getting support in this more limited campaign, and should help materially to shake off the inhibiting shackles which have held us in the past and prevented us from adequately meeting a very concrete situation. There is no class of people who can do more toward accomplishing this than the physicians. They have always appreciated the need, but on account of the ignorance of the public on the subject have feared to violate the ethics of the profession and take a definite stand which would doubtless cause undesirable publicity. This obstacle is being rapidly removed. The public is craving education and there is little doubt that means will be forthcoming now for all the help needed in the treatment of venereal disease, at least where it is under control in penal institutions.

REFERENCES.

1. Spaulding, E. R.: "Our Criminal Problem." *Boston Med. and Surg. Jour.*, October 7, 1915.
2. Davis, K. B.: Proceedings of the Annual Congress of the American Prison Association, Indianapolis, 1913.
3. Boudreau, Eugene N.: "The Syphilis Problem Among Confined Criminals." *MEDICAL RECORD*, December 2, 1916, p. 981.
4. Spaulding, E. R.: "Mental and Physical Factors in Prostitution." *Women's Med. Jour.*, July, 1914.
5. *Survey*, March 25, 1916.
6. Aschaffenburg, Gustav: "Crime and Its Repression." Translated by Adalbert Albrecht. Little, Brown & Co., Boston, 1913. P. 90.
7. Bulkley, D. Duncan: "Syphilis Insontium." Bailey & Fairchild, New York, 1894.
8. Flexner, Abraham: "Prostitution in Europe." Century Company, New York, 1914. Pp. 367-369.
9. Fournier, Alfred: "Treatment and Prophylaxis of Syphilis." Translated by C. F. Marshall. Rebman Company, New York.
10. Gregg, Donald: *Boston Med. and Surg. Jour.*, December 16, 1915.
11. "The Social Evil in Chicago." Gunthorp-Warren Printing Company, Chicago, 1911. P. 241.
12. Bazeley, J. H., and Anderson, H. M.: *Boston Med. and Surg. Jour.*, December 23, 1917.
13. Williams, Frankwood E.: "The Relation of Alcohol and Syphilis to Mental Hygiene." *Am. Jour. of Public Health*, Boston, Mass., Vol. VI, No. 12.
14. Osler, William: "Annual Oration on the Campaign Against Syphilis." *Lancet*, May 26, 1917, p. 787.
15. Sullivan, E. A., and Spaulding, E. R.: "The Extent and Significance of Gonorrhea in a Reformatory for Women." *Jour. Am. Med. Assn.*, January 8, 1916.
16. Neisser, Quoted by Mallowney, J. J.: *The China Med. Jour.*, March, 1912.
17. Norris: "Gonorrhea in Women." W. B. Saunders Company, 1913. P. 128.
18. —: *Ibid.*, p. 96.
19. Southard and Solomon: "Neurosyphilis." William Leonard, Boston, 1917. P. 300.
20. Reid, G. Archdall: *Lancet*, Vol. CCXII, No. 4914, p. 694.
21. Editorial, *Boston Med. and Surg. Jour.*, Vol. CLXXVII, p. 740.
22. Gaucher and Bizard: *Jour. Am. Med. Assn.*, February 3, 1917, p. 384.
23. Bloch, Iwan: "System of Syphilis." Vol. I, p. 19.
24. Watson, David: "Gonorrhea and Its Complica-

tions in Male and Female." Paul B. Hoeber, New York, 1916. P. 2.

25. Lyster, William: "Venereal Disease and the New Army." *Jour. Am. Med. Assn.*, October 13, 1917.

26. "Method of Attack on Venereal Disease." *Am. Social Hygiene Assn.*, New York.

27. Exner, N. J.: "Prostitution and Its Relation to the Army on the Mexican Border." *Am. Soc. Hygiene Assn.*, New York City. P. 10.

28. —: *Ibid.*, p. 15.

29. *Lancet*, Editorial, October 13, 1917.

30. Revised Laws of Mass., 1902, I, Chap. 75, Sec. 48.

31. Martin, Edward: "The Control of Venereal Disease in the Army." *Jour. Am. Med. Assn.*, LXIX, 18, p. 1537.

32. Wright, Helen M.: *Boston Med. and Surg. Jour.*, December 9, 1915.

33. Stokes, J. H.: "The Third Great Plague." W. B. Saunders Company, Phila., 1917. P. 189.

34. Paton, Stewart: "Mobilizing the Brains of the Nation." *Mental Hygiene*, July, 1917.

MACROSCOPIC AND MICROSCOPIC FINDINGS IN POLIOMYELITIS.

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MACROSCOPIC examination of the cases studied at autopsy included examination of the brain, cord, and membranes. Microscopic examination included the cord, ganglion cells, interstitial changes in the anterior horns, pons, peripheral nerves, and the internal viscera. For such study all tissues were hardened in formalin; embedded in paraffin and stained by several methods, namely, hematoxylin, eosin, Giemsa, Van Gieson, Nissl, and other selective stains; special stains for fat, including Marchi, Sudan III, and Scharlach R. Frozen sections were made of tissue from all cases.

The gross appearance of the brains in the cases examined was not at all characteristic of the lesion. It can be said, however, that in one case of the fifteen the brain tissue seemed to distend the dura mater, so much so as to produce a distinct softening of the convolutions, and upon more minute examination the color of the pia was found to be of a distinct copper-blue color.* The brain tissue was soft and somewhat edematous in this case. There were no distinctive gross lesions to be made out in the brain tissue of the other cases, except that in some there appeared to be a distinct edema, which was more prominent in the sulci. Examination of the brain at various levels, outside of the edematous condition referred to, which involved both the gray and white matter of the brain, gave negative results.

Macroscopic examination of the cord revealed very varying pictures as regards the levels most involved. In the more typical cases, in the upper cervical region, in the position of the anterior horns, a distinct reddish-pink color stood out in sharp contrast to the white matter of the cord, somewhat simulating the letter H. In this region the tissues seemed to be depressed below the level of the white matter; the horn seemed to be distended. There were no evidences of distinct hem-

*The case of Annie Martincowitz, noted in Dr. Walter Lester Carr's paper, is illustrative of the stuporous or comatose type.

orrhages at these levels. Sections below the upper cervical and the various dorsal and lumbar segments showed no gross anatomical change. Distinct softening in some areas was made out. These were sometimes unilateral and sometimes bilateral.

Gross Examination of Membranes.—No distinctive changes could be observed in the dura mater. Upon removing the dura and minutely inspecting the pia there was seen, in the majority of the cases, an edema without any noteworthy changes. This edema seemed to infiltrate into the sulci. In one case (Dr. Carr's, which is described above), the pia mater showed enormous capillary distention, but without the appearance of free blood in the interstices of the pial membrane. This engorgement seemed to be entirely venous. There was no evidence of acute leptomenigitis observed in the cases examined.

Examination of the spinal meninges showed no gross macroscopical alteration. In some cases there was a slight accumulation of serum with moderate distention of the blood vessels in the meninges, but this was not a constant condition.

Macroscopic Examination of Viscera.—The majority of the cases showed more or less macroscopic evidence of bronchopneumonia. Macroscopic examination of the hearts in all cases proved negative. No gross alterations were found in the stomach, pancreas, kidneys, or adrenals.

In all cases examined there was a regular lymphatic hyperplasia of the mesenteric lymph nodes, the measurements of some reaching from one to one and one-half cm. in diameter, and on cross section were deep red in color; some were hemorrhagic and edematous. This was a general and constant finding in all cases.

Upon inspection of the gastrointestinal canal there was regularly found a hyperplasia of the solitary lymph nodules, and Peyer's patches in the region of the ileocecal valve showed intense hyperplasia, but in none of the cases had actual ulceration occurred.

Macroscopic examination of the spleens showed enlargement, and upon transection revealed a distinct hyperplasia of the Malpighian bodies. The splenic pulp was not edematous, and the consistence of the organs was firm. Examination of the muscular structure of the bodies showed no gross alterations. Macroscopic examination of the bone marrow, likewise, showed no distinctive alterations.

Microscopic Examination.—Microscopic examination included the brain and cord membranes and the spinal cord at different levels; also the changes in the ganglion cells, interstitial changes in the cord, examination for the presence of hemorrhages and such changes as may occur in the pontine region, as well as microscopic examination of the internal viscera, the musculature, and bone marrow.

No distinctive changes could be observed in the dura. In the pia the changes were those of edema and inordinate venous engorgement, but without distinctive hemorrhage into the tissues. Minute examination of the pial meninges failed to show any distinctive microscopic alteration.

Membrane of the Cord.—In the milder cases of

the series the pia mater of the cord showed a normal histological picture, while in the more severe cases the blood vessels of the pia mater were the seat of a perivascular cell accumulation, often more marked in the cervical region, where the corresponding changes in the gray matter had occurred. At other levels the pia mater showed no extensive alteration. In those cases in which perivascular cell infiltration had occurred to a marked degree, the same perivascular infiltration had extended in and around the blood vessels in the ventral fissure. The character of these cells was that of a small, round mononuclear cell, having a round or oval nucleus, and looking not unlike a lymphocyte. No evidence of polymorphonuclear leucocytes was to be observed, but occasional plasma cells were seen mixed up with these mononuclear cells.

Cord.—Examination of the cords revealed varying pictures, when taken from different levels, from the cervical to the lumbar region. It is noteworthy that the more exaggerated pictures were confined to the cervical regions, and here the changes were of a variable character, and will be described under three heads: First, vascular changes; second, ganglion changes, and third, interstitial changes.

The vascular changes gave a varied picture in the cases examined, and at the levels where the lesion was most marked no distinctive microscopic hemorrhages were to be found. On the contrary, the more severe cases showed an engorgement of the blood vessels in the anterior horns and were regularly surrounded by collections of small, round mononuclear cells, sometimes six and eight rows deep. The lumina of the vessels were not impinged upon, despite the fact of excessive perivascular infiltration. The accumulation of these cells seemed to be in the adventitia of the blood vessels. The character of the cells was altered by pressure, as well as the nuclei. The nuclei were overstained and closely packed together. No polymorphonuclear leucocytes could be made out from a most minute examination.

A rather noteworthy microscopic appearance in a number of the cases examined was the island collection, apart from the blood vessels, of small round cells, closely packed together and replacing the gray matter at this point. Such island collections of cells were, at some levels, exceedingly numerous. The character of the cells was not unlike that of glia cells, and in the numerous sections examined it was quite evident that softening of the cord at such levels was occurring and had occurred at other levels in which distinct softening and vacuolation of the gray matter had occurred, leaving irregular round open spaces. These vacuolated spaces were of such microscopic character as to be readily distinguishable from artifacts of the nervous tissue. The character of the cells at different levels in the cases examined seemed to the writer to be that of a distinctive cell, which belongs to the glia type in such regions, resembling it in shape. Outside of the perivascular accumulations, apart from the tissue of the blood vessels on the aforesaid island glia accumulations, there were other cells which were mostly of a polyblastic character, in which the nuclei stained distinctly,

the outline of the cells being prominent but the protoplasm not taking on the eosin stain. In such sections the architecture of the horn, whether the lesions were unilateral or bilateral, was entirely lost and replaced by such accumulation of polyblastic cells. The cells, however, I consider only a variety of glia tissue. The microscopic changes had not only occurred in the anterior horns but were, in some cases at some levels, quite as extensive in the posterior horns.

Microscopic examination of the ganglion cells in the anterior horns at different levels showed all grades of degeneration from that of slight injury to entire disappearance of their nuclear and protoplasmic substance, leaving, in the areas most degenerated, well-staining ganglion cells showing a regular arrangement of their chromatic bodies. The microscopic study was closely confined to the ganglion cells at different areas, and in these there was found a degeneration of a very marked degree. The lesion in the ganglion cells from the cervical to the conus was marked by a degeneration of variable character, and involved not only the ganglion cells of the anterior horns but those of the posterior horns and throughout the dorsal cord of the columns of Clark as far down into the lumbosacral enlargement as the nucleus of Stilling. It was quite apparent, on account of the degenerations at different levels, that one might attempt a count of the ganglion cells in the various levels from the seventh cervical downwards, and to compare them with the approximated number of normal cells found therein one would find that the average number of normal cells left in the region most degenerated was about 10 per cent. Fully 90 per cent. showed the varying degrees of degeneration herein described. Nearly every grade of chromatolysis was observed, peripherally, centrally, and, in some places, perinuclearly. The predominating type was the well-known central chromatolysis so characteristically observed in axonal degeneration. In a great many of the cells (perhaps 40 per cent. of them) at regions most involved, the chromatolysis had advanced to a degree of complete loss of stainable substance, and even to complete cell destruction. The loss of nuclei of many cells was noted, only a shadowy outline of the cytoplasm, containing a light, granular-staining substance, being left. In other cells the nuclei seemed to be eccentric. This was the predominant condition in many of the sections examined at different levels in the most exaggerated areas of destruction. Eccentricity of nuclei, especially in the cells of Clark's column, with a central chromatolysis, was a prominent feature. Many of the cells, however, contained a fairly normal cytoplasmic staining of the reticulum of the cell, with lightly colored dustlike particles. No vacuolation of the cells at any level was observed. Marked degeneration in one horn as compared with the opposite horn of the several areas involved showed extreme destruction of the anterior horns on one side, with only a comparative lessening of the microscopic changes in the corresponding horn on the other side.

Changes in the cytotreticulum of the nucleus were manifest in most of the levels, though this part of the cell structure seems more resistant than the structures of the cytoplasm. There were, however,

no nucleolar variations or fragmentations occurring. Stress, however, must be made on the normal characteristic cells of Clark's column, it being well known that they contain fewer chromophilous bodies, and when such degenerations occur it is easy for one to misinterpret the lesions found in this column. When such extensive degenerations of the ganglion cells occur in the anterior horn there necessarily occur marked peripheral interstitial changes, cells which are variable in amount and in their microscopic character. The microscopic examination of the interstitial changes therein may be summarized as follows:

Interstitial Changes.—Here, again, the interstitial changes varied in proportion to the destructive lesions occurring in the ganglion, which were also marked at the different levels of the cord involved. These interstitial changes varied in amount from that of cell proliferation of small round cells to the most excessive accumulation of glia and polyblastic cells. In the milder degenerations the interstitial changes varied from a diffuse proliferation of small round glia cells to a perivascular involvement of the blood vessels in the anterior horn and an extensive replacement of the anterior horns by excessive island accumulations of small round plasmoid or polyblastic cells, as well as to extreme replacement of the whole anterior horn, either unilateral or bilateral, with characteristic cells belonging to the glia type. The mononuclear cells around the blood vessels seemed beyond the adventitia, and, though variable in amount, had little or nothing to do with the occlusion of the vessels therein, though the cells themselves were altered by pressure. The island accumulation of glia cells, with their dark-staining nuclei, was a characteristic feature in a number of the levels examined in the more severe cases, and it could be made out that such cells were in the process of disintegration, leaving a tissue light in structure and evidently disintegrated, in places leaving vacuolated areas in the different levels of the anterior horn. Such microscopic changes were not, however, noted in the posterior horn. In some regions of the cord an entire replacement of the ganglion cells was apparent. There was a replacement by accumulations of coalescent cells, polyblastic in type, but of evident neuroglial origin. These cells were especially abundant in some areas, but were absent in others. The interstitial changes in the posterior horns were notably diminished, as compared to the changes in the anterior horns. No evidence of leucocytic infiltration was observed in any of the sections examined from both areas.

Hemorrhage.—Microscopic examination of sections from many different levels showed a complete absence of hemorrhage. The blood vessels in the anterior horns in many sections were enormously distended with a perivascular unsheathing of lymphoid cells, but in no wise diminishing or compressing the lumen. Rather curious pictures were observed in the adventitia of the blood vessels of the white matter of the cords throughout, the blood vessels having been pressed off to one side, leaving a clear-staining area, which, with thionin stain, gave a blue appearing substance. This I consider an edema in the perivascular sheath, but it has little or no significance. There were no noteworthy changes in the white matter of the cords at differ-

ent levels. The varied changes noted by other observers are not in keeping with the present findings, it having been reliably established that focal cellular accumulations in relation to the blood vessels have occurred in some cases, but which are notably absent in others, and is of minor importance.

The changes in the pons in those lesions giving clinical pontine symptoms are of the same microscopic character as those described in the cord of the case of Dr. Carr, referred to above, varying in relation to the intensity of the disease. Microscopic examination of the posterior nerve roots at different levels showed, in some cases, lightened areas, which seemed to the writer to be focal areas of degeneration. These were of such variable character, however, that no great importance can be attached thereto.

Examination of the peripheral nerves in those cases showing paralysis of the extremities were made by osmic acid, and fresh teased specimens of such nerves observed. The variability of the degeneration of the myelin in the cases of long standing showed degeneration of the nerve fiber with fragmentation of the myelin, and the heaping together of round, black globules stained by osmic acid. Microscopic examination by Marchi's method of such nerve fibers has, as yet, not been completed, but it is evident from examination of such "teased" nerves that more convincing results will be observed of such degeneration.

Microscopic examination of sections of the viscera proved negative, except where macroscopic changes had occurred in the gastrointestinal canal, the mesenteric lymph nodules, and the spleen. In a number of cases examined by other observers the liver was said to be the seat of focal accumulations, replacing the liver cells in that area in and around the vicinity of the central vein, the cell making up this focal necrotic zone being reticular in type and containing many dust-like granules of nuclear material. Such microscopic changes in the liver are difficult to find.

The microscopic examination of the mesenteric lymph nodes showed a characteristic hyperplasia with edema and congestion of lymphatic structure. The perilymph sinuses were distended with large vacuolated cells containing debris. Injection of the blood vessels was well marked and the lymph nodules as a whole markedly hyperplastic. The same alterations of a hyperplastic nature were made out in the solitary lymph nodules in the colon, and also in Peyer's patches in the small intestine throughout, giving a characteristic microscopic appearance of intense hyperplasia. No noteworthy changes were observed in the kidneys, except for an early parenchymatous swelling of the tubules.

Examination of different areas of the brain and meninges and spinal cord and meninges at different levels, appropriately stained for organisms, gave consistently negative results.

First Description of Test for Biliary Acids in the Urine.—According to Ebstein, Tiedemann and Gmelin did not originate this test, as is commonly asserted. In 1787 Marabelli of Pavia preceded them by 35 years in the use of nitric acid for this reaction.—*Nederlandsch Tijdschrift voor Geneeskunde.*

MENTAL DISEASE.

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INSANITY presents so many problems, it can be approached from so many directions, that for a time I did not know which particular problem to select for discussion this evening. Some of you may be interested most to hear how a violent maniac is dealt with in a hospital, others would prefer a description of the daily routine life of the insane in institutions. Such matters, while undoubtedly of engrossing interest, are far inferior to the more general questions, such as: what are the known causes of insanities; how may insanity be prevented; and how do organized institutions attempt to deal with their inmates? And first, let me define to you the term insanity. What constitutes normal mentality allows of considerable latitude of application, and there is no standard which will enable us to differentiate the normal from the abnormal. However, though the borderline separating the two is ill-defined and often difficult to determine, for practical purposes one may assume that, barring individual peculiarities, one's mental condition is abnormal when his conduct attracts attention by reason of its peculiarity or queerness, when thought becomes illogical, or when emotional instability is so marked as to be out of all reasonable control, and especially when this emotional instability is disproportionate to the magnitude of the exciting cause. For instance, it is quite normal to feel temporarily depressed over the loss of a parent or child, but when the depression deepens with the passing of time, instead of fading, and refuses to be influenced by common-sense methods, then it evidently has passed the bounds of normal mentality. As you know, the law absolves the insane from the consequences of their acts, and in any case of crime it requires proof that the person who committed the act did not know the quality or nature of the act in order to declare him not responsible. But anyone committing a crime under the influence of strong, irrepressible emotions is not necessarily insane, and if his mind clears up shortly after the act he should generally be held strictly accountable. Insanities do not suddenly flare up and vanish in a day or two. Where mental disturbances are of such brief duration, they are usually produced by toxins or poisons elaborated during the course of infective or exhaustive conditions. Thus, temporary mental derangement may occur during typhoid fever, pneumonia, and the like, or follow prolonged exhaustion, fatigue, etc. In deciding the question of insanity attention should be paid to the intellectual standard of the individual in health. Thus, a defect of logic in the conversation of an educated person would be far more indicative of mental derangement than a similar defect in one whose powers of reasoning have never been adequately developed.

Broadly speaking, we recognize two kinds of insanities: (1) Those resulting from definite morbid changes in the central nervous system and

spoken of as *organic*; and (2) those in which no such evident changes are observable; these latter are called *functional*. Among the first we may mention the alcoholic insanities resulting from prolonged abuse of alcoholic stimulants; the temporary and permanent mental disturbances caused by the poisons of morphine and cocaine; the insanities due to syphilis, acquired or hereditary; the mental disorders consequent upon arteriosclerosis, or hardening of the arteries of the brain and giving rise to softening of various brain areas or to hemorrhages. The usual physiological shrinkage of the brain in the old may be of such severity as to give rise to various mental defects, notably marked loss of memory, confusion, etc. Likewise, injuries to the brain, such as result from blows or falls, may give rise to permanent mental symptoms.

Among the functional mental disturbances we reckon the maniacal cases, the various depressive or melancholic states, and what is known as adolescent insanity or dementia precox. This latter form occurs in the young at the age of twenty or thereabout, and leads to a gradual mental deterioration, which is permanent. These patients form about 10 or 15 per cent. of the total admissions to institutions. As a group, the functional psychoses are among the most interesting we have to deal with and the solution of the many problems they present, such as their causes, the mechanism of their manifestations and the possibilities of their arrest, have attracted the attention of the best minds of the profession. The studies which have been made in these cases have enlightened us as to the manner in which these diseases arise, have given us a psychological interpretation of many of the phenomena they present, but I am not going into a discussion of these interesting problems as they lie outside of your immediate interests. Suffice it to say that the results of their investigation have been most promising and that at present we possess a clearer comprehension of the insane utterances, a truer appreciation of the motives which guide the patients in their various activities, and hope is thus held out that eventually a cure may be found for these unfortunates.

From the foregoing you will easily comprehend that many mental diseases are preventable. Thus, if alcohol could be eliminated from the daily life of a large percentage of our population, the alcoholic insanities, of which there are several varieties, would disappear. Likewise, when in some future date syphilis will become a disease of the past, the various mental diseases which are directly traceable to it as a cause will disappear; and since heredity plays a prominent rôle in the functional psychoses, better eugenic marriages will result in offspring not burdened with hereditary predisposition. In what subtle ways heredity works we do not know, but the characteristics of the offspring lie in the parental germ-plasm. Those of you who are acquainted with the theories of heredity promulgated by Weissmann and the laws of heredity as discovered by Mendel will easily know what I mean. Much can be done to safeguard the child from harmful influences which may culminate later in a mental disease.

*Read by invitation before the Bensonhurst Literary Circle, January 23, 1918.

Those already hereditarily predisposed should have their occupations chosen with care, their daily life well regulated, exciting or depressing accidents removed from their path, and their sexual development carefully watched and supervised, since most psychoses of the functional order begin at the age of puberty or thereabouts, when the boy or girl becomes conscious of new feelings, desires, fancies, etc. Analyses of many cases have shown that it is at the threshold of adolescent sexual life that hopes and aspirations, desires and longings meet their shipwreck. People who are prone to become insane show their incapacity to adjust themselves to the new situation. I could adduce abundant evidence to justify my statements but for lack of time will cite an instance or two. A girl who has been brought up without the least knowledge of things sexual gets married—her first sexual experience upsets her; the next day she breaks out into a violent excitement and passes through a mental attack lasting months. Another patient placed in a similar situation becomes apprehensive, loses her appetite, conceives a dislike for her husband, whom she in reality loves, leaves him, and returns to her mother's home. Evidently we have to do here with a disturbance of emotional equilibrium brought on by a sudden change in the sexual life. From these considerations it is plain that sex education is of prime importance at an age when such questions begin to agitate young people. The late Professor Münsterberg, some of you may remember, opposed the instruction of young women in sex matters on the ground that their innocence and finer feelings are thus outraged and that premature knowledge of that mysterious expectancy which like a halo envelops the whole subject, results in disillusionment, but I fail to see the disadvantages he mentions. I do not believe that knowledge of sex problems can have any deleterious effect on young people. It will not tend to rob courtship of its sweetness nor will the young woman thereby lose anything of that innocence of which she can justly be proud. Sex problems have never received as much attention as of late. Since the publication of Prof. Sigmund Freud's works on hysteria and allied conditions, and especially since the appearance of his book on "Dream Analysis," our interest in this phase of life has been quickened and at present it forms the battle ground for many opposing theories and heated discussions. Much opposition to Freud's views has sprung up which undoubtedly is partly due to overzealous disciples who saw sexuality lurking in every thought and act. The conservative view is that Freud has made a really valuable contribution to our knowledge of the fundamental instincts and emotions and pointed out the tremendous rôle sexuality in all its aspects plays in our daily life. The Poet Schiller said that love and hunger are the mainsprings of our life, and in our day when the struggle for existence is not as acute as in primitive humanity, sexuality claims the greater attention.

So far I have been limiting myself to a discussion of general problems and I am sure many of you would wish that I restrict my talk on generalities and take up some definite concrete every-

day experiences with the insane. So I will try briefly to introduce you to several mental disturbances and some of their salient manifestations. The maniacal cases will claim our attention first, chiefly because they are recovered from and on account of their tendency to recur. They generally begin abruptly, are characterized by a happy mood and hyperactivity, talkativeness, etc. Typical cases are diagnosed by the expert at a glance. After a period of several months the excitement abates and they begin to convalesce. In the majority of cases there is an hereditary predisposition. During their excitement they are apt to tear, destroy, and assault, denude themselves, etc. When the excitement is excessive we combat it by immersing the patient in a continuous bath where he may remain for weeks. It is remarkable how a violent patient will quiet down after remaining in the tub a few hours.

There is a form of insanity occurring generally in young people, the initial symptom of which is a depression. Gradually the depression becomes more pronounced, the patients are dejected, refuse to eat or to dress, and the condition may culminate in cessation of all activity. They become mute, have to be forcibly fed, they are dirty in their habits, and may attempt suicide. Such patients usually get well, though there is great likelihood of recurrence, either a similar attack or a state of excitement following. The treatment consists in careful nursing and general supervision. They have to be guarded against all possible means of self-destruction. As soon as these patients become accessible to external influence an investigation is begun into the upsetting causes, his doubts and fears are made a subject of discussion, and his delusions are corrected by argumentation, etc.

There is a form of depression occurring at the age of 50 or 60, a period which women speak of as the change of life. In men this change occurs at a later age. It is a period when people begin to feel that they are getting old, that their mental and physical powers have passed the zenith. They begin to take a retrospect of their lives, a sort of striking a balance of their deeds, and if one's labors have not been crowned with success a peculiar mental state supervenes. They get anxious, fear they will come to want, will never get well; have lost their bodily organs. If religiously inclined, they imagine God has forsaken them, their souls are eternally doomed; they have committed sins, crimes, etc. This mental state has been termed *Involuntio melancholia*. In the majority of cases it is a hopeless condition, mainly because it occurs at a period of life bordering on old age and the patients frequently suffer from real bodily ailments, notably heart and kidney disease, asthma, etc.

Several varieties of mental disturbances occur as a result of alcoholic excesses; I may mention delirium tremens, which follows alcoholic debauch and is characterized by vivid hallucinations of sight, often of a terrifying character. Furthermore, alcohol may give rise to chronic delusional states, dementia, failure of memory, and neuritis. The chief syphilitic disorder affecting the mind is paresis, a truly terri-

ble disease. It comes on after years of infection, when all signs and symptoms of the original trouble have disappeared; it presents a varied mental picture and is hopeless. I could give you many interesting details of this disease but time forbids going into it minutely. Among the insane we meet with a class called paranoiacs, who are distinguished by their harboring all sorts of delusions. You know a delusion is a fixed idea which resists all attempt at correction. The behavior and outward appearance of these patients present nothing abnormal and their memory is excellent. As a class they present the most difficult problem and in the greatest majority of cases it is a thankless job to try to correct their false ideas. In a few cases, however, improvement or even cure has been accomplished.

The treatment of the insane is mainly a psychological problem and a thorough understanding of the difficulties the patient is laboring under is essential to success. The patient should never be looked upon as an object of amusement; his fears, wishes, and complaints should be met with in all seriousness, and an effort should be made to establish friendly relations with him—only then is it possible to gain his cooperation and good-will and lead him to the appreciation that one is really interested in him, and the way is smoothed to effectual cure. It thus explains how a physician is able to quiet down a violent patient by a few kindly and appropriate words when the whole personnel of the ward were exerting themselves ineffectually to their utmost to subdue him.

The great bulk of the population of the hospitals is made up of chronic cases. They constitute about 70 to 75 per cent. of the inmates. Many are employed in various way—they work in shops, stores, assist in the wards, etc. Various amusements are provided for them—dances, moving pictures, and vaudeville performances. It is a queer motley crowd that meets one's eye when going through the wards of an insane asylum. Here you encounter the flotsam and jetsam of the population of a big city—the ignorant, the criminally inclined, the indolent. Here, also, you see the educated, the professional man, the business man who worked hard all his life, and the promising youth whose usefulness was prematurely cut off. These unfortunates shared our joys and sorrows, the emotions agitating us were once part of their mental life—a good many still retain fond impressions of earlier days, but they are often distorted, transposed, and do not harmonize with the individual's present state. It is a depressing picture I am painting to you, but all the more one's contentment will be greater when realizing that amidst the trials and tribulations of modern life he has been able to keep sound his most precious gift of nature—the mind.

War Amenorrhea.—The journal literature of this subject, although considerable, has added little to our knowledge. Spaeth has shown by measurements that the cavum uteri is on an average 5 to 7 cm. long. Stickel states that in the Berlin Charité the percentage of cases has risen steadily from 1 to 7.—*Correspondenz-Blatt für Schweizer Aerzte*.

A CASE OF BILATERAL TOTAL OPHTHALMO- PLEGIA.*

By ALFRED WIENER, M.D.,

NEW YORK.

THE occurrence of total bilateral ophthalmoplegia in the latter years of life is rare, and offers some difficulties when considered from a differential diagnostic standpoint. The following is the record of such a condition in a patient who presented himself to my notice a short time ago:

M. P. is sixty-seven years old. He was admitted to St. Luke's Hospital with the following history: In the latter part of November, 1917, he was taken ill with an attack of influenza. Within ten days he was able to get about. He was on his way to his place of business when suddenly his eyes began to give him discomfort. He became dizzy and fell to the sidewalk. He did not lose consciousness, as he was able to get up without assistance and return home alone. His family physician was called, recognized the gravity of the symptoms, and sent him to the hospital.

An examination of the patient brought out the following facts: He had never been ill with any nervous disease; in fact, he does not remember when he had been ill or confined to his home. His family history is without significance.

The objective examination at the time of his entrance into the hospital was the following: His mentality was good. There were no painful spots to percussion or pressure over his skull. He was not suffering from any headache or vertigo. The vision of the right eye was 20/70th and with a sphere +2.50 it equaled 20/30ths. The vision of the left eye was 20/40ths and with a sphere +2.25 it equaled 20/20ths. With a plus 3.25 sphere added he read Jaeger one at 15 inches.

There was present a total ophthalmoplegia in both eyes. They occupied the median position. Not the slightest movement was evident. The pupils were widely dilated and there was no response to light, accommodation, or consensual reaction. The ptosis was a little more marked on the right side than on the left. An ophthalmoscopic examination revealed a sclerosis of the lens in both eyes, and some peripheral opacities in the left. The fundi in both eyes gave evidence of arteriosclerotic changes. The fields were normal. There was no involvement of any of the other cranial nerves, nor was there any paresis or paralysis present in any other part of the body. The physical examination showed a blood pressure of 170 and an accentuated second sound of the heart. The larger arteries showed evidence of an arteriosclerosis. There was also a mild interstitial nephritis. Alcoholism and syphilis were denied; syphilis was, furthermore, ruled out by the various tests which were made. There has been a gradual return to power of the various external muscles which were affected. At the last examination there was a slight response of the pupil to convergence, but not to light. It is possible now to get action downward, inward, slightly outward, and upward. It should be mentioned that as the power returned it did so in the corresponding muscles of each eye.

Résumé.—We have a patient sixty-seven years of age, with arteriosclerosis and a mild interstitial nephritis. He develops an attack of influenza, and directly thereafter a sudden bilateral total ophthalmoplegia. It is a well-known fact that through the toxin of grippe infection both functional and degenerative changes may occur in the motor nuclei of the third and fourth ventricles. Especially to become involved are the various groups and combinations of eye muscles, resulting in a partial or complete ophthalmoplegia. At the present time there is very little anatomical evidence to determine

*Presented at a meeting of the Ophthalmological Section of the New York Academy of Medicine, January, 1918.

whether such paralyzes occurring after infection are due to a functional toxic, or an inflammatory degenerative change in the nuclei or nerves. A second characteristic of influenza and other infections, although rare, is the thrombotic closure of some of the larger blood-vessels. The cause and method of origin of such closure in arteries varies. Some authors speak of a grippe arteritis, others of an embolism. Such an embolism may occur, for instance, in a case where there is present an arteriosclerosis and at the same time an acute or chronic endocarditis. Again, where such gross disturbances cannot be demonstrated, a thrombus may arise from the left side of the heart and get into the circulation. It may happen incidentally that with an obliterating arteritis of the arteriosclerotic type an arterial thrombus takes place through the weakening influence of an influenza upon the heart and blood vessels. In still other cases a primary or spontaneous thrombus may occur.

In this patient the sudden onset certainly speaks for a vascular lesion. To my mind it hardly seems possible that an acute inflammatory or degenerative process would suddenly produce such an extensive paralysis. The "polioencephalitis" types, which one would naturally think of in a case like the above, would involve the muscles in groups, and irregularly. Such an extensive paralysis as was present in this case would prove rapidly fatal by extension to the medulla.

A blocking up of the basilar artery at its upper end will account for the above clinical picture. It may have been an embolism or a thrombus; either lesion is a possibility. In the absence of any heart lesion I am inclined to believe that a thrombus occurring in such an artery with an obliterating arteritis of the arteriosclerotic type, indirectly produced by a grippe infection, can be held responsible for the symptoms in this patient. The prognosis in these cases is good, as I have had occasion to learn in two others of a similar nature. A collateral circulation probably establishes itself through the circle of Willis.

One other explanation might be offered for the occurrence of this paralysis. If we wish to believe that a toxic agent circulating in the blood may abolish function without visible changes, such an opinion is entitled to respect, but it hardly seems plausible.

550 PARK AVENUE.

Medicolegal Notes.

Proximate Cause of Death.—In proceedings for compensation under the New York Workmen's Compensation Act the State Industrial Commission found as conclusions of fact that on the 28th day of February, 1916, while the deceased was doing some heavy lifting under a boiler, and in consequence thereof, he received an injury which resulted in a right inguinal hernia; that after an examination by Dr. Fisher, a physician provided by the insurance carrier, an operation was performed by him on account of the hernia about March 19, 1916; that "the deceased made a fair recovery from the operation, the wound having healed by primary intention, and the patient was able to be about, for a time, although in a weakened condition," and that six weeks after the operation his condition became such that he had to take to his bed, and he died April 26, 1916.

The Commission also found that at the time of the operation, and for some time prior thereto, the deceased suffered with chronic myocarditis arteriosclerosis, which condition contraindicated the operation and

the anesthetic administered therewith; that the operation and the anesthetic so weakened and debilitated deceased as to light up and hasten his previously diseased cardiac condition to a fatal close, and that "the injuries which resulted in the death of John Tucillo were accidental injuries, and arose out of and in the course of his employment."

The employer and insurer appealed. They contended that the facts found were not supported by the evidence in so far as they relate to the cause of death. It was held that the proof failed to support the theory that the hernia accelerated or aggravated the cardiac condition of the deceased, or that it was the direct cause of the death. All the evidence in the case negated that idea. The evidence also failed to show that the operation or the anesthesia hastened his death.

There was much testimony given before the Commission as to the condition of the deceased before and after the operation, but neither of the two attending physicians nor any one of the four other physicians, called by the insurance carrier to testify as experts, was willing to express the opinion that the operation or the anesthesia was the cause of death, or that the deceased would not have died of myocarditis the time he did if the operation had not been performed. On the other hand, two of them testified that they did not think the operation or the anesthesia accentuated or accelerated the disease or hastened the death of the decedent. Dr. Levy, in his first report to the Commission, said:

"It is very difficult to state whether the operation for the hernia had debilitated claimant to such an extent that the latent pathological conditions of the heart, and blood vessels have been actually exacerbated and thereby have caused premature death."

—and in his second report that:

"I am not able to consider that death was caused either by a hernia nor in consequence of the operation."

Subdivision 8 of section 3 provides that:

"Death when mentioned as a basis for the right to compensation, means only death resulting from such injury."

To establish the fact that a death resulted from an injury, it is clearly not sufficient to prove that the person received the injury; that an operation was performed on account thereof, and after he had apparently recovered from the effect of the operation and the anaesthesia he died from a disease that existed before the injury. The award was for these reasons reversed and the case dismissed.—*Tucilla v. Ward Baking Co.*, New York Appellate Division, 167 N. Y. Supp. 666.

"Accidental" Means of Injury and Death.—The Circuit Court of Appeals, Third Circuit, holds that under a policy insuring against injury or death effected through external, violent or accidental means, the means or cause of death must be accidental, and it is not enough that the death itself is accidental, in the sense of being unintended, unexpected, or unforeseen. The word "accidental" means happening or coming by chance or without design. A butcher, insured against death by accidental means, having a boil on his neck, rubbed it while engaged in cleaning chickens. He broke the scab, permitting germs of erysipelas to enter, and he subsequently died of that disease. It is held that his death did not result from accidental means, as the breaking of the scab was a probable result, and one reasonably to be expected from his intentional act.—*Maryland Casualty Co. vs. Spitz*, 246 Fed. 817.

Action for Medical Examiner's Salary.—In an action against an insurance company for compensation for services as medical examiner, there was evidence tending to show that under the plaintiff's appointment he was to be paid \$60 a month, and other evidence tending to show that this salary was to apply only to a certain kind of insurance for a limited period of time. This evidence, however, was not conclusive, and the whole evidence was susceptible of a construction in favor of the plaintiff. It was held that a case was presented where different inferences might reasonably be drawn from the evidence by persons equally fair and reasonable, and the appellate court refused to disturb the judgment for the plaintiff for want of evidence to support the verdict.—*Liberal Life Assur. Co. vs. Cook* (Ind.) 118 N. E. 586.

Military Medicine.

Hospital Treatment of Shell Shock.—In *Recalled to Life*, No. 2, is an address by Lieut.-Col. Aldren Turner, C. B. M. D., in which he discusses the principles of the management of the shell shocked and neurasthenic soldiers in the special military hospitals. These principles, four in number, were laid down early in the war, but they were subject to modification as our knowledge of these patients and of their disabilities became better known and understood. The first principle was segregation. For the most part the neurasthenic soldiers had been treated in institutions specially set apart for the purpose under the care of medical officers specially qualified to treat them. The adverse criticisms which were brought forward in opposition to segregation in the early months of the war had not been justified. On the contrary, its usefulness had been strengthened and extended by experience. These patients did not imitate each other, or in other ways react harmfully upon each other. On the other hand, it has been found that when placed in the general wards of a hospital, the sufferer from shell shock not infrequently was the butt of the other patients, who were unsympathetic and disposed to regard as trivial the tremors, stuttering speech, unnatural gait, and other symptoms which characterized so many cases of shell shock. The admixture of these patients, as had been suggested with cheery companions, suffering from non-nervous disabilities, might even be undesirable.

The second principle was to give the medical officers liberty to treat their neurasthenic patients along such lines as they considered desirable and which experience had shown to be of therapeutic value. There was no disorder to which the axiom "treat the patient and not the disease" applied with greater directness than to neurasthenia. This liberty of action was very necessary when they considered the different types of neuroses and psychoses which were admitted to the military hospitals under the guise of shell shock. Cases of exhaustion required rest in bed; paralytic cases required exercise and reeducation of the movements of the paralyzed limbs. The simpler forms of anxiety needed reassuring and explanation of the origin of their fears. The terrifying dreams which disturbed the sleep of so many men suffering from shell shock required to be analyzed and explained. The dreads and fears, delusions and hallucinations, and other morbid ideas required to be searched, investigated and understood. After this the readjustment of the patient's mental outlook towards his symptoms required to be taken in hand. It had been found that a too constant and too frequent use of massage, of electrical applications, of baths, and of other physical methods of treatment assiduously practised at the spas, tended to accentuate rather than relieve the condition for which they were used.

The third principle was occupation, quite a number of cases of war neurasthenia and genuine shell shock in the early stages derived great benefit from a "rest cure," but it had become increasingly obvious, with more experience and knowledge of

these cases and their causes, that rest and isolation had only a limited application. The best results were obtained by a judicious combination of a suitable psychotherapy and occupation, mainly of an outdoor kind. It was useless to attempt to cure by work alone, a man whose mind was depressed by anxiety and forebodings attributable to circumstances which he did not understand; but if by judiciously selected work and carefully regulated outdoor occupation, his sleeplessness was mitigated and his circulation and general nutrition improved, the value of the mental therapeutics was enhanced and supplemented.

The fourth principle was compensation. It was recognized early in the war that a large number of soldiers who suffered from shell shock and neurasthenia, would be unfit to return to military duty, although their ability to carry on their civilian work after discharge would not be more than temporarily impaired. As it had been recognized for a long time that some forms of nervous disability were prone to exaggeration, or might even be made chronic by undue consideration, it was determined that nothing should be done by the payment of pensions which would retard or prevent the recovery of soldiers who had been disabled from nervous breakdown. It was thought, therefore, to be desirable to recommend the granting of a money bonus, in place of a pension to selected cases of neurasthenia and functional nervous disorder occurring amongst soldiers when treatment in hospital was no longer necessary and the patient was unlikely to be fit for further military service.

Gunshot Wounds of the Head.—Captain H. E. Gamlen, R. A. M. C., and Captain S. Smith, R. A. M. C., writing in the *Archives of Radiology and Electrotherapy* for February, say that previous to the introduction of the helmet simple fractures of the skull, as shown by the x-rays, could be safely left without surgical interference, and they never had reason to regret an expectant policy; but lately they have been struck by a remarkable series of cases of wounds on or about the apex of the temporal crest. These patients came in but little affected, often showing no physical signs or at most a slight facial weakness, paresis of one arm, or some aphasia. Their temperature and general condition on admission gave no cause for anxiety. The men remained well for two or three days, at the end of which time signs of cerebral mischief suddenly revealed themselves. Convulsions unamenable to bromide or morphine, increasing optic neuritis, severe headache progressing to drowsiness, with progression of focal symptoms all indicated urgent need for operation. On turning down a flap, at most a slight cracking of the temporal bone could be seen; more commonly there was a considerable area of discoloration, a bluish appearance of the bone under the wound; in one case there was no change in the bone at all. There was no extensive extradural hemorrhage, but the dura was in most cases adherent to the subjacent brain by a layer of altered clot. A considerable cavity containing pulped brain and sanguineous material was found in the temporal lobe. Evacuation of this collection with drainage caused a gradual amelioration of symptoms

and their mortality for six cases has been nil.

A Clinical Study of Some Pyogenic Lesions Observed in France.—Captain W. H. Brown, R. A. M. C., writes in the *British Journal of Dermatology and Syphilis* for December, 1917, concerning some pyogenic lesions observed in France. It is a well-recognized fact, he says, that during war times new disease conditions arise with which we are unfamiliar and that known conditions alter in type and character. The change is most probably due to the altered conditions of life; the physical and mental strain which must necessarily tax the resisting powers of the body to the utmost. This applies in the domain of dermatology as in the diseases of the other systems. For example, there is an intractable type of seborrhea corporis et capitis subject to frequent relapses with secondary pyogenic infection; there is the unusual complication of adenitis of the groin in scabies when there is no secondary infection to account for it; there are various types of impetigo which present features not commonly seen in civil life. The type of infection Brown confines himself to is the streptococcal condition so commonly met on the buttocks and lower limbs, a type which causes a great deal of destruction of tissue and which is a great source of wastage to the army. It is a form of impetigo which requires to be clearly differentiated from the milder condition met with so frequently on the face and head, though both are of streptococcal origin. The difference may be partly explained by the situation on the lower limbs and the consequent much greater exposure to irritability by dirt and perspiration. Brown gives a minute and exhaustive description of the clinical manifestations of the infection and points out that in the callous ulcer stage these cases are often sent into hospitals diagnosed "syphilis." There is never, however, any of the serpiginous character in the treated ulcers such as is found in the old tertiary syphilitics. It is not to be inferred that all the lesions go to the formation of large callous ulcers. There are all stages and degrees of the infective process, but the primary pustule is the same and a culture from these early lesions gives a pure growth of streptococcus; also the superficial type of impetigo may be present at one and the same time on the limbs. Relapses are frequent. It is not uncommon for patients to be returned to the hospital within one or two weeks with fresh sores, or a patient will be discharged to duty from one hospital; after six to eight weeks' treatment only to be readmitted to another within a very few days. The wastage to the army may amount to four months or more in some cases. Frequently those men stated that it was the wearing of puttees which precipitated each attack. From the frequency with which pure streptococci growths were obtained from these pustules on different media there appears little doubt that the lesion is primarily due to the streptococcus. In the larger lesions very often the streptococcal growth was contaminated by staphylococci *albus* et *aureus*. The latter sometimes quite outgrew and obliterated any possible trace of the streptococcus. The *Bacillus pyocyaneus* was found in a few of the large sores. To

what extent the secondary staphylococcal infection takes part in the destructive process is a little difficult to say, but doubtless it plays an important part. Rare staphylococcal conditions, boils, and folliculitis frequently complicate the condition and add greatly to the difficulty of treatment and the duration in hospital. Wassermann tests were made in all cases with negative results, also the edges of the sore were scraped and the serum examined under ground illumination with negative results. There was no question of the ulcers being of varicose origin. As regards treatment, one can emphatically lay stress on the great importance of rest in bed in all acute cases or in those with any degree of ulceration. Treatment was often ineffectual until the patients were put to bed. Even comparatively trivial cases would sometimes require rest in bed before healing took place. The essentials in local treatment were the perfect cleaning of the sores and dressing twice daily if possible. Almost every application was tried, including scarlet red, brilliant green lotion and ointment. The most satisfactory applications were a 20 to 30 per cent. ichthyol ointment containing one-sixth per cent. perchloride of mercury, bismuth, iodoform paraffin paste, red lotion, easol and boric fomentations. Each had its own place and use. Scarlet red and brilliant green were only useful when the sores were fairly clean and even then gave no better results than the other things properly applied. Strapping the callous ulcer with boric acid powder gave excellent results.

New York Hospitals Open Clinics to Naval Medical Officers.—Upon the recommendation of commanding and medical officers of certain ships of the Cruiser and Transport Force, United States Atlantic Fleet, the Commander of the Cruiser Force has sought and obtained through the Mayor's Committee on National Defense access to the clinics of hospitals of Greater New York in order to give the medical officers of the cruisers and naval transports opportunity for increasing their professional experience. Thus far the following hospitals have tendered their services: Mount Sinai, Bellevue and the Allied Hospitals, Beth Israel, New York Eye and Ear Infirmary, Hahnemann, Italian, Long Island College, Dispensary and Hospital for Deformities and Joint Diseases, New York Orthopedic, New York Polyclinic, Ruptured and Crippled, New York Ophthalmic, New York, Park, Lincoln, Willard Parker, Memorial, St. John's Guild Floating Hospital, and the Herman Knapp Memorial Eye Hospital. The only formality required will be the presentation of the officer's personal card to the office of the superintendent of the institution upon occasion of the first visit. Daily information can be obtained of operations, hours, and operators at the various hospitals in Greater New York from the Society for the Advancement of Clinical Study in New York, Bureau of Clinical Information, New York Academy of Medicine.

The Training of Nurses' Aids.—The Mayor's Committee on Hospital and Medical Facilities of New York City recently instituted an inquiry for the purpose of ascertaining what preparations the

hospitals of the city were making to effect the shifting of graduate nurses from civil to military practice and to provide against other contingencies in the nursing field arising out of the war. The investigation shows that efforts to enlarge the training schools have not yielded satisfactory results. There is a growing conviction that the nursing crisis can be met promptly and effectually only by the training of a large number of volunteer nurses' aids. Hospitals in New York City which have undertaken the training of nurses' aids are Bellevue, Brooklyn, German, Mount Sinai, Post Graduate, Presbyterian, Roosevelt, St. Luke's, and the Staten Island. Reports from these institutions show that a total of 411 aids have completed their theoretical and practical training. A number of the larger hospitals of the city are now employing nurses' aids. The committee recommends that the plan for the training of volunteer nurses' aids now followed in base hospitals under the auspices of the Red Cross Nursing Service be accepted and extended to such other hospitals as may be approved by the Red Cross for the purpose, and that such courses whenever given should conform substantially to this plan and be carried on under the same auspices. Dr. S. S. Goldwater, chairman of the Mayor's Committee on Hospitals and Medical Facilities, says the time has come for the training of volunteer nurses' aids in large numbers and for increasing by every possible means the number of regularly enrolled pupil nurses in view of the fact that the hospitals of the country, both civil and military, will doubtless, within the next two years, be called upon to care for 150,000 additional patients.

Two New York City Hospitals for Government.—As the result of a conference between representatives of the Federal Government and Mayor Hylan, the Sea View Hospital on Staten Island and the Otisville Sanatorium at Otisville, N. Y., will be taken over by the Government. The Government plans to expend about \$450,000 in providing additional wards and beds and in making other improvements. It is planned to use these hospitals jointly for both wounded soldiers and city patients.

New York Hotels for Nurses.—The United States Government has designated ten hotels owned and operated by the Knott Brothers for the care of Red Cross nurses who come from various parts of the country and have to remain for a time in New York before leaving for the other side. These hotels have been selected because of their convenience to steamship piers and because some have been designated as base hospitals and replacement stations.

Sick and Disabled Soldiers Brought Home.—An American transport arrived at the Port of New York on April 17 with 2,000 soldiers and sailors said to be recuperating from illness or from wounds received in battle. Secrecy has thus far been preserved regarding the disposition of these invalided men.

New York Doctors Get War Crosses.—Lieutenant George Patton of the American Army Medical Corps has been awarded the French War Cross for courage in treating wounded men while without a gas mask during a heavy bombardment of

gas shells. He continued to work until overcome by gas. Lieutenant Theodore Higgins Sweetser, M. R. C., U. S. A., has been recommended for the British Military Cross for conspicuous gallantry and devotion to duty in having rendered valuable assistance to more than forty men suffering from gas while he was also suffering from its effects.

Died in the Service.—Captain HARRY JAMES O'BRYAN, M.R.C., of Watertown, S. D., a graduate of Barnes Medical College, St. Louis, Mo., in 1902, died at Fort Snelling, Minneapolis, on April 3, aged 40 years.

Lieutenant ARTHUR LEWIS BOBRICK, M.R.C., died of pneumonia at the Harlem Hospital in this city, at the age of 26 years. He was a graduate of the Long Island College Hospital Medical School in 1917 and had served on the staff of the Harlem Hospital, being also a member of the faculty of the New York School of Medical Gymnastics and Massage.

Lieutenant WILLIAM T. NAGLE, M.R.C., formerly practising in Fairfield, Conn., has been killed by an accident on the front in France. Dr. Nagle was born in 1872 and was a graduate of the Medico-Chirurgical College, Philadelphia, in 1914, serving later as interne at St. Raphael's Hospital in New Haven.

Philadelphia Doctors Wounded on Western Front.—A despatch from London, under date of April 10, states that in the course of the recent fighting a surgical team, sent to a casualty clearing station by a Philadelphia hospital, was heavily bombed. Dr. Edward B. Hodges, Dr. Henry Dillard, Jr., and Miss Isabella Stambaugh, one of the nurses, were wounded. It is stated that Dr. Dillard's wound is very slight and that he has returned to duty.

Dr. Edward Wallace Lee, Major, M. R. C., U. S. A., has been ordered to report to the Commanding Officer at San Juan, Porto Rico, for active service.

Hospital Annex for Soldiers and Sailors.—At a Loyalty Day celebration at Flower Hospital, on April 21, Dr. Royal S. Copeland announced the gift of a completely furnished 300-bed annex to Flower Hospital to be used for wounded soldiers and sailors from Charles M. Warner. A six-story building immediately adjoining the present hospital building has been acquired for this purpose at a cost of \$100,000 and plans for reconstruction have been completed. The annex will be ready for occupancy by August 1.

Hospitals Forced Back by Falling Shells.—A despatch, under date of April 22, from the British Army Headquarters in France, states that a few nights previously shells began falling on two army field hospitals, killing several orderlies and destroying the operating room of one of the hospitals. These hospitals fell back once only to be bombed a second time and during the retreat the patients were fired upon. The retreat was exceedingly well disciplined and orderly and the patients were moved to safety without the loss of a single one. Nearly all the equipment of these hospitals was saved, several surgeons carrying loads of instruments for distances ranging from twenty-five to thirty miles. It is said that a fine spirit of self-sacrifice and pluck was shown and that the work of the stretcher bearers and their staffs received special commendation.

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A FRENCH VIEW OF SHOCK.

As is well known, the French surgeon has no word for shock and continues to employ the English expression with little effort to assimilate it. For him it appears to be a collective term, applicable to a number of conditions which supervene suddenly, evolve rapidly, and are characterized by marked depression. Shock-like states appear in septicemia, acute anesthetic intoxication, hemorrhage, anaphylaxis, acidosis, cerebral commotion, etc. The war has made necessary a revision of our notions of shock and we can isolate a syndrome to which the term "nervous shock" seems applicable to the exclusion of anaphylaxis, hemorrhage, and other causal factors. In *Le Progrès Médical* for February 9, Roux-Berger and Vignes express themselves in the above language, and emphasize our intense ignorance of the nature of military shock, despite its great frequency and gravity. The numerous and varied hypotheses put forward in recent years as to the mechanism of this phenomenon carry no weight with these authors. It is a significant fact that there is never time or opportunity to study shock clinically, which means that the diagnosis of a given case may have been of the "snap" order. In a subject who has just received a major wound, there are no opportunities to take blood pressures, temperatures, etc. From quite another angle, there is in the phenomenon of shock something so mysterious, so unlike any other form of clinical behavior, that one despairs of ever being able to comprehend its intimate nature.

What is shock from the standpoint of a crude diagnosis? the writers ask. Three symptoms must be present, to wit, depression, lowered animal heat, and lowered blood pressure. Even the symptom depression is something ill defined—we recognize its presence but it is not easily described to others. The depressive state is accompanied by a peculiar inquietude and once seen is always recognizable. Hence diagnosis may be termed a simple matter—that is, simple until we try to associate effects with causes in the search for a rational management. The patient is pale and anxious—he would doubtless also be in a state of agitation were he less depressed. The mere appearance of the patient

suggests a case of severe hemorrhage. There is slight dyspnea which is not present at first. The patient with shock does not cry out and this distinguishes him from a man who is merely badly wounded. The surface feels cold to the hand and if the temperature is taken it will be about 36° C. (96.8° F.). The skin is also a trifle moist. The pulse is miserable and in the worst cases imperceptible. Its rapidity is never less than 140.

Patients recover from shock but it is not because of any surgical treatment they have received, and surgical intervention in traumatic shock must greatly aggravate it. To attempt to give a prognosis in a bad case of shock is extremely unwise. When recovery occurs the symptoms naturally disappear and in the fatal case the temperature and blood pressure show no rallying tendency. The prognosis seems worse in severe lesions of bones. The authors have never seen a severe shock follow a slight wound although others have placed such cases on record. In these cases the real condition may have been fatal syncope which is known at times to follow slight traumas. So-called peritoneal shock is a special clinical type which need not be at all due to accompanying hemorrhage. It is readily intensified by various factors in connection with surgical treatment. In general, implication of the sensory nerve system, especially of the great nerve trunks, has a tendency to augment the severity of the shock. The patient may be in a condition to invite shock, as after exposure to cold and damp, fatigue, vigils, the painful emotions, etc.

But there may be present every element favorable for the development of shock yet no shock may develop; and on the other hand, the patient may not develop shock until he goes under the surgeon's hands. The treatment and prevention of this condition begin with hemostasis. Next in order the patient's animal heat must be conserved by the use of special envelopes and individual heating apparatus. For the pain morphine is necessary and fractures must be immobilized. The patient must be quickly transported to the rear. The field hospital once reached, the warming process is at once intensified by the use of apparatus in which electric lights, hot air, and other resources may be utilized. The heating process may be maintained for as long as 48 hours before the case is deemed hopeless. Progress is indicated by increase in the blood pressure. Circulatory stimulants may be inert. Adrenalin and the injection of a little serum are recommended. There is, however, these authors say, no sovereign remedy for shock; to secure one is the task of the future. First, we must have more and better observation, and then less confusion in nomenclature, before we can treat essential shock.

DILATATION OF THE CYSTIC DUCT AFTER CHOLECYSTECTOMY.

Two articles, relative to gall-bladder and duct surgery, which appeared in the January, 1918, number of *Surgery, Gynecology and Obstetrics*, serve to

emphasize the fact that the way of the surgeon in this region is beset with pitfalls which may easily entrap the unwary. The first article, by Ellsworth Eliot, Jr., deals with the repair and reconstruction of the hepatic and common bile ducts; and he points out that benign strictures of these passages requiring reconstructive surgery ordinarily follow the healing of an ulcer, the result of pressure of a stone or of subcutaneous trauma or, much more commonly, the result of unrecognized division or excision of a segment of the duct in the course of a cholecystectomy or difficult choledochotomy. These injuries to the ducts may be inflicted not only in cases which are rendered unusually difficult because of the excessive adiposity of the patient and the consequent relatively poor exposure of the operative field, or because of the presence of dense adhesions, but also because of occasional anatomical anomalies as to point of division and course of the hepatic and cystic ducts. As Eliot remarks, the identification of the junction of the hepatic and cystic ducts is essential when performing cholecystectomy; and when this is done there should be no danger of injuring the hepatic or common ducts provided reasonable care is exercised when clamping, cutting, and ligating vessels and the stump of the cystic duct.

Yet if, in the anxiety to avoid damaging the other ducts, the section of the cysticus has not been made close to its junction with the hepaticus, the second article referred to above reminds us that besides the Scylla of clamping or cutting too close to and injuring the hepatic or common duct, there is also the Charybdis of leaving too long a stump of the cysticus, which may dilate, form a pseudo-gall-bladder and contain calculi. This was the experience reported by Eisendrath and Dunlavy, who also quote a similar case reported by Floercken and refer to another which occurred in the service of Greensfelder. In the case reported by Eisendrath and Dunlavy a cholecystectomy had been done and the patient had been relieved of all symptoms for a period of two years. At the second operation a dilatation of the cystic duct one inch long and the size of an almond was found. "This pseudo-gall-bladder contained a calculus about the size of a millet seed, and two bean-sized calculi were also found in the common duct which had been overlooked at the first operation." In Floercken's case a cholecystectomy had been done three years previously. At the second operation, which was performed on account of severe colicky pains, the stump of the cystic duct was found dilated to the size of a plum, contained a soft, brown calculus, and communicated with the common duct through a narrow channel.

Eisendrath and Dunlavy, in looking up the literature, found that experimental work done by Oddi, by DeVoegt, and by Haberer and Clairmont showed that when a considerable portion or all of the cystic duct was left after the removal of the gall-bladder in an animal and the animal was killed in from two weeks to six months, this structure di-

lated to form a gall-bladder; but that this did not occur when the cystic duct had been removed close to the common duct. To confirm these findings, Eisendrath and Dunlavy undertook a series of experiments on dogs, using the following technique: "Through an upper right rectus incision, the gall-bladder was carefully separated from its liver bed and ligated with silk at the junction of the cystic duct and gall-bladder. No attempt was made to remove any of the cystic duct. The animals were killed at intervals varying from a week to four weeks, then every two weeks for the second month, and finally every month up to six months." They found that by the end of the first week the cystic duct had dilated so that it was about twice the normal size; that it grows rapidly in size from the second to the sixth week, until by that time a structure is found which greatly resembles a normal gall-bladder in appearance, in that it has a relatively wide fundus and a narrow neck. Their experiments absolutely confirmed the experimental work of Haberer and Clairmont.

Emphasizing the clinical lesson which is to be drawn from these experiments and from the reported cases, Eisendrath and Dunlavy say that Floercken's case, their own, and a similar one in the service of Dr. L. A. Greensfelder of their hospital show that we can have recurrence symptoms through dilatation of the cystic duct to form a new gall-bladder with or without the formation of calculi in the same; and they believe that more care must be exercised in the future to remove the entire cystic duct as close as possible to the common duct.

DESCRIPTIVE HUMAN PHYSIOLOGY.

BEFORE the period of experimental physiology had attained its full flower the textbook writer was wont to fill his space with miscellaneous information on the functions of the human body, much of which was perhaps apocryphal because of the sources from which it was taken. There is, however, at the present time, an increasing need for descriptive textbooks, as shown by the fact that information of this character has now become badly scattered, and is, moreover, no longer monopolized by medical men. All occupations which deal directly with human anatomy and physiology can teach something of value to the latter. The vast number of reflex phenomena used by the neurologist in diagnosis are or depend upon physiological phenomena, yet the student learns nothing of them in his earlier period of training. In descriptive physiology the old idea of a separation of the structure from the functions is of course outlawed; one subject is hardly conceivable in the absence of the other; one fact may be much more static than dynamic, but a distinction between the two types of facts, thus founded, would be eminently artificial.

The subject of the structure and functions of the body is a mine which will still repay working. Let us take a most commonplace and obvious fact, which has probably never been brought home to

the average medical man. He accepts on trust the statement that the normally smooth surfaces of the skin are covered with down. If he wishes to realize this, let him spray some apparently smooth skin with water in an atomizer. If now he examines the skin under a lens he will see many short, fine hairs, upon each of which will hang three or four droplets of water, and which, but for the presence of the droplets, might escape observation. This extremely fine down is of course not to be confused with ordinary lanugo which is readily visible to the unaided eye. The picture is often a most striking one.

In certain individuals a sneezing reflex can be provoked by pinching the nose just below the bony dorsum; in others the same procedure will arrest this reflex. An impending sneeze may often be averted also by pressure on the upper lip at the base of the nose. It is a matter of common experience that a feeling of nausea and malaise can often be banished by a sneeze, whether spontaneous or induced—and this appears to be the simplest and least objectionable method for use; whether or not it has ever been tried in seasickness we are unable to say.

An individual can quickly and surely determine whether he has a bent septum and resulting inequality in capacity of the nasal chambers by a sudden intake of breath, the alæ remaining passive. A vacuum forms in the narrow side and the nostril closes. In this connection we take the opportunity to point out that the expression "a sniff of displeasure" is badly founded. The ladies, we believe, are commonly accused of registering displeasure in this fashion. But a sniff is an intake of breath while the manifestation of displeasure consists of an expiratory effort, which is, moreover, often accompanied by that peculiar grunt of dissatisfaction expressed in type as "humph."

How many men can swallow with the mouth open—or at least wide open? The act is certainly by no means easy of execution, but in all likelihood can soon be mastered by the average individual. The initial difficulty appears to show that in ordinary swallowing we are in the habit of getting a purchase by closing the jaws.

A phenomenon which *a priori* is readily intelligible, but which is little known, has to do with the obliteration of the subclavian artery in many individuals when the chest is fully inflated. A subject who can inflate fully the apices of his lungs may suddenly arrest the radial pulse and a phenomenon of this sort lends itself readily to mystification and simulation.

That a badly frightened man cannot spit, while a "bad" man may show his absence of fear to his kind by spitting freely is well known to a few but should be known to all medical men.

The number of such facts which are at present unutilized in teaching physiology probably runs into the hundreds. Some attempt should be made to assemble and analyze them. A periodical devoted to this quest might be worth the effort. Certainly no man should enter upon the practice of medicine

without a complete equipment of this character, for it would be of infinite service to him in both diagnosis and therapeutics.

AN OBJECT LESSON FOR MAYOR HYLAN.

THE Mayor of this city and his fellow reformers, who are engaged in the effort to disrupt the Health Department, have given evidence of some acumen in proposing first to do away with the least useful because the worst managed of all the several bureaus in the Department. Yet the Mayor is at the same time guilty of ingratitude, for the antagonism of a very considerable portion of the medical profession of the city, especially of Brooklyn, aroused by the dictatorial conduct of the then commissioner, as manifested largely through his publicity bureau, is believed to have contributed quite materially to the overthrow of the former administration. This bureau has been supported on general principle by the Public Health Committee of the New York Academy of Medicine and by various other organizations and individuals, but no one, in the arguments advanced against the dissolution of the bureau, has ventured to commend what the health commissioner has characterized as the press agent methods of the bureau. However, there is no question of the necessity of maintaining the existing organization of the Department of Health, including the Bureau of Public Health Education.

Before the Mayor goes much further in his course of disruption, it might be prudent for him to glance toward Philadelphia and see what has happened there. The Federal Government has taken control of the Police Department of that city because Mayor Smith was unwilling or unable to put an end to vice conditions which threatened the good of the Navy. The government saw the Mayor interfering with war needs and it brushed him aside. The New York Department of Health, through Dr. Park, has already been of great service to the Army in supplying it with needed vaccines and sera. If the Mayor, in his blundering, gets rid of Dr. Park and his corps of experts, the country will suffer, for such a director and such a staff cannot be raised, like Bryan's mythical army, overnight. The government also needs the help of Dr. Josephine Baker's Bureau of Infant Hygiene, and indeed of most of the other bureaus, and it will be likely to interpose a veto if the disloyal work of ruining the Health Department threatens accomplishment. The Mayor would have no face to save if the government should treat him as it has his Philadelphia brother in civic virtue, and he would do well to save it now before it gets beyond repair. Dr. Amster, the present commissioner, also seems to be riding for a fall. When he was appointed his colleagues regarded him as at least a man of good intentions.

A SUBSTITUTE FOR COD-LIVER OIL.

IN spite of the disrepute into which cod-liver oil has fallen in the opinion of many, there is no doubt that it has some value, at least as an easily assimilable nutrient. Those who appreciate this value and

have been accustomed to employ it in their practice have found it to be another drug which the present war has rendered scarce and expensive, so that the news that a satisfactory substitute exists will be welcome information to these. Colonel J. S. Purdy, in a recent issue of the *British Medical Journal*, has called attention to an oil obtained from the mutton-bird, or sooty petrel, a bird which spends nine months of the year in the Antarctic and the balance around New Zealand and Australia. These birds are rich in fat from which an oil is expressed which Purdy has found to be quite as efficacious as *oleum morrhuae*. He had noticed that natives suffering from tuberculosis gained greatly in weight during a native festival called "tangi," at which time large quantities of these oleaginous fowls were consumed. He then experimented with the oil itself with good results. Owing to the fact that it is practically unknown to European and American practitioners as yet, this oil is plentiful and cheap, and it would therefore be well to make the most of this Arcadian state of affairs and eke out the scanty and expensive cod-liver oil with this substitute while it lasts. There should moreover be obtained a powerful psychic effect by the use of "an ingredient procured from a rare bird frequenting the South Pole," and many cures might be effected through the timely use of some such preparation as "Peter Parley's Petrel Pellets."

X-RAYS AND THE WAR.

It is curious but true that even now when it would seem that the x -rays have conclusively demonstrated their value there are medical practitioners who are sceptical as to their use. Some well-known surgeons within recent years have been known to assert that they are able to diagnose injuries or abnormalities better without than with the aid of x -rays. In fact, as is pointed out in an article in the *Medical Press and Circular*, March 13, 1918, there is unfortunately at the present time, although the war has been in progress for nearly four years, widespread prejudice in certain quarters against this branch of medicine. The reason, or the main reason, for this state of affairs is not far to seek. It is chiefly because there is a lack of trained radiologists. It is by no means an easy matter to take accurate and clear skiagraphs nor is it open to the untrained man to interpret them properly. The writer of the article referred to says that the surgeon is fortunate who can rely on the report of the radiologist who knows to a nicety the depth and position of the buried shell fragment, who can decide from which angle he may enter without a haunting fear, born of unhappy experience, that the glib description bears no relation to reality, that the dangerous object lies on the other aspect of the bone, that prolonged search will be unavailing and operation must be postponed until further radiological calculations have been made. It is not then that the x -rays are not of almost incalculable value for diagnostic purposes but rather it is that a dearth of skilled radiologists causes radiology to be held in slight esteem by many surgeons. An untrained radiologist is worse than none at all, for the surgeon will thus be leaning upon a broken reed.

News of the Week.

Children Are Being Deprived of Milk.—A recent bulletin issued by the Children's Bureau of the United States Department of Labor publishes the results of an investigation of 756 Baltimore children between two and seven years of age. It was found that only 29 per cent. of these children were now having fresh milk to drink as against 60 per cent. a year ago. Less than 3 per cent. of the children studied were having as much as three cups of milk a day. With the babies under two years of age the situation was found to be a little less serious. Their needs are apparently a little better understood than those of the child over two years of age. Of the 575 children who were not drinking milk, 64 per cent. had definitely substituted tea or coffee. The foreign-born mothers, though their incomes are slightly lower than the incomes of native born white mothers have more generally than any other group continued to buy milk. The Children's Bureau states that the work of Children's Year should emphasize in every community the importance of fresh milk in the diet of young children and that a campaign of education on the feeding of children is an essential part of the saving of 100,000 lives during the coming year.

Memoir of Dr. John Shaw Billings.—The New York Public Library has available for distribution copies of the Memoir of the late Dr. John Shaw Billings, librarian of the Surgeon General's Office, and first director of the New York Public Library, written by Dr. Fielding H. Garrison, and published by Messrs. G. P. Putnam's Sons in 1915. Medical libraries or librarians who wish the book may secure a copy by forwarding postage to H. M. Lyndenberg, New York Public Library, New York City.

Renew Fight Against Tuberculosis.—The Tuberculosis Committee of the State Charities Aid Association of New York announces the details of a movement to aid local health authorities to deal with tuberculosis growing out of war conditions. Two physicians have been placed at the disposal of authorities throughout the State to aid in establishing dispensaries and providing medical oversight and sanitary supervision. These physicians are Dr. Elliott Washburn, former superintendent of the State Tuberculosis Sanatorium at Rutland, Mass., and Dr. Charles S. Prest of the New York State Department of Health. It is estimated that the draft has revealed 22,000 cases of tuberculosis, the great majority of which must remain at home and hence there is need of a renewed interest in the medical oversight, instruction and assistance of tuberculosis cases.

Work of Children's Year in New York.—In New York City the Mayor's Committee of Women on National Defense, of which Mrs. William Randolph Hearst is chairman, has been designated by the State Council of National Defense as the official organization to carry on the work inaugurated by the Children's Bureau of the Department of Agriculture. A tentative program has been outlined which has as its purpose the saving of 4,700 children under five years of age in New York City during the year beginning April 6, 1918. The

plan includes maternity centers where prenatal instruction will be given, maternity insurance, and proper care at childbirth; the provision of such care and instruction as will keep each baby well during the pre-school age. Centers for pre-school age children will be established in dispensaries, schools, baby health stations, settlements, day nurseries, neighborhood associations, and other organizations. The work will be carried out along borough lines and will be apportioned among the borough committees. There will be committees on speakers, meetings, and propaganda; on examination centers; on social agencies and nursing; on medical care, and on volunteer workers.

Doctor Begins Long Journey to Stefanson.—Dr. Burke, a Fort Yukon missionary physician, has started on a 300-mile snow trail to succor Stefanson, who is wintering at Herschel Island and is suffering from typhoid fever. Dr. Burke has taken five dog teams and hopes by using them in relays to reach Herschel Island in ten days.

Course of Study for Mosquito Fighters.—The Brooklyn Institute of Arts and Sciences announces a course of instruction at the Biological Laboratory at Cold Springs Harbor, Long Island, designed to train persons for practical work in the elimination of flies and mosquitos. The course includes surveys and mapping, identification of species, life history of the different species of mosquitos and flies, specifications for treatment and elimination. The course begins on July 3 and continues for six weeks.

Acting Assistant Surgeon (Female).—The United States Civil Service Commission announces an open competitive examination for women only to fill the position of assistant surgeon in the Public Health Service at salaries of \$1,800 to \$2,500 a year. The appointees to certain of these positions will be expected to make physical examinations of female workers and immigrants, conduct sanitary surveys, and perform other duties of routine character. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C. Applications must be filed prior to May 21, 1918.

Positions at Rome State Custodial Asylum.—This institution offers positions for Assistant Physicians, Clinical Assistants, and Medical Internes. All these positions pay salaries including maintenance and offer opportunities for promotions. The facilities offered enable internes to qualify for army and navy medical service. Further information may be obtained by addressing the Rome State Custodial Asylum, Rome, N. Y.

Positions for Physicians in New York.—The Civil Service Commission of New York State announces competitive examinations for the following positions: *Medical Expert on Tuberculosis*, State Department of Health, open to men and women who are experts on the diagnosis and treatment of tuberculosis, salary \$3,200 a year. *Director of Laboratory*, Department of Health Office, Port of New York, Rosebank, S. I., N. Y., salary \$3,500. *Assistant Medical Officer*, Department of the Health Officer of the Port of New York. The

position is open to men only and carries a salary of \$1,500 a year. *Assistant Physician*, regular or homeopathic, for State hospitals and for positions of a similar nature in various state and county institutions. The salary is \$1,200, increasing gradually to \$1,600, with maintenance. Applications must be in the hands of the Commission before May 15. Further information may be obtained by addressing the State Civil Service Commission, Albany, N. Y.

Medical Society Elections.—THE MASSACHUSETTS HOMEOPATHIC MEDICAL SOCIETY at its seventy-eighth annual meeting held in Boston, on April 10, elected the following officers: *President*, Dr. W. H. Waters of Boston; *First Vice-president*, Dr. Elmer H. Copeland of Northampton; *Second Vice-president*, Dr. Wesley T. Lee of Boston; *Recording Secretary*, Dr. Edward S. Calderwood of Roxbury; *Corresponding Secretary*, Benjamin T. Loring of Watertown; *Treasurer*, Dr. Thomas M. Strong of Boston; *Chairman of the Board of Censors*, Dr. Alonzo H. Howard of Boston.

THE TENNESSEE STATE MEDICAL ASSOCIATION, at its meeting in Memphis, Tennessee, on April 10, elected the following officers: *President*, Dr. Richard M'Kinney of Memphis; *First Vice-president*, Dr. W. H. Tucker of Halls; *Second Vice-president*, Dr. Horace Farrar of Hillsboro; *Third Vice-president*, Dr. A. G. Kern of Knoxville; *Secretary* (re-elected), Dr. Olin West of Knoxville; *Trustee*, Dr. C. J. Boyles of Johnson City; *Delegate to the American Medical Association*, Dr. E. T. Newell of Chattanooga.

THE FAIRFIELD COUNTY MEDICAL ASSOCIATION, at a meeting in Bridgeport, Conn., on April 9, elected the following officers for the ensuing year: *President*, Dr. F. I. Nettleton of Shelton; *Vice-president*, Dr. J. R. Hertzberger of Stamford, Conn.; *Secretary*, Dr. C. W. Gardner of Bridgeport; *Treasurer*, Dr. H. B. Lambert of Bridgeport; *Acting Treasurer*, Dr. F. W. Stevens of Bridgeport; *Councilor*, Dr. F. H. Barnes of Stamford.

THE TRI-STATE MEDICAL, DENTAL, AND PHARMACEUTICAL ASSOCIATION, at its meeting in Memphis, on April 11, elected the following officers for the ensuing year: *President*, Dr. J. H. Barabla of Marianna, Ark.; *First Vice-president*, Dr. M. V. Vembla of Oakland, Tenn.; *Second Vice-president*, Dr. J. T. Brasfield of Memphis; *Third Vice-president*, Dr. Isaac Carroll; *Fourth Vice-president*, Dr. F. T. Jones; *Fifth Vice-president*, Dr. W. T. Sherred; *Recording Secretary*, Dr. R. P. Pruitt; *Corresponding Secretary*, Dr. R. G. Martin; *Treasurer*, Dr. S. W. Pope.

Dr. S. S. Goldwater has tendered his resignation as chairman of the Mayor's Committee on Hospital and Medical Facilities. Dr. Goldwater will, however, at the request of the Mayor, continue to serve as a member of this committee.

Dr. James Peter Warbasse of Brooklyn, N. Y., has been removed from membership in the Medical Society of the County of Kings. He was accused of opposing military training and of defaming the medical profession. It was voted to submit a report of the proceedings to the Department of Justice.

Leper Colony Buys Thrift Stamps.—The National War Savings Committee announces that the

lepers at Molokai have bought \$3,000 worth of thrift and war-saving stamps as their contribution toward the cost of winning the war. The leper camp flies the Stars and Stripes and is furnishing an example of patriotism from an unexpected source.

The Medical Library Association.—Owing to present conditions and the difficulties of travel, the Executive Committee of the Medical Library Association has decided to omit the regular meeting this year.

The Late Dr. Guiteras.—The Harvard Medical Society recently adopted the following resolution: *Whereas*, the death of Dr. Ramon Guiteras, a charter member of the Harvard Medical Society of New York City, has recently occurred following a brief illness, thus taking from the Society one of its most beloved and distinguished members: *Be it resolved*, that the Society record its sincere grief and regret for the loss of one whose personal charm and lovable quality, associated with eminent professional attainments, made a combination the worth of which is universally acknowledged. *Be it further resolved*, that the Secretary send a copy of these minutes to Dr. Guiteras' sister, together with the Society's deepest sympathy. *Signed*: Eugene Fuller, M.D.; E. M. Foote, M.D.; Charles R. L. Putnam, M.D., Committee on Resolutions.

Obituary Notes.—Dr. FREDERICK VEAZIE HARDWICK died of pneumonia at his home in Dorchester, Mass., on April 9, aged 40 years. He was a graduate of Harvard Medical School, in 1904. In his district Dr. Hardwick was chairman of the Local Board, secretary, and medical examiner, and is credited with the plan to provide all Boston boys called to the colors with comfort kits and boxes. It is believed that his unremitting labor in connection with this work is largely responsible for his death.

Dr. SARAH J. WHITE, a graduate of the Women's Medical College and Hospital, New York, in 1873, died suddenly at her home in Unionville, Conn., on March 19, aged 78 years.

Dr. GEORGE HOSLEY SHEDD, a graduate of Bowdoin Medical College, in 1879, died suddenly at his home in North Conway, N. H., on March 21, aged 65 years.

Dr. IRVING ALLISON WATSON, secretary of the New Hampshire Board of Health, died at his home in Concord, N. H., on April 3, aged 69 years. He was a graduate of Dartmouth Medical College, in 1871.

Dr. COLUMBUS E. MCCOY, of Bozeman, Mont., a graduate of Vanderbilt University Medical Department, Nashville, Tenn., in 1895, died after a brief illness, on March 21, aged 47 years.

Dr. ROLANDUS G. WALKER, a graduate of the Cleveland College of Physicians and Surgeons, in 1904, died of pneumonia at his home in Denver, Col., on March 21, aged 51 years. He was formerly a resident of Canton, Ohio.

Dr. ALFRED H. TANNER, a graduate of Bellevue Hospital Medical College, in 1874, died suddenly at his home in Brooklyn, Conn., on March 22, aged 66 years. Dr. Tanner was for many years medical examiner of the town of Brooklyn.

Dr. THERON T. HUBBARD, a retired physician, formerly of Saginaw, Mich., died at the Soldiers' Home

at Grand Rapids, on March 21, aged 84 years. He served as a surgeon in the army during the Civil War.

Dr. CHARLES B. KENNEY, a retired physician of Portland, Me., and a Civil War veteran, died suddenly on March 25, aged 69 years.

Dr. JOSEPH PAINTER CREVELING, a graduate of the University of Michigan, in 1870, died suddenly of apoplexy, at his home in Auburn, N. Y., on March 30, aged 70 years.

Dr. CHARLES R. WHITCOMBE, a graduate of the Long Island College Hospital in 1883, died at his home in Roslindale, Mass., on March 9, aged 64 years.

Dr. NATHANIEL G. BROOKS died at his home in Charleston, N. H., on March 17, aged 80 years. He was a graduate of the Albany Medical College, in 1861, a surgeon in the Civil War, for some years in charge of the hospital at Brattleboro, and later a representative to the legislature and a State senator.

Dr. WILLIAM ROBERTS SIMPSON, a graduate of Washington University Medical Department, St. Louis, in 1871, died at his home in Chillicothe, Mo., March 13, aged 72 years.

Dr. EDWARD L. SALMON, a graduate of Harvard Medical School in 1905, died of pneumonia at his home in Southboro, Mass., on March 17, aged 41 years.

Dr. LAWRENCE B. HATHAWAY, a graduate of Rush Medical College in 1878, died at his home in Rheinebeck, Iowa, after a long illness, on March 17, aged 64 years.

Dr. IRVING ALLISON WATSON, secretary and executive officer of the New Hampshire Board of Health since its organization in 1881, died at his home in Concord, N. H., on April 3, after an illness of several weeks, at the age of 69 years. He was a graduate of the University of Vermont Medical College in 1871. Dr. Watson served at one time in the New Hampshire House of Representatives, was secretary of the New Hampshire Commission of Lunacy, registrar of vital statistics of New Hampshire, and president of the State Board of Cattle Commissioners. He was a former president of the New Hampshire Medical Society and assistant general secretary of the first Pan-American Medical Congress.

Dr. CYRUS B. KING, a graduate of Jefferson Medical College, in 1867, died at his home in Pittsburgh on April 9.

Dr. WILLIAM F. M. MCALLISTER of San Francisco, Cal., a graduate of the University of Pennsylvania, in 1870, died on March 29, aged 77 years. Dr. McAllister, at the age of seventeen, took part in the John Brown raid at Harper's Ferry, in 1859, being the last surviving member of that expedition. He was a Civil War veteran, with the rank of major.

Dr. GEORGE GOLDING KENNEDY, a graduate of Harvard Medical School, in 1867, died at his home in Milton, Mass., on April 1, aged 78 years.

Dr. ASA F. GOODRICH, a graduate of the Hahemann Medical College and Hospital, Pennsylvania, in 1889, died of pneumonia at his home in St. Paul, Minn., on March 29, aged 53 years.

Dr. FRANK M. GIER died at his home in Hillsdale, Mich., on March 28, aged 59 years. He was a graduate of the University of Michigan, in 1884, and had served as president and secretary of the Tri-State

Medical Society and as surgeon-general of the Sons of Veterans of the United States. He was chairman for Hillsdale County of the Military Training Camps Association.

Dr. JOHN A. BOSWORTH, a graduate of the Boston University Medical College, in 1879, died, after a long illness, at his home in Roslindale, Mass., on April 5, aged 64 years.

Dr. EDWARD PAYSON HAMILTON GRISWOLD, a graduate of New York University Medical College, in 1878, died at his home in Niagara Falls, N. Y., on April 1, aged 63 years.

Dr. AUGUSTUS CHAPMAN WALKER, a retired physician of Cambridge, Mass., died at his home on April 4, aged 85 years. He was a graduate of the Harvard Medical School in 1866, served as a surgeon in the Civil War, and later served as a United States pension examiner and a member of the Massachusetts Board of Registration in Medicine.

Dr. MARCUS MILTON CATLIN, a graduate of the Cleveland Homeopathic Medical College in 1868, and a Civil War veteran, died of pneumonia at his home in Canton, Ohio, on April 4, aged 71 years.

Dr. ELISHA J. THURMAN, a graduate of the Washington University Medical Department, St. Louis, Mo., in 1873, died at his home in St. Louis, Mo., on March 31, aged 78 years. He served as a surgeon in the Confederate Army during the Civil War.

Dr. WILLIAM J. HILLS of Chelmsford, Mass., a graduate of the Harvard Medical School and a Civil War veteran, died in Florida, following a prolonged illness, on March 30, aged 77 years.

Dr. WILLIAM WINFIELD NELSON, a graduate of the University College of Medicine, Richmond, Va., in 1901, and a practitioner of medicine in that city, died after a long illness, on April 8, aged 38 years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

NATIONAL SERVICE AND MEDICAL STUDENTS—THE NEW PRESIDENT OF THE COLLEGE OF PHYSICIANS—SMALLPOX IN LONDON—PREVALENCE OF VENEREAL DISEASE—NEW MEDICAL OFFICERS FOR THE ARMY—DEATH OF DR. SALUSBURY TREVOR.

LONDON, March 28, 1918.

THE question of the employment of medical students in a combatant capacity in the army was one concerning which much difference of opinion prevailed at the outset of the war. In medical and scientific circles those who thought most about the matter were perfectly clear that to use medical students as soldiers or sailors because of their fighting value was to lose sight entirely of their enormous potential value as medical practitioners. The scientific view was overruled entirely, the main factor in this situation being the students themselves, who, while their teachers were discussing how exemption could be extended to them, betook themselves with promptitude to the recruiting sergeant or obtained commissions in various branches of the forces. When the possible effect of a complete denudation of the medical schools was realized, and the certainty of a shortage of medical practitioners in the years to come had been incurred, senior students, that is to say, those between whom

and qualification only their final tests remained, were allowed to return to their studies, although of these students the navy made adroit use by turning them into "surgeon probationers," and employing them as dressers and clinical assistants at the naval bases and hospitals, and in some cases on board ship. The idea of letting back to their studies senior students only was two-fold in origin: first, these were the men who would most quickly fill the gaps in the medical register by taking their diplomas; and, secondly, they were medical students of whose status as such there could be no doubt. This was not so with a medical student who had just joined a school or had only passed his first professional test. The military authorities saw in the exemption of such students the opening up of a clear way of avoiding a national duty, for any boy who from personal motives or parental influence desired to escape could join a medical school. As, however, the war has gone on, and as the possible shortage of medical men has come more home to the community, a valuable revision of opinion has taken place in military circles. The latest official declaration (National Service Instruction V. 1918) provides that a medical student who has passed his first professional examination in chemistry, physics, and biology, will not be called up for combatant service so long as he joins a training corps and can prove in the usual way that he is diligent in working for the next examination in anatomy and physiology. The Instruction applies to students also who have not passed the first professional examination, but who do so before the end of next July, by which additional concession medical study practically becomes "a reserved occupation," the technical phrase for civilian occupations exempt from conscription. Even now the military authorities have not gone far enough to be quite fair, because the first-year medical student who enlisted on or soon after the outbreak of the war does not appear to be under consideration. The number of these students left in the army now may be small, and many of them possibly have no desire to resume the medical career so abruptly cut short three and a half years ago, but it would have been wise of the authorities to have given them the opportunity and thus prevented a legitimate source of grievance.

The election of Dr. Norman Moore to the presidency of the Royal College of Physicians of London makes one of the most learned of our physicians titular head of the medical profession—a position on which that august mediæval body, the College of Heralds, was consulted, when, as president of the General Council of Medical Education and Registration Sir Richard Quain claimed, and certainly with a good show of logic, the precedence. Dr. Norman Moore, who took a high degree in classics at Cambridge and was elected a Fellow of St. Catharine's College, is consulting physician to St. Bartholomew's Hospital and has rightly attained to his presidential post by unceasing and devoted work for the Royal corporation. A frequent office-bearer and constant attendant at *comitia*, he has used a pretty talent for pungent speaking to maintain the conduct of college affairs along dignified paths, while as representative of that body on the General Medical Council he proved by argument,

and further by his personality, that the corporation, though old in date and conservative by tradition and constitution, could play a valuable part alike in the reform of medical education and in the maintenance of high professional standards. Dr. Moore, "a man who reads books and not books about books," has brought his historical and classical learning to bear upon numerous sections of medical history, while he has been the candid biographer of many of the members of the medical profession whose record has entitled them to a place in the Dictionary of National Biography.

At the end of February five cases of smallpox came under treatment in one of the hospitals of the Metropolitan Asylums Board, and during March some ten other cases occurred, all in the eastern quarter of the city. Vigorous inspection, notification, and vaccination of contacts have suppressed the disease.

The prevalence of venereal disease, and especially of gonorrhea, among the armies both at home and abroad, though no longer the source of real apprehension that it was two years ago, is none the less a drain upon man-power of a sort that ought to be prevented. At home the work of the National Council for the Prevention of Venereal Diseases has done real good, despite the division of opinion upon the real scope of the council, while the foundation of venereal clinics has provided centers at which sufferers can obtain prompt care. Medical men, attending at the center and observing the clinical practice of experts have thus learned to deal with cases by the modern effective methods as they occur in practice. None the less, those who know most of the incidence upon the population of venereal disease, dread a big spread of the plague when the armies are disbanded, judging by the numbers of the cases already known to exist. Chronic gonorrhea is the chief source of the evil, the woman being often unaware that she is infectious, and the man only aware of it when a particular occasion of sexual indulgence produces what he believes to be a new attack, but what is, of course, only an exacerbation of a chronic condition. An infection of the prostate gland and seminal vesicles turns such men into potent "carriers," and they are now being especially watched for at many venereal centers, where they are induced to undergo proper treatment.

The events of the last week in March made it clear that from among the civilian medical profession a number of new medical officers would have to be immediately supplied to the army, for it was inevitable that the German advance should mean a loss of a certain amount of medical personnel as well as material and stores. It would not be permitted to state in print the actual number of medical men, regular and temporary officers of the R. A. M. C., who are at present abroad, although, as the sum total of our armies has been mentioned in Parliament on several occasions, and as the ratio of doctors to men has become a fairly constant one, the figure can easily be guessed. But at least twice that number of doctors have also been swept into the service of the navy and army combined, leaving the civilian population in some places distinctly bare of medical protection. The particular place where this requires most watch-

ing is in panel practice, for the departments of State, like the Local Government Board and the Board of Education, have been able to maintain the right of exemption for sanitary and educational medical officers. The National Insurance Commission has not been so fortunate for their medical service, and in some places panel practice has distinctly suffered. The number of persons who have a right under the National Insurance Act to treatment on panels is difficult to ascertain in the present conditions of flux, but probably the rough figures are something like this: The total population of the United Kingdom is a little over 45 millions, from which $4\frac{1}{4}$ millions can be deducted for Ireland, which is not under the scope of the National Insurance Act and, incidentally, of the conscription regulations. The 40 millions, and a little more, of England, Scotland, and Wales include almost exactly one-half in that number of persons under 15 years of age, to whom for that reason the Act does not apply. Of the remainder, a rough estimate is that 10 million men and 4 million women look to the panels for their medical care. The Central Medical War Committee, in whose hands exemption rests, is fully aware that the source from which new medical officers has to be drawn represents also the medical service for these 14 million people comprising over one-third of the population of England, Wales, and Scotland. The consequence is that further drafts on the general practitioners of these countries for military service are beginning to be viewed with apprehension and satisfied with difficulty.

Dr. Salusbury Trevor, whose suicide during temporary insanity occurred last week, was not only one of the best practical authorities in the country on forensic medicine, but a well known student of Anglo-Saxon literature, and a beautiful singer. He was Dean of St. George's Hospital, and his loss is a sad one to that institution, as well as to a wide circle of friends and to medical science.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

AMERICAN AMBULANCES IN ITALY—WORK OF THE RED CROSS IN BELGIUM AND FRANCE—A MILITANT Y. M. C. A.

PARIS, March 18, 1918.

WHEN finally the British and French authorities decided to send troops to aid Italy to stem the tide of the onflowing hordes that threatened to overrun her State, the question of supplying a medical corps to accompany these armies was found to be a very difficult one; existing conditions did not permit of withdrawing surgeons from the northern front and practically a new corps had to be formed from the hospitals of the larger centers. In view of these difficulties the offer of certain sections of the splendid Harjes-Norton Ambulance Corps, that was broken up when the American Army attempted its absorption, to go to that front were gladly accepted and the fourth section of this American Arm of the service has just left Turin for the front. Its departure gave occasion to a great and enthusiastic demonstration for the United States. Flowers were piled on the ambulances by the crowd, while bands played Ameri-

can airs and soldiers rendered military honors. The section comprised twenty-five ambulances and its departure was witnessed by Major Woffmer of the American Red Cross.

Dr. J. H. Mason Knox has been appointed medical director to the Belgian Commission of the American Red Cross. He will continue as associate chief of the Children's Bureau, acting as medical representative of the Commission for Belgium, and as liaison between the Paris and Havre services.

Seven buildings in Paris have just been brought to completion through the Red Cross Bureau of Refugees and Relief, and are now housing more than two hundred refugee families. Twenty-six buildings in Paris are now in the course of completion, these buildings to accommodate over 700 families, and since most of them are "familles nombreuses" this means about 3,850 individuals.

The Red Cross has ordered ten portable bath plants for American Army camps. Some of these are already under construction. They will have varying capacities, some having accommodations for 1,000 men a day.

The ordinary citizen unacquainted with the details of the work of the Y. M. C. A. in America is imbued with the idea that it is a sort of goody-goody affair, made up of milk sops, where ma, at home, sends her boy from the country when he comes to the city so that he may be safeguarded from the temptations and evils that lie in wait for him on every hand. Anyone coming to know the work undertaken by the organization in France would be compelled to revise his opinion of its character and activities.

In the cellar of a house that is considerably damaged by shell fire and which is under fire every time the Germans take a notion to shoot that way, a Y. M. C. A. center is being operated out from Toul for the American soldiers who are now holding the line. The village, of which this house is a part, is a mass of ruins, scarcely an entire wall standing anywhere. The Red Triangle sign is over the cellar door and when one enters he will find there soldiers wearing their "Carnegie derbies" and with gas masks handy. Just a small amount of floor space is available, but on this there is a canteen and over in a corner a small gramophone is often in use.

In another village not far distant the Y. M. C. A. is found by going up the partly demolished stairway of a partly demolished house which stands in an almost wholly demolished village. Crowded into a medium-sized room are a canteen, some chairs, and a place or two for writing. This village, too, is under fire whenever the Prussians choose to shoot at it. The line is just a little way distant. American artillery around these villages is making life uncomfortable for the Germans.

In still another shell-shattered village, which also is close up, the Y. M. C. A. is reached by climbing up a ladder. In another village the Red Triangle sign is on a building which the French formerly used and called a "salle de réunion." And shells can find their way into that section also.

And so on the story goes. The Y. M. C. A. has gone forward with the troops. It is offering such

edibles as can be had, and such little comforts as are possible. Every evening or two the Y. M. C. A. trucks go forward along the roads, carrying supplies to these advanced huts. It is much more healthy to travel on some of these roads after dark than in daylight. The trucks carry up chocolate, when it is to be had; packages of fruits, tobacco, and magazines.

Arrangements have now been made to serve to the men hot drinks free of charge. The arrangement is to have something hot for the men when they return from the trenches, which are just a little distance from these advanced "huts." Hot drinks seem to be what these men want, so the Red Triangle will try to supply the want.

A trip "up the line" reveals a chain of just such Red Triangle centers, some of which are double-walled tents, some rooms in battered houses, and some in cellars. Just whatever is available can be made to suffice. There is not so much time for the ordinary Y. M. C. A. activities in "those parts," for the magnificent body of fighters which is there is bent upon fulfilling its stern mission.

Before the advance of the troops to the trenches the Y. M. C. A. made its preparations to go with them. Automobile transports were provided and held in readiness. Supplies were secured in such quantities as possible and were sent ahead. Many a soldier coming to these refugees wet through and almost frozen finds here the warmth, comforts, and attention that save him from a possible pneumonia and fit him anew for his tasks.

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Progress of Medical Science.

The Boston Medical and Surgical Journal.

April 11, 1918

1. The Venereal Disease Problem in Massachusetts. Merrill E. Champion.
2. Hemorrhage from the Uterus in the Non-pregnant Woman. Frank A. Pemberton.
3. A Critical Review of Intestinal Bacteriology in Relation to Certain Diarrheas of Infants. Warren R. Sisson.
4. Efficiency in the Examination of School Children. George E. Deering.
5. Gunshot Wound of the Posterior Cord of the Brachial Plexus. James K. Young.
6. The Use and Value of Statistics. D. M. Lewis.

2. Hemorrhage from the Uterus in the Non-pregnant Woman.—Frank A. Pemberton enumerates the various causes of menorrhagia and metrorrhagia. He states that when bleeding occurs in the acute infectious diseases a pelvic cause should always be searched for. Sarcoma of the cervix should be considered in all cases of bleeding before puberty. Excessive bleeding in the first decade after puberty is probably due to an excessive production of the internal secretion of the ovary—or uterine insufficiency. Pemberton draws particular attention to the more troublesome conditions: chorio-epithelioma, in which the first warning is a sudden hemorrhage following the passing of a hydatid mole, a miscarriage or labor. A bluish tumor in the cervix or vagina is a diagnostic sign. In positive cases the tissue shows syncytium and Langhan's cells, or either one of these alone. The small submucous fibroids present difficulty in diagnosis and require ether examination; such fibroids should be excised, as from one to two per cent. of these undergo sarcomatous degeneration. Uterine polypi can be diagnosed only with the curette, and this is true also of polypoid gland hypertrophy. Carcinoma of the cervix is the principal cause of bleeding after the menopause and with its preceding stage, erosion of the cervix, comprises 54 per cent. of all cases. Carcinoma of the uterus comprises a further 12½ per cent. Bleeding in a woman over seventy years of age

means cancer of the fundus of the uterus. The three types of cancer must be borne in mind—epithelioma of the outside of the cervix, adeno-carcinoma of the cervical canal, and adenocarcinoma of the fundus. In the early stages these can be diagnosed by the microscope. When well advanced the epithelioma can be recognized by its ulcerated appearance, if the tumor is of the corroding type, or by the cauliflower appearance, if of the so-called everted type. In adenocarcinoma of the cervical canal when first seen, the external os has usually ulcerated away. Should the cervix appear normal, however, the canal should be scraped with a small curette and the tissue examined by a competent pathologist. A large amount of crumbly soft tissue with sharp bleeding is cancer. Adenocarcinoma of the fundus usually occurs after the menopause. In making an examination for cancer it must be remembered that polyps and fibroids may occur together; and that fibroids and cancer may also be found together; and that senile vaginitis may mask an early cancer. A D & C should be performed in all cases where the cause of the trouble is not immediately obvious, except in the case of a young girl with menorrhagia just commencing. The treatment indicated, especially in the case of girls and young women, is rest in bed when the bleeding is profuse. Should this fail to bring about improvement, an ether examination should be made. Packing of the vagina may be resorted to. Drugs are of little benefit, although pituitrin may be of value in young women. Dilation and curettage finds its greatest value in diagnosis. Abdominal operation should be done in cases of malignancy. The most satisfactory treatment, however, is by radium and the x-ray. They both have the effect of killing the follicles in the ovaries and thereby lessening the internal secretion. Radium is the more powerful in its effects; moreover, if the x-ray were continued for long, burns of the skin would result. The latter is the more expensive on account of the apparatus required. In the case of the young girl with uterine insufficiency Pemberton places 50 mg. of radium in the uterus and leaves it from four to twelve hours. The x-ray is more effective in women of over forty years of age; it rarely causes a permanent amenorrhea in young women unless the treatment is continued. Both are valuable means of decreasing bleeding in fibroids. Radium is especially valuable in stopping bleeding from inoperable cancer of the cervix; care must be taken, however, in its employment, as if too strong a dose is used vesico-vaginal and recto-vaginal fistulae may result.

Journal of the American Medical Association.

April 13, 1918.

1. Treatment of Acute Infections of the Joint by Lavage and Direct Medication. John W. Churchman.
2. The Treatment of Cancer of the Lip by Radium: A Report of Twenty-Four Cases. Henry H. Janeway.
3. Entrance Conditions in Medical Schools. Harley E. French.
4. Herpes Zoster and Chickenpox. Benjamin Goldberg and Francis D. Francis.
5. Colorimetric Determination of Reaction of Bacteriologic Mediums and Other Fluids. George D. Barnett and Herbert S. Chapman.
6. Artificial Respiration in Asphyxia Neonatorum. Clarence L. Heald.
7. Barany Chair Tests and Flying Ability: A Correlation Study of One Hundred Naval Aviators. Robert P. Parsons and Louis H. Segar.
8. The Pneumonias: Streptococcus and Pneumococcus Groups. James G. Cumming, Charles B. Spruit, and Charles Lynch.
9. A Plea for a More Fundamental Method in Medical Teaching. Robert W. Lovett.
2. The Treatment of Cancer of the Lip by Radium: A Report of Twenty-four Cases.—Henry H. Janeway refers to the greater curability of lip cancer over other forms. The cancer usually occurs in the lower lip and more frequently in men than in women, the etiologic factor usually being tobacco. He gives the results of radium therapy in two series of cases. In the first of six patients with early cancer of lip, treated in 1915-16 at the Memorial Hospital, New York, five were traced to January 1, 1918, and in one only had there been a recurrence; in the case not traced, the lesion had entirely disappeared when last seen. A second series of eighteen cases was treated during the past year with satisfactory results. The average duration of the lesion before treat-

ment in the two series of cases was thirty months, the time varying from one month to twelve years. Janeway points out that the critical factor is the rate at which the lesion is growing at the time of treatment. He found that in treating cases by radium the best results followed single treatments. With exception of three cases, all of which had advanced lesions when they applied for treatment, all the patients in the series are now free from evidences of disease. Though the true value of these results cannot yet be determined, Janeway considers that they justify the use of radium in operable cancer of the lip. The method of treatment includes, however, the careful observation of patients after treatment for the possible development of metastatic lymph nodes, and the operative removal of such when they occur, with the implantation of radium in the wound. He believes that the treatment of cancer of the lip by radium will encourage earlier attention to this disease by the patient. He recommends the application of radium emanation embedded in molds of the dental compound, and filtered through the thinnest material for the most superficial lesions. He has used 0.5 mm. of silver uniformly for all but the lesions with deep infiltration with satisfactory results. For the deeper lesions he has found that nothing surpassed the progressive, smooth and complete retrogression produced by filtration through 1 mm. of platinum. The tubes should be sunk 5 mm. in the dental compound and for the ordinary lesion the dose should be 60 millicurie hours per square centimeter, when the filtration is through 0.5 mm. of silver and 100 mc. h. per square centimeter when through 1 mm. of platinum. The use of emanation instead of radium element facilitates uniform distribution, which is an important factor. In the majority of cases of cancer, treatment by radium element is inefficient.

The Lancet.

March 23, 1918.

1. An Address on the Therapeutic Influence of X-Rays on Female Pelvic Disease. Delivered before the North London Medical Society. Sir John Phillips.
2. On a Ganglion-Neuroma of the Mesentery. Sir John Bland-Sutton.
3. Twilight Sleep: Its Advantages and Disadvantages. Geo. Blacker.
4. Radium Treatment of Scars: With Clinical Notes on Military Orthopedic Cases. Captain Walter C. Stevenson.
5. After-Effects of Gunshot Wounds on Joints. Lieut.-Col. Frank Romer.
6. The War Neurasthenic. A Note on Methods of Reintegrating Him with His Environment. Captain A. J. Brock.
7. Acute Osteomyelitis of Femur. Complicating an Infected Wound in an Adult. Arthur Morford.
8. Two Uncommon Forms of Intussusception Occurring Simultaneously in the Same Patient. John A. C. Macewen.
4. Radium Treatment of Scars: With Clinical Notes on Military Orthopedic Cases.—Captain Walter C. Stevenson has treated a number of cases of scar tissue and fibrous adhesions—some of which had previously been given massage and other treatment for months—by radium emanations. The radium was supplied by the Royal Dublin Society Radium Institute and the dosage employed per area treated for a thin part like the hand was about 320 millicurie hours, and for a more fleshy part 360 mc.h. For instance, utilizing an average of 40 mc., the time the applicator would be left on the hand is obtained by dividing 320 by 40—i.e. eight hours, and similarly for the arm nine hours. The results obtained have led Stevenson to draw the following conclusions: (1) Radium has a distinct sphere of usefulness in the treatment of scar tissue and fibrous adhesions; (2) It is a valuable adjunct to other methods of orthopedic treatment, especially by shortening their duration; (3) Its effect is rapid, sometimes immediate; (4) It softens and mobilizes scar tissue; (5) It appears to facilitate subsequent removal of the scar by the knife; (6) It enables structures, like tendons, adherent to the scar, to free themselves; (7) By loosening tendons and stiff joints it improves the functional power of the part; (8) It possesses the advantage of acting, to some extent, as an innocuous local anesthetic for about a week; (9) It is particularly useful in treating scars and adhesions in the hands and fingers; (10) It is easily applied to the

surface of the skin, and by this method causes no inconvenience to the patient; (11) To obtain the best results a single large dose is necessary; (12) The dose should not be so great as to produce inflammation of the skin; (13) With suitable dosage it appears to produce no ill effects; (14) In small doses it appears to hasten the healing of wounds, and to allow the painful inhibitory effects of the products of inflammation.

British Medical Journal.

March 23, 1918.

1. An Address on Primary Suture of Wounds at the Front in France. Surgeon-General Sir Anthony Bowlby.
2. Gunshot Wounds of the Abdomen at a Casualty Clearing Station. 150 Consecutive Operations for Penetrating Abdominal Wounds. Captain R. Charles.
3. Shell Wound of the Pancreas Causing Pancreatic Pseudocyst. Captain John Morley.
4. The Treatment of Infected War Wounds by Magnesium Sulphate. Albert E. Morison.
5. Post-operative Thrombosis and Embolism. Charters J. Symonds.

4. The Treatment of Infected War Wounds by Magnesium Sulphate.—Albert E. Morison points out that in the Field Ambulance or the Casualty Clearing Station all that may be possible in the treatment of war wounds is the application of some dressing which will protect the wound and diminish the chances of infection. Magnesium sulphate cream would seem to provide such a dressing. Morison has employed this preparation in about one hundred cases under conditions which resemble as closely as possible those at the front, and has obtained satisfactory results. The procedure adopted was as follows: The dressings with which the patients arrived in hospital, most of which were applied from two to five days previously, were removed. A culture was taken of the organisms—aerobic and anaerobic—present in smears from the wound, and without any preliminary cleansing of the wound itself or of surrounding parts; magnesium sulphate cream was then applied to the wound under a suitable dressing. The dressing was left untouched for from three to five days. Bacteriological and clinical examination was then made of the discharges and the wound. The cream is prepared in the following manner: 1.5 pound of manges. sulph. exsiccatum are mixed with 11 ounces of glycerin acidi carbolici (1 to 10). The dried magnesium sulphate is in the form of a fine white powder, which contains 12 per cent. less water than the ordinary. The glycerin acidi carbolici is put in a hot mortar and the sulphate added, slowly stirring and mixing with a warm pestle all the time. The result is a thick, white cream, so hygroscopic that if exposed to the air it rapidly absorbs moisture and becomes fluid, which must be preserved in a covered jar. The addition of the carboic acid was made because of its analgesic properties, but it was found to be unnecessary, as the application of the cream, even without the carboic acid, causes no discomfort, beyond a slight feeling of coldness. The wound is packed and thickly covered with the cream, and the dressing of gauze and cotton wool is left unchanged for from three to eight days. A profuse discharge of serum takes place, so that more wool may have to be applied over and around the original dressing. On removing dressings any discharge there may be is seropurulent and escapes easily, and the wound surface is covered with bright red granulations, filmed over by a thin layer of grayish lymph containing a few pus cells. A similar dressing is again applied, spread thickly on gauze. In the case of the deeper wounds, such as fractures, the cream is syringed into the deepest part of the wound by passing a piece of drainage tube attached to the syringe into it, and filling the wound with cream. More cream spread on gauze is applied to the surface. After a few dressings in this manner the dressing is changed to magnesium sulphate solution, and the edges of the wound brought together with sutures or skin grafts applied under local anesthesia. In deeper wounds when a fracture is present loose pieces of bone should be removed under anesthesia, the wound washed out with ether or petrol, then dried with gauze mops and smeared thoroughly with bipp or X. Y. Z. paste. The guides to closure of the wound are bacteriological findings of the discharge and the amount and clinical

nature of it. Morison concludes that magnesium sulphate cream presents the following advantages: (1) Simplicity of application and the rapidity with which large numbers of cases can be dealt with—as in field ambulances and casualty clearing stations. (2) The infrequency of dressings, which even in the most septic cases need no change from three to eight days. (3) The combined osmotic action and the inhibitory effect on the growth and development of such ordinary organisms as are usually found in wounds—aerobic and anaerobic—together with its nontoxic action on the patient, make this a valuable dressing in the first stage of wound treatment, where the aim is to get rid of sphacelated tissue and minimize sepsis. (4) Its sphere of action as a rule ceases after the first stage, because epithelialization is inhibited and granulation tissue formation delayed as soon as the wound has been cleansed. (5) In the second stage of wound healing, that is, the encouragement of repair, other remedies should be employed, though it is useful with chronic sinuses or wounds which require stimulating.

5. Postoperative Thrombosis and Embolism.—Charters J. Symonds points out that pulmonary embolism does not occur after operation above the diaphragm; nor does it occur in children. He suggests that an explanation of this may be found in the fact that free movement is permitted in operations above the diaphragm and cannot be avoided in children, as it is impossible to prevent them from moving. Symonds suggests that the restriction of movement after abdominal operation, and also after parturition, the enforcement of the dorsal position, and the use of knee pillow, may be the determining factors in massive thrombosis through retardation of the circulation and that such restrictions should be abandoned, together with the use of the knee pillow, and that daily movement should be insisted upon. He states that the observation that vigorous vomiting even for a couple of days appeared to have no injurious effects in cases of abdominal operation led him to abandon the rigid recumbent position.

Berliner klinische Wochenschrift.

January 28, 1918.

On Some Problems of Tuberculosis.—J. Orth offers some benign considerations on the evolution of our knowledge of tuberculosis and on its terminology. Passing to the question of traumatic tuberculosis, Orth appears inclined to attribute such processes to an endogenous infection resulting from the awakening of a latent focus. This is an old story so far, but at this point the writer does not join in the generally accepted notion that tuberculosis in the adult is in most cases a delayed manifestation—one might say a tertiary phase—of an infection arising in childhood. The frequency of tuberculous lesions in the adult, when compared with their frequent absence in children, forces one to admit an exogenous infection in many adults.

The Treatment of Whooping Cough.—Aufrecht is of the opinion that there is little virtue in most of the therapeutic measures now employed for this affection. He recommends the most absolute quiet, even immobility of the child, as this decreases the number of paroxysms of coughing and shortens the length of the morbid process, likewise preventing the advent of complications. A mild infusion of ipecac is exhibited.

The Differences in the Results Obtained from the Wassermann Reaction.—H. Mayer defends this reaction against the attacks made upon it by Freudenberg (the writer is apparently unaware of the almost universal attacks to which the Wassermann has been subjected for the past five years), who brings forward the contradictory results obtained in laboratory work on different samples of the same blood. According to Mayer, Freudenberg's arguments are completely based upon insinuating statistical tables. However, Mayer has admittedly been obliged to search for the cause of these divergences in the results of examination in different laboratories, and he attributes them to technical errors and to the utilization of different antigens (extract of syphilitic liver, or extract of guinea pig's heart, etc.). The reform claimed for by Freudenberg should, therefore, not be applied to the method of the reaction, but rather more to the procedures employed, as well as a

more careful and exact execution of the teachings of Wassermann and his school.

Münchener medizinische Wochenschrift.

January 29, 1918.

The Treatment of Malaria.—L. R. Müller is of the opinion that the systematic use of quinine as a prophylactic has not given the results hoped for, and it can even be upheld that its effects in reality render the plasmodium resistant to quinine. A most important prophylactic measure consists in the detection of latent carriers of the parasite, who by the intermediary of mosquitos may very well spread the disease. Detection can be made by blood examination and by provoking paroxysms of the disease by injecting thermogenous substances, sterilized milk, or irradiation of the spleen with a quartz lamp. The latter represents a great progress in malarialogy. Müller is quite positive that malarial antibodies are present in the blood of subjects belonging to infected regions, as well as in the blood of patients in full evolution of the disease. These antibodies are very labile and do not exist longer than the pathogenic agent itself. Müller prefers quinine hydrochlorate and has found that treatment with salvarsan alone gives poor results, and should, therefore, always be combined with quinine or methylene blue. To conclude, Müller has not found that Ehrlich's so-called specific has proven itself of any great value in malaria.

Chronic Tetanus.—Baisch has met with a cure of chronic relapsing tetanus, made evident by a contracture of the leg, which the writer supposes due to a condition of hyperexcitability of the ganglions. Intraneural injection of the antitoxin of tetanus, likewise intraspinal administration, resulted in a cessation of the contracture. Lumbar anesthesia with stovaine only decreased the intensity of the contracture. Deep narcosis did not cause the slightest muscular resolution, although it was carried out until a complete flaccidity of the upper limbs had been attained. The injection of novocaine had a marked influence over the hyper-tonus.

Adrenalin in Wound Treatment.—A. Wildt uses an ointment of boracic acid, to which he adds one, two, or three drops of a 1:1000 adrenalin solution to each 5 grammes of ointment. The results obtained were a decrease in proliferation of granulation tissue, narrow cicatrices and a diminution of the wound secretions.

Deutsche medizinische Wochenschrift.

January 31, 1918.

Modern Views of Muscular Tonus.—E. T. von Brücke points out that the question of the origin of muscular tonus is not as yet physiologically elucidated. Hyper-tonus from decerebration, as demonstrated by Sherrington, is certainly not a phenomenon of the same kind as the tonus during rest. In the same way tetanic contracture is not to be compared to muscular tetanus. Quite on the contrary, the study of the phenomena of metabolism and reactional electrical current shows that the muscle in tetanic intoxication is not in a state of paresis, although it is contracted. In the case of certain unstripped muscles (such as the erector penis in dogs) it is nevertheless proven that the tonus results from the sum total of continued excitations, and belongs to a tetanus with more or less subintrinsic contractions. (To be continued.)

The Pathogenesis of Hemorrhagic Typhoid.—P. Kaznelson records three cases of typhoid fever with hemorrhagic tendency and an extreme thrombopenia. The variations in the hemorrhagic parous state are closely related with the fluctuations in the number of blood plaquettes. This condition cannot be attributed to an insufficiency in the genesis of the plaquettes, but to a thrombocytolysis which Kaznelson has observed in the spleen in one of his cases. The bone marrow reacts to this lysis of the blood plaquettes by a great increase in activity, which is met with in ordinary typhoid fever as well as in the hemorrhagic types.

How Typhoid Immunity Should Be Regarded.—Arneth, taking into consideration the writings of Liebermann and Accl, in which these writers opine to the belief that the immunizing properties do not exist in the

blood, but rather in the tissues themselves, that is to say, in a change of vital nature, endeavors more precisely to define these notions. Acquired immunity is certainly a function of the protoplasm, but it is unquestionably closely related to the blood cells as well, likewise to the splenic parenchyma and bone marrow. The writer concludes that from these data one should attribute to the blood the part that it really plays in immunization.

Wiener medizinische Wochenschrift.

February 16, 1918.

The Introduction of a "Practice Year" into the Program of Medical Studies.—I. von Hochenegg has found that the fact of obtaining the diploma of M.D. is quite insufficient for medical purposes, and that the holders of the parchment are in most cases useless as far as actual practice is concerned.

Hochenegg therefore advises a year's hospital practice for each student before graduation as a supplement to his theoretical knowledge. (This rule of one year's hospital practice was adopted some years ago in France, where it is called "stage d'hôpital.") It is a well-known fact that both German and Austrian students have been poorly instructed in practical work. In Switzerland the clinical instruction, which lasts for three years at least, is very carefully carried out, while in the United States the post-graduate teaching covers the deficiencies existing in any of the medical schools in respect to clinical instruction.

The Psychotherapy of Insomnia.—L. Stein believes that insomnia is closely related to a hyperexcitability of the cortical cells, which are, in turn, favored by special circulatory conditions. Insomnia reacts very badly on the patient's mental condition, inspiring great mental anxiety, and even causing a durable psychic depression. To overcome these divers conditions Stein employs persuasion. He shows his patients that sleep is not so essential as they are led to suppose. By thus convincing the patient as to the little importance of his insomnia, the necessary mental condition is wrought for the re-establishment of the lost function. However, it is to be particularly noted that Stein undoes all that he desires to accomplish by psychic treatment by exhibiting narcotics, although without the patient's knowledge.

False Perforating Bullet Wounds.—A. Schönfeld, under this mystic heading, relates to some cases in which there was only an entrance aperture of the bullet. However, the missile could be located in the submucosa of a viscus. Such localizations should be detected, because they require a special treatment, namely, to be left *in situ* since their ultimate elimination will take place spontaneously *per via naturales* after perforation of the mucous membrane takes place, thus setting the projectile free in the lumen of the hollow viscus. The same condition of affairs may occur in the mouth.

La Presse Médicale.

February 7, 1918.

Traumatic Shock in War Surgery.—Quénu writes on this subject from the angle of the French surgeon, to whom the word has a different meaning than to the Englishman. What is called by the name may be primary or secondary. We may also speak of shock as something immediate, under which we understand the consequence of a nervous adventure or a profuse hemorrhage. A sudden intoxication produces a shock-like state, and after extreme fatigue and exposure to cold we see phenomena which suggest those of shock. In any condition whatever which is characterized by arterial hypotension, rapid pulse, lowered temperature, pallor, insensitiveness, etc., we may speak of the presence of a shock component. Shock, then, is thought of in etiological terms. In this connection stress is laid upon toxemia states (without any septic component), which result after wounds from absorption of wound products. In such cases we should at once suppress the focus—even in some cases to the extent of amputation; although such treatment has not heretofore been regarded as rationally indicated. Shock has been too much regarded as an entity and the hundreds of experi-

ments recorded do not seem to have taught us much of practical value. The subject is largely treated as a physiological one, and each physiologist has his own pet theory. The author, with Roger and other distinguished Frenchmen, insist that shock cannot be regarded as an entity, but only in connection with the particular causal type. There is no doubt that in all shock there is inhibition, and all inhibitory phenomena may enter into shock. The latter should be understood purely as an effect, and neither as a starting point or a mechanism. A uniform treatment is impracticable. A man with his temperature greatly lowered by exposure to cold is comparable to one in traumatic shock, but a single set of remedies intended to restore his temperature constitutes the entire treatment. This element of therapy also enters into the treatment of shock in general. Yet we cannot explain just how this resource can overcome shock. In immediate shock from hemorrhage one is supposed to make good the loss by the injection of saline infusion, but in practice, save in the exceptional case, the only thing done is hemostasis. In psychic shock from material or moral causes the chief etiological factor in the present war is wounds of the thorax, or abdomen. When the cranium is injured or a shell bursts close to the head we may imagine direct injury to the brain cells, as shown by Crile. It has been shown that in wounded who are examined soon after injury shock is rare. Operation on the recently wounded, however, adds to shock symptoms, notably lowering the blood pressure. Symptoms from toxic absorption do not supervene before 6 or 7 hours, and in mild cases 12 to 24 hours may elapse. In purely nervous shock one should forbear operation as long as possible in the hope that the lowered blood pressure will recover itself. In hemorrhagic shock one should effect hemostasis at all hazards, ligating all large trunks, giving only adrenalized serum. The question of post-operative transfusion is left open. In toxic shock the question is narrowed down to amputation to save life, or if the subject cannot withstand operation something may be done by local incisions and the free use of antiseptics, as formol and guaiacol. Secondary or delayed shock is a problem in itself, and a difficult one.

Revue médicale de la Suisse romande.

January, 1918.

The Clinical Forms of Uremia.—Hein and Tchertkoff isolate three radically different types of so-called uremia, as follows: Type 1, chloruremia, or eclampsia, essentially a convulsive state. The symptoms, aside from frequent convulsions, are headache, prostration, loss of consciousness, post-convulsive somnolence, etc. The début is sudden, and there are none of the petty evidences of uremia. Arterial tension is not notably high, the heart's action is sufficient. Transient paresis may follow the convulsions. Opposed to this picture is azotemia, with slow, progressive début, and in some cases petty signs of uremia. There are relatively few convulsions and post-convulsive phenomena, but headache, prostration, and drowsiness exist, with amaurosis, as in type 1. The heart is always hypertrophic, with blood pressure high; eventually there is cardiac insufficiency. Pericarditis often develops. Type 3 is the so-called false uremia. Patients are over 40, with arteriosclerosis and high blood pressure. The cerebral symptoms comprise vertigo, agitation, mental confusion, etc., the début being sudden. Convulsions are absent, but in this type the petty signs of uremia (Dieulafoy) are almost constant. Of these three types azotemia or true uremia of authors is best known as accompanying slow destruction of the kidneys. Chloruremia corresponds to the acute uremia of old clinicians, and to renal eclampsia. Its chief characteristic, aside from convulsions, is edema, associated with chloride retention. The cerebral symptoms may be attributed to edema of the brain. The condition is essentially amenable to cure. The renal lesion may be a nephrosis (as in mercurial poisoning), or an acute or subacute infection, as seen in scarlatina. The edema is especially prone to occur about the face and neck, and may be associated with hypertension of the cerebrospinal fluid. The convulsions cannot be brought into relationship with vascular hypertension. Pseudouremia corresponds to the

arteriosclerotic kidney, which is or is not a nephritis, according to the point of view. The numerous and equivocal phenomena known as petty uremia prevail here, and include eryesthesia, dead finger, cramps in the calves, muscular twitches, muscae volitantes, etc., which are all symptoms not of uremia but arteriosclerosis. The kidney parenchyma is intact, and does its work well—no waste products are held back in the blood. The only part of the organs damaged is the vascular system. Several clinicians discriminate between a benign and malignant renal arteriosclerosis. The latter is evidently attended by renal atrophy, hence nothing more than an advanced stage of true uremia. Mixed forms must occur—for an example, a case of incipient renal arteriosclerosis may be complicated by an acute or chronic nephritis. But little is said in the article of puerperal eclampsia, but certain cases of the latter agree closely with so-called chloruremia. On the other hand, eclampsia in pregnancy, with few or no convulsions, and without renal lesions, seems to stand in no relationship whatever with any form of uremia.

Hygiea.

January 16, 1918.

Serotherapy of Scarlet Fever.—Kling and Widfelt relate the following episode: From September, 1916, to August, 1917, a malignant epidemic of scarlatina prevailed at Stockholm. Of 2165 reported cases many were of very severe type, and there was a large amount of convalescent serum available. This was obtained from the fourth to the seventh week of the disease, and 0.5 per cent of phenol was added. The serum was only taken after negative Wassermann tests, and was always shown to be sterile by culture tests. It was used only in cases in which death was threatened. The criteria were symptoms of violent intoxication, with bad mental state; pulse 140-160, cyanosis, fever 40°-41° C. In this type of case the salvage would be much less than 50 per cent., unless some remedy could be found. Of 237 cases serious enough to receive serum 195 recovered, 25 died in the first and 17 in the second week of the disease. Of the 195 cures 101 were prompt and attended with notable defervescence—from 2°-4° C. in 24 hours, or less, without subsequent rise. The mental state became clear and the pulse normal, while cyanosis vanished. Of the remaining cases 80 did not show this rapid radical improvement, because of the pressure of complications—necrotic angina, lymphadenitis, otitis, etc. In this series recovery was gradual. There was no case of serum disease. Serotherapy dated from the middle of November, but was not applied wholesale until December. The severe cases began to increase in numbers after the epidemic was under full momentum, so that the influence of serotherapy was doubly manifest. In January, 1917, but 6.3 per cent. of the severe cases were lost, but this was exceptional. Of a total of 237 severe cases treated the mortality in all was 17 per cent., while in 91 of the same type who received no serum the mortality was 70 per cent. It was learned that a benign case of the disease can supply a serum of the same power as is formed in a severe case. A serum taken at the fourth week, and one from the seventh week, show equal power. The period at which the serum falls off in power has not yet been determined. Naturally the serum should be exhibited at the earliest possible moment. If no four-week-old serum is available serum of two weeks is known to be efficacious. In other words the antibodies are quite stable and differences in activity, if any, must be due to differences in quantity. Serotherapy does not prevent nephritis, and the ordinary suppurative complications are only slightly cut down in frequency.

Prochownik's Diet in Obstetrics.—Prochownik many years ago introduced a diet plan for gravidæ with narrow pelvis designed to diminish the measurements and increase the plasticity of the fetus. During the war it has been noticed that underfed women bear large children, but the author insists that fasting and dieting are quite different propositions. He recently employed his regimen in the case of a gravida who had previously borne a 3500 gm. infant and the child weighed but 2600 gm.—*Zentralblatt für Gynäkologie*.

Society Reports.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, Wednesday, March 13, 1918.

THE PRESIDENT, DR. FRANK C. HAMMOND, IN THE CHAIR.

THE evening was occupied with a symposium on pneumonia.

The Bacteriology and Serology of Pneumonia.—Dr. JOHN A. KOLMER spoke upon this phase of the subject. He observed that lobar pneumonia ranked next to tuberculosis in death rate and was endemic throughout the entire world. Certain races, notably the South African black, were known to be more susceptible to the disease. Raw recruits in the army were particularly subject to lobar pneumonia. This had been his experience with the troops on the Mexican border a year or two ago. Ninety per cent. of the condition clinically diagnosed as lobar pneumonia in adults was definitely known to be caused by the pneumococcus. The more carefully cases were studied, however, the more convincing were the deductions that the same organism was responsible for the remaining 10 per cent. Of the way in which the pneumococcus produced the pneumonia the knowledge of the investigator was limited. Careful blood pressure work showed that in about 50 per cent. of cases the pneumococcus might be found in the blood, but whether it first entered the blood stream by lowering of vitality and exposure to cold, localizing by tissue selection, or was transmitted through the alveolar spaces from the nose and throat was still an open question. The mode of the experimentally produced pneumonia in the laboratory bore no analogy to the knowledge of the disease in the human being. The symptoms of lobar pneumonia included not only the local disturbances produced by the filling up of the lungs with exudate but it was said to be also possible that the pneumococcus by disintegration liberated a poison within the bacterial cell which, entering the circulating fluids of the patient, produced intoxication. In addition to the toxins produced by the pneumococcus it was, in Dr. Kolmer's opinion, highly probable that part of the clinical picture of pneumonia was due to the absorption of products from the inflammatory exudate. The author's experiments during the past year would indicate that the exudate filling the alveolar spaces contributed a poison which played a part in the symptom complex of lobar pneumonia. There was also found in the urine of pneumonia patients a product of the pneumococcus. Of the classified types of pneumococci Type IV was generally found in the mouth of normal individuals and was less virulent than the others. Type I, which was highly virulent, produced about 33 per cent. of lobar pneumonia cases, particularly in this part of the country. The same percentage was accredited to Type II. Type III caused about 13 per cent. and Type IV 20 per cent. In children these percentages were somewhat different, but knowledge here was incomplete because of difficulty in obtaining sputum for diagnosis. According to the work done thus far Type IV caused the largest percentage of pneumonia among children. Based upon a series of four or five hundred cases, the relation of mortality in Type I, it had been shown, was about 25 per cent.; in Type II, 32 per cent.; in Type III, about 45 per cent., and in Type IV, 16 per cent. Cases showing the pneumococcus in the blood stream gave the gravest prognostic outlook. Attention was called to the fact that the dust of bedrooms in which lobar pneumonia patients had been treated contained the pneumococcus in from 50 to 60 per cent. of instances. From the standpoint of public health and of the epidemiology of lobar pneumonia Dr. Kolmer thought it of particular importance that the disease be regarded as an acute infectious disease, due to the introduction of a germ from without similar to the production of diphtheria by acquiring a virulent diphtheritic germ. The disease, he said, was very properly regarded as reportable, and in certain large cities of the United States lobar pneumonia patients were quarantined. There seemed to be sufficient information to warrant the physician in regarding his patient as a potential focus for the spread

of the disease. While not all cases could be traced to contact with the previous one, studies indicated that there were carriers of the virulent pneumococci, that patients might be carriers, also those in attendance upon them.

Symptomatology and Diagnosis.—Dr. ROSS V. PATTERSON said that pneumonia of typical type offered no diagnostic problems to the practitioner of even short experience. In his opinion possibly 80 per cent. of croupous pneumonia cases ran a typical course and were characterized by easily recognized symptoms and demonstrated physical signs. It was in the remaining 20 per cent. that the diagnostician found opportunity for the exercise of his art. In studying the clinical picture of pneumonia it was to be remembered that the disease was one of protean manifestations with many divergences from type. There was not a single symptom usually seen which might not be absent, and in some forms of the disease the majority of classical signs were absent. Symptoms were said to be dependent upon the infection, toxemia, extent and distribution of the lesions and upon the individual and his personal peculiarities. In children, apex pneumonia was apt to be attended with symptoms suggesting meningitis and such diagnosis in some cases had been made. In double pneumonia it was usual to find that one lung was invaded one or two days after the first. This second invasion was not as a rule attended by chill, nor necessarily with increased toxic symptoms. There seemed to be no very definite constant relationship between the extent of involvement in the lungs and the general constitutional symptoms. In massive pneumonia the lungs became completely airless and the physical signs simulated somewhat those of pleurisy. Occasionally the lesions would pass from one part of the lung to another or from one part of the lobe to another, giving various stages in the same or in both lungs. In abortive pneumonia the onset was sudden and violent, terminating even after a course so short as two or three days. This was the type seen often in able-bodied men. In the asthenic form, on the other hand, the patient was overwhelmed by the toxins and symptoms resembling those of typhoid fever were present. The croupous pneumonia of childhood was characterized as different from that in adults, pseudolobar in type, and accompanied by markedly nervous symptoms, and often simulated meningitis. The character of pneumonia in the alcoholic was said to be dependent upon its occurrence in the steady drinker or in the subject of an alcoholic debauch. In the steady drinker the onset might be quite characteristic, although the tendency to the development of nervous and uremic symptoms at times complicated the clinical picture. After the alcoholic debauch the symptoms might assume those of delirium tremens. Mention was made also of the variations occurring in the terminal pneumonias in the course of chronic debilitating affections, such as tuberculosis, arteriosclerosis, diabetes, myocardial conditions in which the onset is not characterized by chill and the disease is often not recognized. Reference was made to the intercurrent pneumonias seen in the acute infections like typhoid, diphtheria, or influenza, probably due to the specific organism of those diseases and differing in type from the ordinary croupous pneumonia due to the pneumococcus.

Pneumonia in Childhood.—Dr. HARRY LOWENBURG, in discussing pneumonia in children addressed himself to the two types, bronchial and lobar pneumonia. With reference to diagnosis of lobar pneumonia, in his experience convulsions rarely occurred in the onset and he rarely saw chill; the child suddenly became acutely ill, more often with gastric disturbances than nervous phenomena. Physical signs were sometimes delayed for five or six days. He felt, therefore, that this class of case occupied an important position in relation to the so-called obscure temperatures found in children. It was important to note also that the signs of consolidation were not always in evidence early. He believed it high time that the profession discarded the term "central pneumonia," and also disregarded as a possible clinical entity "pneumonia without physical signs." Either the physician was unable to detect such signs or the case was one of some other condition. With reference to central pneumonia, so-called, x-ray studies had proven that most pneumonias in children

began as subpleural manifestations and that the auscultatory signs of consolidation did not appear until the consolidated area touched the hilus of the lung. The consolidated area acted as a transmitter of the sound from the trachea to the ear. Until this was made complete the signs of tubular breathing were likely to be in abeyance. Therefore, he believed physicians should no longer speak of central pneumonia. In the beginning of these cases most was to be learned by percussion, and the experienced clinician could "feel" a pneumonia. Abdominal pain was a very common symptom of pneumonia in children and a very misleading one in cases in which the physical signs were late in appearing. It had been his experience in at least three cases to be unable to decide between pneumonia and appendicitis, and he had splendid company in his dilemma. In the differential diagnosis, therefore, diligent search should be made for physical signs in the chest, and in hospitals speedy use should be made of the x-ray. It was important also not to neglect a rectal examination, by which method tenderness on the right side would frequently be demonstrated. In none of the cases, however, would there be certainty of diagnosis until the patient had recovered, been operated upon, or had died. In children the pulse respiration ratio was of no diagnostic value unless counted during sleep. The most important complication of lobar pneumonia, in his opinion, was fluid. In the presence of a diffuse area of impairment associated with a marked sense of resistance upon percussion, out of proportion to the degree of dyspnea, the diagnosis of effusion was probably correct. He regarded this phenomenon of vastly more importance than the changing of the level or the area of dullness with change of position of the patient. He believed that more children with lobar pneumonia were assisted on the downward course by over treatment and over stimulation than in any other way. He advocated a "masterly inactivity," carefully watching the case; and the adoption, as in his hospital service, of a four-hour interval. At the end of that time the pulse and respiration were recorded, the indicated medication was given, the patient was fed, and then let alone. The bowels, of course, should be opened daily. In bronchopneumonia the child should be put in a room with fresh air that was not too cold. He did not give stimulants in pneumonia, except perhaps just before the crisis, and believed rest to be the *sine qua non* in the conduct of patients. They should be given morphine or codeine when restless, provided there was no contraindication. He emphasized his conviction that rest and "masterly inactivity" would bring better results than would over treatment.

Treatment of the Pneumonias.—Dr. S. SOLIS COHEN explained that he had chosen the term "pneumonias" because almost every pneumonia patient presented a different aspect, and clinicians, bacteriologists, and pathologists had recognized certain quite distinct types of the disease. The policy of "masterly inactivity" which had proven so successful in pneumonia in childhood in the hands of the last speaker, he stated, had proved very disastrous in the hands of the majority of the profession in lobar pneumonia in adults. It had been shown by statistics that the mortality rate of pneumonia had grown progressively worse with the progress of medical science. Pretty much all over the country two years ago the policy of "masterly inactivity," or the expectant treatment, resulted in a death rate of 40 to 60 per cent.; whereas at the time Osler went over the statistics at the Pennsylvania Hospital, it was shown that under various methods of treatment the average mortality was about 25 per cent. In reference to the statement that every case of pneumonia began to die or recover from the moment of infection, Dr. Cohen observed that, while the process of recovery might be impeded, the process of death and decay might also be brought to an end and recovery aided. The same factors in treatment might be potent for evil or for good according to the intelligence with which they were applied. The patient should be carefully watched for the dangers likely to occur. Cold fresh air to the aged and to the alcoholic, in his opinion, was fatal, but for the average patient in good condition cold air as well as fresh air he regarded as beneficial. Fresh air was best obtained by putting the patient on the uncovered roof, covering the roof only when storms de-

manded it. The patient must be kept thoroughly warm in his bed. The serum treatment in Type 1 infection had proven better than any other treatment that had been used, and he believed the rate of mortality to be anywhere from 5 to 10 per cent. At Chattanooga he was told that one patient out of 31 died when treated with this serum. The polyvalent serum did not seem to be highly successful. The next form of specific treatment was that of the bacterins. The word "bacterin," Dr. Cohen stated, was not a proprietary term. It was introduced by him, coined by him, given to the profession by him, and to any manufacturer who chose to use it. He had seen the most contradictory statements in discussions upon the value of the vaccine or bacterin treatment. Then came the difference in type and the assertion that the vaccine to be useful must be specific. For the last three or four years he has been using the bacterins early with increasing frequency and he had for that length of time been prepared to say that they fulfilled the first Hippocratic rule—they did no harm. He claimed it justifiable to make experiments with a therapeutic measure which offered some prospect of success, provided it was known that it would do no harm. At Ft. Oglethorpe he had gone through the hospital which was under the care of Dr. Charles H. Smith and Captain Arthur Dare, with Dr. D. H. Bergey, assistant chief of laboratory. The organization and the work of the hospital were the best he had ever seen. Dr. Dare, with the consent of his superior officers, had put into execution at the hospital the treatment of the pneumonias with a mixed vaccine, and in more than 100 cases of lobar pneumonia treated with this vaccine the death rate had been less than 6 per cent. Midway between the vagueness and futility of the expectant treatment and the certainty of the specific treatment there was that to which Dr. Cohen had given the name of definite treatment. This consisted in the use of medicine and hygienic measures, not haphazardly, not merely after a period of "watchful waiting" for dangers to occur, but in a definite association for definite purposes and in advance of the dangers. It substituted preparedness for locking the barn door after the horse was stolen. It followed the doctrine of Jacobi who said before the Society before the days of antitoxin, "The great danger in diphtheria is heart failure." The time to treat heart failure, Dr. Cohen emphasized, was before it happened. The time to treat the dangers of pneumonia was before they happened. That had been the basis of the treatment which he had gradually assumed and to which he had given the name of the "definite treatment." It combined the use of fresh air, all necessary therapeutic measures, good nursing, and hygiene. Outside of Blockley, in a series of over 400 cases the mortality under this treatment had been less than 16 per cent. At the Jefferson Hospital, where the best results were obtained, the mortality had been less than 8 per cent.

DR. A. C. MORGAN said that the diagnosis of pneumonia should be made before the physical signs appeared. The earlier the serum or specific treatment was given the better was the hope for recovery. The previous history of the patient should be regarded, since it was known that pneumonia had a tendency to recur. A patient with such a history, developing marked coryza with prostration disproportionate to the symptoms, should be treated as a case of suspected pneumonia and be given the serum or vaccine dosage at once without waiting for physical signs. Frequent swabs of the nose should be made to determine as quickly as possible the strain. He remarked upon the apparent increase of the ether pneumonias within the past year. This he thought might be due to lack of care in operative technique, or possibly because of the tremendous need for ether throughout the entire world there had been some unintentional contamination in its manufacture. He thought the discussion of pneumonia might be summed up under its mechanical and toxic features. In a patient with a myocardial degeneration but little pneumonia, from a mechanical point of view was required to produce a fatal termination of the disease.

DR. JOHN F. SINCLAIR agreed with Dr. Lowenburg regarding the pneumonias in children and regretted that he did not lay more stress upon the prophylaxis of pneumonia in this class of cases. In his opinion, one

of the reasons for the greater frequency of pneumonia in children seen in the hospital and dispensary than in private practice was the neglect of the care of the nose and throat. If at the first appearance of coryza or pharyngitis the condition were treated he believed the incidence of pneumonia among children would be markedly decreased. He also believed with Dr. Lowenburg that central pneumonia was a term without justification in its use regarding the pneumonias of childhood. This might not obtain in the pneumonias of adult life. He would emphasize also the value of light percussion in eliciting the pneumonic area. The puzzling point of abdominal pain had been well stressed. The complication of otitis media, though not mentioned, had been found in a small series of cases of lobar pneumonia to have been present far in excess of 18 to 20 per cent.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held December 27, 1917.

Dr. GEORGE W. KOSMAK IN THE CHAIR.

Puerperal Sepsis Due to *Bacillus Aerogenes Capsulatus*.—Dr. GEORGE L. BRODHEAD reported this case. He stated that the patient, 30 years of age, married, was admitted to his service at the Harlem Hospital, on November 17, 1917. Aside from an attack of grip about a year ago, during which she suffered from sore throat, congestion of the nose, occipital headache, and dizziness, being sick for about two weeks, her past history had no bearing on her present illness. About two weeks before her admission to the hospital she suffered an attack similar to the one just mentioned. Three days before her admission she purchased 10 grains of aspirin, 10 grains of quinine, and 10 grains of cascara for this cold. The last menstruation was September 10, 1917, just nine weeks prior to her entrance into the hospital. Urination had always been regular until her present illness. She had not voided for two days prior to her admission to the hospital. She had had two children and two spontaneous miscarriages. Twenty-four hours after taking the drugs above referred to the patient began to bleed from the vagina. She complained of pain in her throat and abdomen. Three hours after she began to suffer this pain her husband noticed a change in the color of her face, lips, and neck. He said her face was red and he thought she looked like a person whose heart was failing. A physician was called, who prescribed some codeine and essence of pepsin. Twelve hours after the onset of her illness her husband noticed that her entire body was copper-colored. The following morning the condition persisted, and her physician advised her to enter the hospital. She denied any instrumentation, operation, or examination by the vaginal route. Her only complaint was a bad taste in her mouth, pain in the throat, and weakness. Physical examination at the time of her admission to the hospital showed the temperature 102.4 deg. fahr.; respiration 40; blood pressure 90 systolic and 60 systolic. The woman was dyspneic, with respirations rapid and shallow. She had an anxious, pinched expression and a peculiar sweetish odor coming from her mouth. She was rational and quiet, answering all questions promptly and intelligently. She had a deep copper-bronze Indian-like hue of the entire cutaneous surface. This color did not appear to be pigmentation of the skin, but impressed one as being an underlying color, as if it were in the subcutaneous tissues. This discoloration was diffuse and of equal intensity all over the body, excepting at the finger tips and lips, which were blue and cyanotic. This color did not disappear on pressure; there were no areas of mottling, and no elevations of the skin. Examination of the eyes showed the palpebral and bulbar conjunctivae deeply discolored, being a muddy brown in appearance, resembling a deep jaundice. The lips were cyanotic, dry and fissured, and their cutaneous temperature was lower than the cutaneous temperature of the rest of the body. The tongue was dry, heavily coated, and fissured. There was no atrophy or fibrillation present. The posterior wall of the pharynx was

dry, dark blue in color, and many petechial hemorrhages were present. Similar hemorrhages were found in the gums and hard palate. Examination of the chest showed the respiration thoracic in type, the right side expanding more than the left. A few fine crackling rales were heard over the left lung anteriorly, between the first and third ribs. The voice sounds and respiration sounds were somewhat harsher over this area. The heart sound at the apex was high pitched, slapping, accentuated, and snappy—quick to come and quick to go. A presystolic murmur was present, localized within the apex beat. This murmur was harsh and grating in type and was not transmitted. An occasional thrill, systolic in time, was palpable over the area where the murmur was heard. The apex beat was not visible; it was palpable in the fifth interspace 11 cm. from the midsternal line. Every eighth beat was feebler than the rest and at times inaudible. The abdominal examination was negative except for tenderness all over the abdomen on superficial and deep palpation. The uterus was anteflexed, slightly tender, and about the size of a two months pregnancy. The cervix was central, thick and soft; the external os was one finger dilated; the internal os was not reached. There was slight tenderness in both fornices. There was marked hyperesthesia and hyperalgesia of all the muscles of the body, particularly the large groups of muscles. The patient was pulseless throughout her entire stay in the hospital. Two ounces of chocolate-colored fluid were obtained by catheterization; this was alkaline in reaction, with a specific gravity of 1040. Albumin was present; there were many red blood cells and few white blood cells. The guaiac reaction was positive; bile negative. The blood count showed 3,000,000 red blood cells, 50,000 white blood cells; the differential count showed 90 per cent polymorphonuclears, and 10 per cent lymphocytes. The patient was placed on eliminative treatment and cardiac stimulants. About seven hours after her admission and 40 hours after the onset of the illness, she became restless and irrational, her abdomen became markedly distended, pupils unequal and dilated. She remained in this state for a little more than an hour and then died. Dr. Brodhead reported in detail the post mortem and pathological findings. Stab cultures of agar agar made from the liver and heart, under anaerobic conditions, two hours post mortem, and incubated for twelve hours showed the *Bacillus aerogenes capsulatus*. The postmortem findings showed the infection very widely disseminated. The uterus was enlarged, soft and the opened mucous membrane presented a shreddy dark green appearance. The secundines were still attached to the right side of the uterus; the fetus was not present. When the perietal peritoneum was raised up from the underlying tissues blebs formed filled with gas. The speaker said that this was the first case of the kind he had met with in his experience, but that Dr. Cassasa, assisting visiting surgeon at the Harlem Hospital, had seen two cases of similar nature in his necropsy work.

Dr. HERMANN GRAD said that those who had made a study of the *Bacillus aerogenes capsulatus* stated that it was not unusual to find this microorganism in the blood during the last hours before death. The bacillus might be found in the intestinal canal, although it did not give rise to any symptoms, but it was never found in the blood except during a short time before death. Dr. Grad related an experience which he had had with this bacillus in a case operated on for pyosalpinx. This patient did not do well after the operation. Two days after the operation several blebs appeared on her arm and shortly after blebs were found at the edge of the wound. At the end of forty-eight hours they had appeared all over her skin. This patient lived about six days. The abdomen was reopened and blebs found all over the peritoneum. In this instance there were no gas bacilli in the blood.

Dr. CHARLES S. CASSASA said he had occasion to see this case clinically, and he had seen two other cases of *Bacillus aerogenes capsulatus* infection at autopsy in which the characteristic copper color was present. From the appearance of this patient he suspected that the *Bacillus aerogenes capsulatus* was present, though he also took into consideration the possibility of an acute Addison's disease or thought it might possibly be a case of acute silver poisoning. He thought that

possibly silver nitrate had been used in an attempt to procure an abortion. One of the former cases which he saw about a year ago gave a history of instrumental interference. She stated that a physician had introduced a catheter into the uterus and later she developed this characteristic color. Thirty-six hours after the insertion of the catheter she showed the presence of the gas bacilli in the blood. This was just before death. The important point to remember was the copper color which was pathognomonic of gas bacillus infection. The prognosis was very grave and the pain terrific. He had watched this case for crepitation over the femoral vessel, but this patient had not developed it.

Specimen from an Autopsy Eighteen Months After Percy Cauterization for Carcinoma of the Uterus.—Dr. JAMES A. CORSCADEN presented this specimen. He stated that the clinical history of the patient showed that she had been in the hospital twice. Her chief complaint was metrorrhagia. Nineteen months before her death, after unusual exertion, she had a hemorrhage from the vagina, which was severe and continued for several days. Three weeks after this an operation was performed, consisting in the excision of a specimen from the cervix, ligation of the internal iliacs, a double salpingo-oophorectomy, and a Percy cauterization. The pathologist's report at this time stated that the specimen from the tube showed follicular cysts of the peritoneum. Specimens from the cervix showed carcinoma of the cervix. After five weeks' stay in the hospital the patient went home improved in every way. Sixteen months later, August 17, 1917, she returned to the hospital, and died on September 20, 1917. She stated that she had had backache from the time of her previous discharge up to three months before this admission (four months before her death) when it disappeared. The abdomen had gradually increased in size, and pain was severe all over the abdomen. The treatment was confined first to attempts to relieve the distention. This proved useless, and then recourse was had to the constant administration of morphine. The patient gradually became weaker until death supervened. The clinical diagnosis was carcinoma of the uterus and intestinal obstruction. The writer presented the details of the post mortem and microscopical examinations. The vagina was smooth and short and ended blindly in a small cauliflower mass which represented the former position of the external os. A sagittal section of the uterus failed to reveal any cavity. The uterine wall was quite hard, but contained a large quantity of muscle. Upon pressure a few drops of necrotic material could be squeezed from the cut surface. The rectum was quite difficult to open on account of the tortuosity of its lumen and the extreme constriction which occurred near its union with the sigmoid. Incorporated in the pelvic mass were many cysts of a simple serous variety, some of which were small, but several reached a diameter of 5 cm. The microscopical examination showed a typical epithelioma. The pelvic tissues about the uterus were also infiltrated with tumor. The neoplasm in the rectum was similar to that seen in the uterus. The anatomical diagnosis of this case was carcinoma of the cervix uteri, causing obstruction of the rectum, metastases to the peritoneum and lungs, acute cystitis, and multiple cysts of the peritoneum.

Dr. HOLDEN asked Dr. Corscaden how he would treat such a case today in the light of what he now knew in regard to the x-ray and radium.

Dr. CORSCADEN replied that he would employ radium. He knew of one patient now living and doing her own housework two years after the first Percy, eighteen months after the second Percy, and a year after radium was first applied, a poor showing for the Percy and a fine result for the radium. The upper part of the vagina was filled with scar tissue.

Dr. HERMANN GRAD said he had had but little experience with the Percy method of cauterization for cancer. He had had two or three cases with fair results, but after all the Percy method was purely a palliative measure for extensive carcinoma of the cervix. If one wanted to clean up a carcinoma prior to treatment with the x-ray or radium it might have a field. In some inoperable cases if the cauterization could do even as much as it had done in this case which Dr. Corscaden

had reported it might have a place in surgery. This patient improved and lived for eighteen months. The speaker stated that just recently he had seen one of the results of the Percy operation which brought out a point worth mentioning. This patient had a history of metrorrhagia only for four weeks; she claimed that she was absolutely well until four weeks ago. From such an experience as this it would seem that they had been too hard on the general practitioner, in blaming him for not bringing these cases to operation earlier. He did not see them earlier because they did not have any symptoms and did not present themselves. This woman had absolutely no symptoms and yet the vagina was simply a mass of cancer tissue; it was difficult to say whether she was a case for a Wertheim operation. However, he did an exploratory incision and found that she was beyond all surgical aid. He then did a thorough cauterization, which was followed by no reaction, and the patient was now very comfortable and doing nicely. On the other hand, he had had a case some six months ago, in which a cauterization was done and the patient seemed to be progressing favorably when, on the seventeenth day, she had a violent hemorrhage and died. This hemorrhage was the result of a slough into the iliac vein.

Dr. CORSCADEN, in closing the discussion, emphasized the point that in forming an estimate as to the value of such a procedure it was better to get the material on the table and then anybody who wanted to could study it and draw his own conclusions. It might be that Percy was right in following Vidal in holding that low grades of heat retarded the growth of epithelioma more than they did that of normal tissue. The laboratory findings in this respect were absolutely contradictory. It seemed to him that if a woman had only a year or two to live there was no use in making her miserable for three or four weeks with the Percy procedure. There was also, with the Percy method, a certain mortality to be considered, while with the radium treatment there was no mortality. There might, however, be cases in which it was advisable to use the Percy method before employing the radium. With the use of the radium it is only necessary to keep the patient in the hospital a few days.

Pelvic Floor Repair During the Puerperium.—Dr. A. J. RONGY made this contribution. He said that his reason for bringing this subject before the Section was simply to stimulate a certain amount of discussion on a subject which had been entirely neglected in their work. Primary repair of the pelvic floor was a failure in a large percentage of cases no matter how carefully it was done. The problem which they had to solve was how to best repair the pelvic floor in a woman who had had three or four children and in whom the pelvic floor was relaxed and who was unable to stay in a hospital for any length of time owing to the fact that she could not leave her household duties and her children. If this repair could be effected while such a woman was in a hospital for a confinement it would be doing a great deal for her. Thinking along this line he had decided to try making the repair during the puerperium, and a number of suitable cases had come under his observation. Dr. Rongy reported six of these cases in detail. Most of these cases had both cystocele and rectocele. The operations were performed on the seventh or eighth day post-partum. The patients had made good recoveries and there had been no recurrence of the cystocele or rectocele. The technic of the operation was precisely the same as that followed in the secondary repair of the perineum or cervix, and one could employ the operation which he was accustomed to doing and could perform most successfully. The bleeding at seven or eight days post-partum was likely to be more profuse than at other times; hence one must be careful lest he strike large veins, or if he did cut a vein the bleeding must be controlled very quickly. The tissues had to be handled more carefully at this time as they were more friable than usual at five, six or seven days post-partum. The only danger involved was the danger of embolism if one happened to open up a large vessel. First, however, in his work of fifteen years said he had never encountered a case of embolism from this cause. It seemed to the writer that if they would take up the subject of pelvic floor repair during the puerperium for those women who were not able to come back for a

secondary operation, it would be a great advantage to such women. It would be advisable to work up three or four hundred cases of this kind so that they would have some criterion by which to go. The operation for the repair of the pelvic floor was primarily an obstetrical operation and should remain in the hands of the obstetrician.

Dr. BRODHEAD stated that his experience in work of this kind had been somewhat limited. He had had two or three cases of repair of the perineum in which he had done the repair seven or eight days after labor. These patients all did well, and he was inclined to believe with Dr. Rongy that there was a place in charitable institutions and among women who could not leave their homes at any other time for reparative operations of this kind. If, however, the patients could come back later, he doubted very much the advisability of operating just after labor. He felt that we must recognize that there is a certain amount of danger attendant upon operations at this time and that the thing to do was to tell the patient that there was a certain amount of danger and allow her to decide for herself.

Dr. HARRY ARANOW described a case in which a woman was having trouble from a bilateral tear of the cervix which she wished to have repaired after labor. He sent the woman to the Nursery and Child's Hospital, where she was delivered of a premature baby. He had told her that he would not operate at that time, that she would have to come back later. The patient urged him to operate, and having heard of what Dr. Rongy was doing he finally did a modified Sturmdorf operation on the sixth day post-partum. He did the operation very gently, not exerting any traction on the uterus so as not to interfere with the clotting in the uterine wall. The result in this case was as good as in any case of his that he knew of. Since that time he had a second case in which he did a low amputation of the cervix, a perineorrhaphy, and an operation for cystocele during the puerperium, and the results were as good as though the operation had been done under other conditions.

Dr. GEORGE W. KOSMAK said he had given this subject a great deal of attention and he could not bring himself to believe in the contention that the results of a primary perineorrhaphy were generally bad. As soon as they gave more attention to doing a primary perineorrhaphy they might expect to get better results. He said that it was a mistake to bind the legs of the patient close together after a primary perineorrhaphy, for by so doing the lochia was dammed back in the vagina and, decomposing, was more likely to infect the perineal wound. In order to avoid this it was his practice to keep the legs separated after doing a perineorrhaphy after labor, as in this way the wound could be kept cleaner. Dr. Kosmak also disapproved of the vulvar pad in such cases, and stated that where there was a free discharge the pad should simply be placed under the patient. He had no objection to the use of a douche and directed the nurse to give the patient a saline douche forty-eight hours after a perineorrhaphy had been performed. He also avoided a bowel movement in these patients, if possible. In these operations on the perineum he used only plain catgut and had no trouble with it cutting through and it was not absorbed before healing was complete. He thought the 50 per cent. bad results reported by Hirsch could be reduced. He had been getting 75 to 80 per cent. good results in primary perineorrhaphies. While he had not seen the results of doing the intermediary operation, he did not think it advisable to operate on a puerperal case within a week after labor if it could be avoided.

Dr. FREDERICK C. HOLDEN spoke in favor of primary perineotomy and said he would like to have the opportunity of demonstrating the difference in the women in whom a primary perineotomy was done and those in whom it was not done. After a perineum had been subjected to long-continued pressure and stretching it sometimes never regained its normal condition, and a primary perineotomy avoided this. He believed it saved many babies by avoiding the long perineal stage of labor. He did a perineotomy following the suggestion of Pomeroy, cutting to the anterior surface of the sphincter but not through it. He now encouraged his internes to do a primary perineotomy and avoid these operations for the repair of the pelvic floor.

Dr. BRODHEAD asked Dr. Holden whether he considered it an advantage to do a perineotomy in the median line rather than a bilateral perineotomy.

Dr. HOLDEN explained that the results in a bilateral perineotomy were not as good as those in a median perineotomy. Dr. Holden advised his hearers to try this procedure a few times and assured them that if they would do so they would not have the disappointment of having women come back after labor with the perineum all relaxed and everything prolapsed.

Dr. BRODHEAD asked if doing a perineotomy as Dr. Holden described made any difference as regarded the possibility of getting cystocele.

Dr. HOLDEN replied that it did not. The perineotomy was done after the head was on the pelvic floor. Dr. Holden said he never used a vulvar pad on a woman after he had repaired the pelvic floor following delivery. He placed these patients in the Fowler position and insisted on their lying on the abdomen for five minutes every two hours; this assisted in getting rid of the lochia.

Cesarean Section for Pregnancy Complicated with Cardiac Decompensation.—Dr. HARRY ARANOW reported this case, stating that his reason for bringing it before the Section was because his obstetrical management of the case had been severely criticised. He stated that the patient was a primipara, 26 years of age, who was referred to him on Oct. 10, 1917, in the thirtieth week of her pregnancy. She gave a history of having had scarlet fever, diphtheria, acute articular rheumatism, and one attack of heart disease with failure of compensation one year ago. The patient's health during pregnancy had been poor. She had had considerable nausea during the first two months. There was some cough with bloody expectoration at times. Urination was frequent during the day and two or three times during the night. The patient was markedly cyanotic and dyspneic; her lips and finger tips were blue. The dyspnea was so marked that she was unable to assume the dorsal position for examination. There was visible pulsation of the cervical veins. Examination of the lungs showed that respiration was rapid and shallow. There were moist rales at the base of both lungs. The heart beat was not visible at the apex. The beat was diffuse; the action tumultuous. No thrills were palpable. Percussion showed the heart enlarged to about five inches to the left of the median line and also to the right of the sternum. Auscultation revealed a double murmur, heard at the apex and transmitted to the left axilla and up toward the aorta. The apex beat was not distinct. The heart sounds had a gallop rhythm. The second pulmonic sound was accentuated. The pulse was 78 and the blood pressure 97-58. The diagnosis was pregnancy in the eighth month, mitral stenosis, mitral regurgitation, probable myocarditis, and failure of compensation. In consultation at this time it was decided that it would not be justifiable to add the burden of a labor or cesarean section to an already overburdened heart. Accordingly, the patient was admitted to the Lebanon Hospital for treatment by absolute rest and medication. As a result of this treatment the cyanosis and edema practically disappeared and the lungs cleared. The dyspnea, however, remained about the same. A consultation was then held with Dr. Rongy and several members of the medical division as to the best method in the further care of this patient. Dr. Rongy agreed with the speaker that a cesarean section would be the safest method of delivery in this case. The opinion of the medical internists, however, varied considerably. One man felt that we had no right to further endanger the mother's life by waiting for a viable child. Another man suggested waiting for a week or two, giving the patient a thorough course of digitalis medication, and then inducing abortion. A third internist gave it as his opinion that we could wait as long as necessary and allow the woman to have an easy labor. They waited until the thirty-sixth week of pregnancy, when the patient was given $\frac{1}{4}$ of a grain of morphine and 1/200 of a grain of scopolamine hypodermically at 8.30 A.M., and at 9.00 A.M., under light anesthesia, a classical cesarean section was performed and the woman delivered of a five and one-half pound girl baby. The patient stood the operation well. They quickly tied and resected both tubes and closed the abdominal wall. On top of the dressings and parallel

to the incision were placed two sand bags of about five pounds each. The mother was returned to bed in as good condition as before the operation. Both mother and baby did well; the mother went home comfortably on the fourteenth day post-partum. This case brought out the following points for discussion: Given such a case: (a) Was one justified in waiting for a viable child, or was it perhaps their duty to wait for a viable child? (b) Having reached the viable period, what was the best obstetrical procedure? (c) Were they justified in sterilizing the patient, or was it perhaps their duty to urge sterilization on the patient?

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

WEST VIRGINIA STATE BOARD OF HEALTH.

Clarksburg, November 21, 1917.

(Continued from page 662.)

BACTERIOLOGY AND HYGIENE.

1. Describe *B. tetani* and give its distribution.
2. Describe the morphology of the gonococcus and a reliable method of cultivation.
3. Name the conditions essential to the growth and development of bacteria.
4. Define (a) ptomaines, (b) leucomaines.
5. State what you mean by mixed infection and give an example.
6. State what you understand by (a) natural immunity, and (b) acquired immunity.
7. Describe the hygienic management of tuberculosis.
8. Describe the sanitation of a common school.
9. Describe several methods of purifying drinking water.
10. Describe in detail the construction of a sanitary privy.
11. Name the insect-borne diseases and the means for their prevention.
12. Give the hygienic management of measles.

PRACTICE OF MEDICINE.

1. Give treatment of cholera morbus.
2. Make a differential diagnosis of pleuritis and pleurodynia.
3. Differentiate pulmonary and gastric hemorrhage.
4. Give causes of typhoid fever and outline the prophylaxis. Give treatment, including diet.
5. Describe the symptoms and treatment of measles.
6. Describe the features of a case which would lead you to diagnose acute appendicitis.
7. Describe herpes zoster and its treatment.
8. Give the treatment of whooping-cough.
9. Give symptoms of acute spinal meningitis.
10. Of what diagnostic value is the knowledge of a patient's blood pressure?
11. What are the symptoms and characteristic findings in diabetic coma?
12. Give diagnosis of poliomyelitis and precautions to prevent its spread.

ANSWERS.

BACTERIOLOGY AND HYGIENE.

1. The *bacillus of tetanus* is a small, slender rod with rounded ends, and characterized by its peculiar spore, formed at one end of the bacillus and giving it the appearance of a pin; it is purely anaërobic, and cannot be developed at all in the presence of oxygen. It is from 2 to 4 mikrons long and from $\frac{1}{4}$ to $\frac{1}{2}$ mikron in breadth; it is slightly motile, and stains with the ordinary anilin dyes and by Gram's method. It generally comes from the soil, and is found in penetrating wounds. It appears in two forms, the spore-bearing form, as described above, and the vegetative form, which is a short bacillus with rounded ends, and which may occur singly or in pairs, or may form long filaments. It grows in gelatin stab cultures in the middle of the medium and the colonies look something like a fir tree; its growth is slow, and a disagreeable odor is at the same time emitted. In bouillon, it grows near the bottom of the tube and produces gases.

Distribution, the soil, chiefly cultivated and manured fields.

2. The *gonococcus* is a diplococcus, the two cocci being flattened, and the pair facing each other and having a coffee-bean appearance. It is about $1\frac{1}{2}$ mikron long, and about 2-3 mikron in breadth. They occur both within and outside the cells, but are not found within the nucleus of the leucocytes. It is non-motile, does not form spores, is readily stained with the usual anilin dyes, and is decolorized by Gram's method. It grows upon human blood serum; also upon a mixture of meat infusion agar with ascitic fluid, hydrocele fluid or blood serum.

3. *Conditions essential to the growth and development of bacteria*: Most bacteria require proper temperature, generally at or near that of the body; oxygen is generally needed, those that cannot live without it being called aerobic, and those that can grow without it, anaerobic; nutriment of a proper kind, containing both organic and inorganic material; a slight degree of moisture; absence of bright light; a medium of slightly alkaline reaction, and rest. Individual bacteria may require modifications of some of these essentials.

4. *Ptomaines* are basic chemical compounds formed by the action of bacteria on organic matter.

Leucomaines are basic products produced in the tissues of living animals by cell metabolism.

5. By a *mixed infection* is meant the infection of a part by the entrance of more than one kind of pathogenic microorganism at the same time. Such a condition is often found when diphtheria bacilli in the throat are found accompanied by streptococci.

6. *Natural immunity* is that power of resistance, natural and inherited, and peculiar to certain groups of animals, but common to every individual of these groups.

Acquired immunity is this resistance acquired (1) by a previous attack of the disease, or (2) by the person being made artificially insusceptible. The chief conditions which give immunity are: (1) A previous attack of the disease; (2) inoculation with the specific microorganisms in small numbers or of diminished virulence, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

7. *Hygienic management of tuberculosis*: "The patient's quarters should be free from dust, and admit of spending many hours daily in the open air in all weathers, properly sheltered, and, if very ill, lying wrapped in a hammock or reclining chair. His bedroom should be well aired at night, draughts being avoided. The room should be uncarpeted and free from hangings. It should be often cleaned and periodically disinfected. All sputum should be collected in paper spit-cups, which should be burned daily. Smoking should be forbidden. Harm is done by any exercise which results in fatigue, and while fever exists it should not be attempted at all. Patients should be taught the necessity of practising lung gymnastics and breathing only through the nose, which should be kept clear and free from occlusion by secretions, or an hypertrophied catarrhal mucosa. . . . The clothing should be woolen, but not too heavy, or sweating is increased; and a flannel nightgown and loosely knit leggings should be worn at night in cool weather. The skin should be cleansed by daily sponge baths of lukewarm alcohol and water."—(Thompson's *Practical Medicine*.)

8. *Concerning schools*: The school building should be as near as possible to the center of the area which it is to serve; the site should be airy and open, of sufficient size, free from swamps, and somewhat elevated; it should not be too near factories, busy streets, or railways; the soil should be as free as possible from organic matter. The buildings should be so planned that the corners look towards the four points of the compass. In this way the sun will have access to each side and to every room during some part of the day. The building should have as few stories as possible. The walls should be of brick or stone, and should be pointed with cement; the inner surface of the wall should be cemented smooth. The foundations must be solid. The general arrangement will depend upon size of site, number of scholars, and number of required rooms. Fifteen square feet per child should be allowed. Details will have to be considered on: plans, accommo-

dations to be provided, shape and size of classrooms, distribution of rooms, teachers' rooms, corridors, entrances and staircases, playground, ventilation, heating, lighting, and placing of windows, sanitation, lavatories, water supply, drinking water, sewage disposal, removal of refuse, sanitary appliances, and drainage. Special care must be given to the prevention of contagious diseases and the exclusion of all possible sources of infection or contagion; there should be physical examination of children, also, for non-contagious physical defects.

The principal means of preventing the spread of contagious diseases in schools are: Regular and efficient inspection by physicians; prompt exclusion and isolation of any one suffering from a contagious disease, or coming from a house where such disease is; compulsory notification of all infectious and contagious diseases; individual towels, drinking vessels, and other implements; children who have had a contagious or infectious disease or who have come from a house where such disease prevailed should not be readmitted to school until sufficient time has elapsed since the occurrence of the last case to insure safety.

9. *The means of purification of public water supplies are storage and sedimentation, chemical treatment, and filtration. Sedimentation.* A part of the impurities in the water may be removed therefrom by storing the water in basins where the suspended matter sinks by the action of gravity, and in the process of settling entangles other impurities, as well as some of the bacteria in the water. In order to get good results, the basins must be shallow, the water left undisturbed, and the accumulated sediment removed from time to time. No complete reliance can be put on this method, as it does not guarantee a germ-free water. *Chemical purification:* The sedimentation of water in the basins may be hastened by the addition to the water of certain chemicals, which act as coagulants and form precipitates, entangling the organic impurities and bacteria, thus freeing the water from a large part of them. Alum (half a grain to the gallon), chlorine, bromine, copper sulphate, metallic iron, and ozone are used for this purpose. Neither sedimentation nor chemical purification is practicable for large water supplies, nor are they free from many objections. *Filtration:* This is the only method which has proved successful in providing a pure water supply. Filtration of large quantities of water is accomplished by means of sand beds of large area, the sides and bottoms of which are concreted, and on the bottom of which are placed numerous perforated and open drains which are to lead off the filtered water into separate special reservoirs. On the bottom of the filter areas, which are usually half or an acre in size, is placed a layer of coarse gravel, upon this a layer of finer gravel, which is then covered by a layer of fine, sharp sand, several feet in thickness, the whole filtering medium being from 4 to 6 feet in thickness. The filter is at first filled from beneath so that all air is driven off, and the filter area is then filled to a level of several feet above the filter bed. A filter of an acre in area may be made to filter two to four million of gallons of water in twenty-four hours. Such filters act not only mechanically in intercepting all suspended impurities, but the slimy sheet which soon covers the top layer of the sand acts biologically upon the water and destroys a large number of bacteria, so that, it is claimed, the water may be freed from 99 per cent of its bacteria, provided the rate of filtration is not too rapid and the top of the sand-layers is scraped off half an inch from the surface from time to time.—(From Price's *Essentials of Hygiene*.)

10. "The *privy* must be at least six feet away from any dwelling, and fifty feet away from any well, spring, or stream; ready means of access must be provided for the scavenger, so that the contents need not be carried through a dwelling; the *privy* must be roofed to keep out the rain, and be provided with ventilating apertures as near the top as possible; that part of the floor which is not under the seat must not be less than six inches above the level of the adjoining ground and moreover be flagged or paved with hard tiles having an inclination toward the door of the *privy* of one-half inch to the foot, so that liquids split upon it may run down outside and not find their way into the receptacle under the seat; the size or capacity of this receptacle may

not exceed eight cubic feet, by which limitation a weekly removal of its contents is necessitated; the sides and floor of this receptacle must be of some impermeable material, the floor being at least three inches above the adjoining ground level; the seat of the *privy* should be hinged so as to allow of the ashes being readily thrown in, and the receptacle unconnected with any drain or sewer.—(Notter and Firth's *Hygiene*.)

11. *Diseases transmitted by insects:* Typhoid, cholera, poliomyelitis, plague, tuberculosis, dysentery, anthrax, intestinal parasites, malaria, yellow fever, dengue, Texas fever, sleeping sickness, filariasis, relapsing fever, typhus.

To get rid of flies. Accumulations of dirt and filth must be removed or rendered distasteful to flies or larvæ by the use of lime, kerosene or cresol. Screens are used to keep flies out of houses; garbage must be disposed of in a proper manner; fly poisons such as arsenic or corrosive sublimate may be employed; fly traps are also useful; so, too, are fly papers.

To get rid of mosquitos. All pools, stagnant water, or places where the mosquitos may breed should be removed. Mosquitos and larvæ must be destroyed as far as possible. Fumigation by means of sulphur or pyrethrum will kill or stupefy the mosquitos, and in the latter case they can be swept up and burnt; mosquito netting and screens must be used.

Bedbugs may be exterminated by the use of formaldehyde or sulphur, absolute cleanliness, pyrethrum powder, and washing the floor and wooden bedsteads with emulsion of kerosene oil.

Fleas are exterminated by absolute cleanliness.

12. *Measles:* Isolation in a well-ventilated and darkened room; cool sponging or bath for fever; cool water to drink; if a sedative is required one grain of phenacetin may be given every three hours for four doses; if the cough is troublesome, three grains of sodium bromide may be given every three hours; inunction with 5 per cent. ichthylol in lanolin will relieve the itching; as a laxative, a quarter of a grain of calomel may be given every hour for two or three doses. The child must not return to school until all manifestations of the disease have disappeared. Fomites and "carriers" are common methods of spreading the disease.

PRACTICE OF MEDICINE.

1. *Treatment of cholera morbus:* A hypodermic injection of morphine sulphate, gr. $\frac{1}{8}$ to $\frac{1}{3}$ and atropine sulphate, $\frac{1}{120}$, should be administered, and repeated in half hour, if necessary. The various cholera mixtures (containing opium, camphor, capsicum, and rhubarb) are useful. Small pellets of ice will overcome the intense thirst to some extent, but liquids are contraindicated. Bismuth subnitrate (20 grains) and phenol (1/6 grain) may relieve the vomiting and purging. If the vomiting is very severe, an edema of choral (10 to 15 grains) in some demulcent, with 15 mm. of deodorized tincture of opium, will often relieve the patient. Locally, mustard leaves, turpentine stupes, and hot water bottles to the abdomen are of benefit. The after treatment consists largely in the regulation of the diet and a course of tonics.

2. *Pleuritis* is ushered in by chills; there is rapid rise of temperature, pain in side (made worse by any respiratory act), dyspnea, hurried breathing, quickened pulse, and distinct physical signs: Friction rub and fremitus; absence of vocal resonance and fremitus and breath sounds over the affected area, dullness on percussion; over the lung above the effusion there may be increased vocal fremitus and resonance, and Skodaic resonance; the apex beat may be displaced.

In *Pleurodynia*, there is no fever, no chills, no friction sounds, and no physical signs in general.

3.

HEMATEMESIS.	HEMOPTYSIS.
1. Previous history of gastric, hepatic, or splenic disease.	1. Previous history of pulmonary troubles.
2. Blood is vomited.	2. Blood is coughed up.
3. Blood is dark colored and not frothy.	3. Blood is frothy and bright red.
4. Blood may be mixed with food.	4. Blood may be mixed with sputa.

HEMATEMESIS.	HEMOPTYSIS.
5. Giddiness or faintness usually precede vomiting.	5. Sensation of tickling in the throat usually precedes.
6. Nausea and weight in epigastrium.	6. Dyspnea and pains in the chest.
7. Often followed by melena (black tarry stools).	7. Is not usually succeeded by melena.

4. *Typhoid is caused by the Bacillus typhosus.* It enters the body by the mouth, and is conveyed by food, fingers, flies, carriers, and fomites.

To prevent the spread of typhoid fever: Flies should be kept out of the house as far as possible, by means of screens or otherwise; all discharges from the sick person must be disinfected; all utensils, dishes, etc., used by the patient must be thoroughly cleansed and boiled every day; soiled linen must be soaked in a disinfectant solution before being washed; after each attendance on a patient physicians, nurses, and others should wash their hands in a disinfectant; thorough sterilization of all bedding, etc., must be performed after the disease is over. Further, each household should boil all water that is to be used for drinking or for washing dishes, etc.; milk should be boiled also; and no ice should be put in water or other drink or food. Prophylactic vaccination of exposed persons has been advised.

General treatment of typhoid fever: "As soon as the nature of the disease is recognized the patient should be confined to bed. The room should be large and airy, and provided with efficient means of securing thorough ventilation. The temperature of the room should be maintained between 65° and 70° F. The bedpan must be used from the beginning until convalescence is well advanced. The stools and urine should be rendered innocuous before being thrown out. This may be done by treating the evacuation with twice its volume of a 1 per cent. solution of chlorinated lime or a 5 per cent. solution of carbolic acid, and allowing it to stand in a covered vessel for two hours before emptying it into the closet. Soiled clothing should be thoroughly boiled. The diet should be liquid or semisolid, unirritating, and easily digestible. Milk alone (6 ounces every four hours) does not supply the required number of calories (2,500-3,000), but, as a rule, it should form a large part of the diet. It may be given diluted with lime water, or as buttermilk, malted milk, koumiss, junket, or ice cream. Among other suitable foods may be mentioned raw or soft-boiled eggs, chicken jelly, milk toast, strained oatmeal gruel, potato puree, tea, coffee, cocoa, fruit juices, wine jelly, and custard. Beef tea and broths may be harmful. In the event of digestive disturbances the diet should be restricted for a time to whey or albumin water. Water, plain or flavored (lemonade, soda water, etc.), should be given in large amounts between the feedings. When the first sound of the heart becomes weak and the pulse dicrotic, alcohol is usually indicated. From 4 to 8 ounces of whisky or brandy may be given in the twenty-four hours, the amount being determined by the general effect. The cold bath or the cold pack affords the best means of controlling fever and preventing the development of severe nervous symptoms. It may be employed every three or four hours, when the temperature is 102.5 F. or over. Hemorrhage, signs of perforation, menstruation, and great prostration are contraindications."—(Stevens' *Practice of Medicine*.)

5. *Symptoms of measles.* "After an incubation period of from ten to fourteen days the disease is manifested by a chill or chilliness, fever ranging from 101° to 102° F., muscular soreness, headache, and intense nasal, pharyngeal, and laryngeal catarrh. There are present also intolerance to light, redness and watering of the eyes, sneezing, and coughing. On the second day the fever remits to rise again on the fourth day, when an eruption of small, dark red, velvety papules arranged in crescentic groups appears on the face and soon spreads over the entire body. The catarrhal symptoms still persist. The eruption is attended by itching and more or less burning, and about the ninth day begins to fade

and disappear entirely by bran-like desquamation. All the symptoms then gradually ameliorate. Koplik's spots (a peculiar eruption consisting of small, irregular spots of a bright red color, with a bluish-white center, which appear on the mucous membrane of the lips and cheeks on the first day of invasion) are said to be pathognomonic.

Treatment: "Isolation, rest in bed, and protection from drafts and from bright light are necessary from the onset of the disease. It is often desirable to give a diaphoretic mixture. The bowels should be kept regular by means of some mild laxative. The diet should be semisolid. Mild cases require no medicines. Cool sponging or the following will reduce the temperature when it becomes alarmingly high:

R Tinct. aconiti..... $\overline{\text{mij}}$ to iv
Spts. ætheris nitrosi..... $\overline{\text{mxx}}$ to xv
Liq. potas. citrat. q. s. ad f 5j

M. S.—Every two hours.

Daily inunction of cold cream, cocoa-butter, eucalyptol in petrolatum, and similar oily substances will serve to relieve the itching of the eruption. Camphorated oil rubbed on the chest and applied to the nose and neck aids in lessening the catarrhal symptoms."—(Hughes' *Practice of Medicine*.)

6. *Diagnosis of acute appendicitis:* "When the three cardinal symptoms of the disease are present—that is, sudden onset of acute abdominal pain, followed by vomiting, occurring in one previously well; unilateral rigidity of the right lower abdominal wall; tenderness over the site of the appendix—the diagnosis of appendicitis is warranted in nearly every case. . . . Failures in diagnosis, however, may often be explained by the fact that the initial symptoms were insignificant, were lost sight of, or were obscured by the injudicious use of opium. The commencement of an attack of acute appendicitis may very closely simulate acute indigestion, in that there occur vomiting, colicky pains, often implicating the entire abdomen, and tenderness. But in acute appendicitis there is nearly always a certain sequence of symptoms—pain, vomiting, tenderness—and rigidity of the rectus muscle is nearly universal. If this sequence of symptoms—(1) pain, (2) vomiting, (3) tenderness—is altered, the diagnosis of acute appendicitis may well be considered doubtful; and where acute appendicitis is present and these symptoms have not occurred in the order described, other signs are generally present which render the diagnosis certain. Fever nearly invariably appears later than the three symptoms first mentioned. If hyperpyrexia occurs first, typhoid fever may be suspected, or pneumonia; if vomiting occurs first, acute indigestion or scarlet fever may be the cause; while where tenderness precedes the other symptoms for some hours or days, pelvic disease, or chronic intestinal ulceration are to be considered."—(Deaver.)

7. *Herpes zoster* is "an acute inflammatory disease, characterized by the development of groups of firm and distended vesicles situated upon inflamed bases corresponding to a definite cutaneous nerve, and accompanied by more or less severe neuralgic pains. The affection begins with neuralgic pains, either of a burning or lightning-like character, with slight febrile phenomena, followed by the appearance of papulo-vesicles along the tract of pain; these soon become vesicles situated on bright red, highly inflamed bases. The vesicles are about the size of pin heads, or, perhaps, a little larger; usually discrete, although they frequently coalesce, forming irregular patches, appearing in groups until the third to the fifth or even tenth day, when they gradually desiccate, and at the end of the second week nothing remains except occasionally a slight scar, which may disappear or become permanent. When the eruption is at its height it is perfect in its anatomic formation, each vesicle being well shaped and seated on a bright red, inflamed patch of skin, and distended with a translucent, yellowish fluid. The vesicles show no tendency to rupture spontaneously. In rare instances they may become purulent, hemorrhagic, or gangrenous. The eruption is almost invariably confined to one side of the body, although in rare instances it is seen upon both sides. It is usually found upon well-known nerve tracts. Recurrence is rare." The treatment consists in relieving the pain (by sodium salicylate or phenacetin, or, in severe case, by morphine). Zinc phosphide and nuxvomica have been recommended. Lo-

cally a dusting powder of boric acid or zinc oxide is useful; or collodion may be painted over the vesicles to protect them from injury.—(From Hughes' *Practice of Medicine*.)

8. *Treatment of whooping cough*: Isolation of the patient in a warm but well ventilated room; the throat may be sprayed with a two per cent. solution of resorcin or salicylic acid; chloral, or belladonna, or potassium bromide should be used as an antispasmodic; bismuth may relieve the vomiting; during convalescence tonics will be necessary.

9. *Symptoms of acute spinal meningitis*.—"There are two stages: the first, the stage of irritation; the second, the stage of paralysis of motion and sensation, with atrophy. Although an inflammatory affection, its onset is usually subacute, the febrile reaction being moderate, with intense boring pain in the back, aggravated by motion, rigidity of the spine, and a sense of constriction around the body—"the girdle." Spasmodic contractions of the muscles supplied by the nerves originating at the seat of the lesion, with inability to straighten the limbs are also present. If the lower part of the spinal membranes is the seat, there occur retention of urine and constipation; if upper part, dysphagia, dyspnea, and feeble heart. If the inflammation extends to the medulla, the above symptoms are associated with disorders of speech, vomiting, and delirium. The muscular contractions are excited or increased by motion, but uninfluenced by pressure. Reflex movements are not abolished. The rigidity and spasmodic contractions of the muscles are followed by paralysis, more or less complete, death ensuing as a consequence of paralysis of the muscles of respiration."—(Hughes' *Practice of Medicine*.)

10. **ABNORMAL BLOOD PRESSURE.**—*Pathological High Blood Pressure*.—"High pressure *per se* is not a disease but a phenomenon or symptom, which may accompany a great variety of diseased conditions, including diabetes, gout, syphilis, chronic lead poisoning, cardiovascular renal disease, many anomalies of nutrition, etc. *Acute asphyxia and acute anemia* of the brain (medullary centers) will powerfully stimulate the vasomotors, causing contraction of the splanchnic area and a rise in blood pressure. *Lead colic* affecting the abdominal vessels is usually associated with high blood pressure, as is also the early stage of peritonitis. *Pain*, even when slight, as in pinching the skin, usually elevates pressure. Continuous high pressure is seen in certain forms of nephritis. Thus in primary acute Bright's disease and in nephritis secondary to scarlet fever, there is practically always a marked rise in arterial pressure. A rise amounting to more than 50 millimeters Hg. has been observed within 48 hours of the onset of an acute nephritis. Elevated pressure is also found in beginning arteriosclerosis of the first part of the aorta and of the splanchnic vessels."

Pathological Low Pressure.—"A pathological depression in blood pressure may be caused by the depressing influence of circulating toxins, acting either upon the heart, blood vessels or controlling nervous mechanism or to sudden withdrawal of a large volume of blood from the circulation as in hemorrhage, after *venesection*, *copious diaphoresis*, *diarrhea*, or in *shock*. In general it may be said that lowered blood pressure is of little significance except after hemorrhage or during surgical shock. Here the great and sudden reduction in pressure may be sufficient to immediately endanger life. It is noted that a moderate and progressive falling pressure occurs in most progressive and prolonged fevers, as in typhoid fever. When due to such a cause the depression is rapidly overcome and disappears as convalescence is established. Widespread dilatation of the vessels and consequent lowering of blood pressure has been noted in the last stages of *arteriosclerosis*. (Krehl.)"—(Faught's *Laboratory Diagnosis*.)

11. *Diabetic coma* may be of sudden onset, or may be ushered in by headache or restlessness. Excitement and fatigue are favoring factors. The pulse is rapid and feeble, the temperature subnormal, the respirations prolonged and sighing; the patient is drowsy. His breath and urine have an odor like that of apples. The urine may contain acetone, diacetic acid, and beta-oxybutyric acid. The drowsiness passes into coma, and may end fatally. Usually in these cases there are no convulsions.

12. *Acute anterior poliomyelitis*. The early signs are fever, malaise, chilliness, tonsillitis, coryza, diarrhea, convulsions, profuse sweating, rigidity of head, neck and limbs, pain in neck or back, or there may be no early signs. There is sudden paralysis of one or more limbs or of individual muscle groups, and this is followed by rapid wasting of the affected parts, with reaction of degeneration and deformity. The lower limbs are chiefly affected.

To prevent its spread.—The patient should be isolated, in a room that is screened and free of hangings, etc.; urine, feces, nasal secretions and sputum must be disinfected; all implements and food that have been touched or used by the patient must be thoroughly cleaned; physicians, nurses and attendants must use the same precautions as they would in attending a case of (say) scarlet fever; gargles, sprays and nose washes of 1 per cent. solution of hydrogen dioxide should be used.

(To be concluded.)

Miscellany.

Various Systems of Ventilation Tested.—In order to arrive at some definite conclusion as to the advantages or drawbacks of different types of ventilating contrivances, the New York State Commission some years ago undertook to establish a criterion by which ventilation could be judged and the factors necessary to ensure adequate ventilation more definitely known. The report of this commission showed that too little importance had previously been attached to the movement of the air and to a proper combination of movement, temperature, and humidity. In some respects this report seemed to nullify the claims made for the surpassing importance of real fresh air. In order to obtain more concrete evidence of the value of fresh air, the Bureau of Child Hygiene of the New York City Department of Health in 1916 began an inquiry into the possible relationship between the prevalence of respiratory disease among school children and class room ventilation. This investigation was conducted among 5,533 pupils in 76 class rooms in 12 schools, under three different types of ventilation; the study covered a complete five-month period in the late fall, winter, and early spring.

The investigation formed the basis for the following conclusions: (1) In the closed window, mechanically ventilated type of classroom kept at a temperature of about 68° F., the rate of absences from respiratory diseases was 32 per cent. higher than in the open-window, naturally ventilated type of classroom kept at the same temperature (about 68° F.) and about 40 per cent. higher than in the open window, naturally ventilated type of classroom kept at a temperature of about 50° F. (2) In the closed window, mechanically ventilated type of classroom kept at a temperature of about 68° F., the rate of respiratory diseases occurring among pupils in attendance was 98 per cent. higher than in the open window, naturally ventilated type of classroom kept at the same temperature (about 68° F.) and about 70 per cent. higher than in the open window, naturally ventilated type of classroom, kept at a temperature of about 50° F. (3) The relative humidity of classrooms, whether ventilated by natural or mechanical means, was not a causative factor in the occurrence of respiratory illness among school children.

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Original Articles.

THE NARCOTIC DRUG ADDICT.*

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A NARCOTIC drug addict is an individual in whose body the continued administration of opiate drugs has established a physical reaction, or condition, or mechanism, or process which manifests itself in the production of definite and constant symptoms and signs and peculiar and characteristic phenomena, appearing inevitably upon the deprivation or material lessening in amount of the narcotic drug, and capable of immediate and complete control only by further administration of the drug of the patient's addiction.

In a paper "An Analysis of Narcotic Drug Addiction," read before this Society December, 1914, I stated: "In observing a number of addicts over a length of time, one cannot escape the recognition of a chain of constantly present physical manifestations inevitably following the non-administration of the drug. These may vary in priority of onset, in sequence, and in relative violence of manifestation in different cases, but they are the inevitable result of non-administration of morphine to a morphine addict. They constitute what are called the "withdrawal signs." To quote from a previous paper ("Narcotic Addiction—a Systemic Disease Condition," *Journal of the American Medical Association*, February 8, 1913): "In a general way they may be said to begin with a vague uneasiness and restlessness and sense of depression; followed by yawning, sneezing, excessive mucous secretion, sweating, nausea, uncontrolled vomiting and purging, twitching and jerking, intense cramps and pains, abdominal distress, marked circulatory and cardiac insufficiency and irregularity, pulse going from extremes of slowness to extremes of rapidity with loss of tone, facies drawn and haggard, pallor deepening to greyness, exhaustion, collapse, and in some cases death."

In plain English, a narcotic addict is one who experiences symptoms and signs as above outlined as a result of lack of supply or insufficient supply of narcotic drug. I know of definition along no other lines which will include all who suffer from narcotic drug addiction. This symptomatology and the mechanism or process which produces it are the only common and characteristic attribute and possession of all narcotic addicts.

How it is developed and how it may be controlled and arrested is the demand which the sufferer from

*Read at a meeting of the Medical Society of the County of New York, March 25, 1918.

narcotic drug addiction and which society as a whole is making of the medical profession. Until the medical profession can give competent and acceptable answer to this demand its other discussions will remain inconclusive and its other considerations incidental. This is the medical problem of narcotic drug addiction, and until the medical profession has recognized, is familiar with, and can to some working measure explain the physical phenomena and symptoms and signs of this condition, it is unprepared to assist intelligently and competently in the solution of a problem which now as never before menaces the welfare of society. They are the one constantly present set of facts in all narcotic addicts.

What type or class of individuals become narcotic addicts? Any type or class or individual to whom opiates are given for a sufficiently long time. It has yet to be demonstrated that there is any warm-blooded animal which, following sufficiently prolonged and constant administration of an opiate drug, is immune to the development of the above-mentioned symptomatology and the constant physical phenomena of which I have written elsewhere.

Color, nationality, social or economic position, age, mental and moral attributes of whatever sort are no bar to the development of the condition. These may influence of course the conduct and incidental manifestations of the individual addicted, just as they do in any other condition. The addicted judge, or the addicted physician, or the addicted clergyman, or the addicted man of business or other affairs, or the addicted clerk or industrial worker reacts differently to the suffering and trials of narcotic drug addiction from the addict of the underworld, or the heroine sniffer of idle and curious adolescence, or the addicted defective or degenerate or criminal. Also he reacts differently to everything else. What is true of one man who has narcotic addiction may be absolutely false of another. One narcotic addict is honest, competent, truthful, and intelligent. Another is dishonest, incompetent, untruthful and incapable of appreciation or self-control. Neither the one set of attributes nor the other is peculiar to narcotic addicts. They are simply personal attributes possessed by different men and types of men who may or may not be narcotic addicts. If the addict of the higher class displays at times attributes not typical of his pre-addicted days and seems to show a lowering of his mental or moral tone, it is well to estimate in his case the influences of past worry, and fear and suffering and strain and struggle, the attitude of society, medical and lay, towards him, and the manner in which he has been handled, before blaming it all upon the mere presence and action of narcotic drug

addiction. If such changes were inherent in the effects of a narcotic drug, they would be found in all addicts, whereas the fact is that they most decidedly are not found in all addicts. I have discussed this phase more fully in a previously published paper.

As to age in addicts there is no limit. I have seen an infant newly-born of an addicted mother. The infant must have developed the condition prenatally as it displayed the signs and symptoms of physical drug need, of which I have written above, a few hours after birth. There have been many such cases, some of which are matters of medical record. The condition exists beyond dispute and certainly cannot be explained upon grounds of conscious appetite or deliberate self-indulgence. I am told that in some of the homes for old soldiers are ancient veterans of the Civil War whose addiction dates from wounds received during that struggle. The late Dr. T. D. Crothers told me once that opiate addiction in this country received its first wide dissemination in that way. This points to the serious consideration of what may become one of the urgent medical problems arising from our present war.

As to the origin of addiction. There is only one actual origin of addiction, and that is the continued administration of a drug of addiction sufficiently long to develop the physical manifestations, symptomatology, and phenomena of body need for a narcotic drug. This statement is the only one which can be made as a generally inclusive announcement. I have many records and histories, much correspondence, and other data, collected from addicts, relatives, and friends and associates of addicts, physicians, official conferences, and workers in the various fields of narcotic endeavor. My material covers an active interest of many years' duration, and an experience which has dealt with various classes under various conditions. I have held different beliefs at different times, influenced by my own interpretation of experience, by the conditions under which I happened to be working, and by the class of people coming to my attention. At one time when in Bellevue Hospital I believed that all addicts were defective, degenerate, irresponsible, and unreliable, made addicts by curiosity, environment, or morbid appetite. That I believe is likely to be the attitude of the institutional physician, handling those who reach places of public custody and restraint. At one time I believed that the narcotic addict did not need the narcotic drug and could get along without it if he only had the will and the desire to do so, and that enjoyment lay at the bottom of his indulgence. I proceeded on that theory for a while in the handling of my cases, and have to thank the illicit supply which is present in all institutions that my mortality was no higher than it was.

The actual origin of addiction is administration of opiate drugs. The incidental details in the early administration to those who have become addicted vary widely. In the origin of the addict of the upper world, we of the medical profession must sooner or later come to recognize and to assume our part, unconscious and innocent but none the less beyond question. It is now beyond dispute that great numbers of cases of addiction received their

origin in medication during illness, the condition developing unsuspected alike by physician and by patient until its physical sufferings had passed the bounds of control.

The old fallacy that an opiate might be administered safely to a sufferer so long as the patient did not know what was being given has been responsible for many a case of addiction. Very many addicts have passed into the stage of fully established addiction symptomatology before they were aware that they had ever taken an opiate. A clinical familiarity with the symptoms and signs of beginning and developing addiction should be the possession of every physician and surgeon. It would save from the mental tortures and fears and from the physical suffering of narcotic addiction many human beings. It has been my experience when called in as a medical consultant upon medical and surgical cases whose progress toward recovery seemed unaccountably tedious and unsatisfactory to detect as the basis for the lack of function and recuperative power an unsuspected developing addiction in time to prevent its further progress. Unwisely prolonged narcotic medication makes more narcotic addicts than we realize.

This is one class of addict, the individual who is primarily normal, mentally, morally, and physically, and whose addiction condition is a result of ignorant, misguided, or unavoidable medication, either professionally or self-administered. Their number is far greater than is yet appreciated. Many if not most of them are unsuspected and unknown, and they include eminent people in all walks of life. They are social and economic assets whose interests and welfare we cannot ignore when we are considering the disposition and handling of the narcotic addict. They have gone from one institution to another, attempted in desperate effort each newly-discovered and announced specific or theory of treatment. They have never derived any pleasure from narcotic use. For them the narcotic drug has been only necessary medication to relieve physical suffering and to maintain economic existence and the support of themselves and their families. They should be classed as innocent or accidental addicts—normal and worthy sick people. They earnestly desire treatment and help, and once their addiction process is competently arrested do not tend to return to narcotic drug use. Whatever association they may have had with the unworthy or unfit so-called underworld and illicit and illegitimate traffic has been the result of desperate necessity in the obtaining of an opiate supply otherwise denied them, but, until practical methods of treatment and handling shall be generally known and used, necessary to them for the relief of suffering and for the maintaining of a condition making possible self-support and the avoidance of revelation and disgrace.

The narcotic addict of this class presents primarily and fundamentally a purely medical problem. Competent and complete arrest of the physical processes which cause the suffering of narcotic drug need permanently removes him from the ranks of the narcotic drug user. His problem is one of medical and nursing treatment and care. His after-care is simply such convalescence as is needed in the ordinary medical case to restore him

to physical efficiency. The length of his convalescence depends entirely, just as in other diseases, upon the competency and intelligence of his medical handling and upon his physical condition, reaction, and inherent recuperative ability. For such a man custodial care and institutional handling under conditions of enforced restraint are undesirable and harmful. His withdrawal from self-supporting citizenship should be for the shortest time commensurate with adequate therapeutic results. He should be restored to normal personal, social, and economic environment at as early a time as possible following his clinical treatment and the arrest of his physical mechanism of addiction. Given understanding clinical handling with comprehension and rational therapeutic recognition and meeting of the indications of disease in his case, he is no more a subject for restraint or custodial care than is a case of malaria or pneumonia. He is a clinically curable medical case.

A patient of this type will cooperate to the limit of his ability with the physician who is treating him, so long as he has faith in that physician's understanding of narcotic addiction and clinical familiarity with its symptoms and phenomena. It must be remembered, however, that the intelligent narcotic addict of this class possesses more clinical knowledge of drug addiction than any other class of men alive, and that he has been through before many procedures and treatments for which much had been promised, but which failed in result. He is skeptical and he is alert, and he will be the first to detect the shortcomings of the physician whose theories and practices do not accord with what the addict knows to be facts. The addict knows that the mere stopping or getting away from the opiate drug by whatever method or procedure is in itself a useless accomplishment unless coincident with it there comes cessation of the suffering, nervousness, sleeplessness, pains, and physical incapacity of continued and persisting low-grade addiction which he has experienced before, and which he knows to have been the condition which drove him back to opiate medication in desperate search for relief and working ability. The real condition to be considered and treated is not the use of a drug merely but the physical process whose symptomatology and suffering call for narcotic medication. Until this is arrested the patient will continue to suffer. Stopping the narcotic drug alone does not end the suffering and the addict knows it from previous experience.

I have given space to this type of addict because it is the type that demands and deserves of us as medical men clinical and laboratory study in the same broad spirit of scientific endeavor that is applied to other clinical conditions. This type of case is the as yet neglected job of our clinical and laboratory workers. There is a mass of tangible clinical facts to be observed and taught before we shall have fulfilled our professional duty to such cases. The answer will lie in no special specific medication or panacea, in no one definite or routine line of procedure. It will lie in the education of the physician into the clinical facts and manifestations of narcotic addiction, and their therapeutical control by such measures as are required to meet the indications of the individual case.

There are very many other cases, not falling within the class of narcotic addicts that I have been discussing, and in which the problem is not purely medical for the simple reason that the addiction condition exists in individuals whose types, characteristics, and environments make them in one way or another abnormal.

The degenerate, the defective, the high-grade imbecile, those of the hysteroid types, and some subjects of other psychiatric states are especially easy victims of curiosity and of suggestion, and readily fall through environmental influence into narcotic indulgence which persists until physical addiction is established. Once this is accomplished their future patronage is assured to the illegitimate trafficker in narcotics. The problem of their handling is quite a different matter from that of the type first mentioned. Narcotic addiction is merely one of the indications in the handling of people of this class, and the clinical arrest of the addiction process and addiction symptomatology is a minor accomplishment compared with custodial or correctional care and training for a considerable period of time. Their fundamental condition is not addiction, but is morbidity and irresponsibility of mind and life. Past experience in suffering and misery is quickly forgotten by them and has little or no deterrent influence upon their future conduct. They are without occupation and lack incentive to work. However competent and complete the medical and clinical treatment and relief of their addiction process, and however long the period of their subsequent restraint, they tend to seek a morbid environment to whose influences and opportunities they cannot react with adequate resistance. The members of this class are primarily and fundamentally problems for the alienist and for the custodial and correctional authorities. The disposition and handling of this class subsequent to their medical care is of vastly greater importance than the medical treatment of their physical addiction, not because they happened to have become narcotic addicts, but because of their fundamental characteristics and mental attributes.

There is one other class which has been and is growing with frightful rapidity during the last few years under the conditions which have fostered and made profitable the development of illicit and illegitimate narcotic drug traffic. This class is composed of those who, though not fundamentally defective, degenerate, or vicious, are not trained or educated or developed to resistance to environment or to associates. There has been a great increase of young narcotic users, victims of the instability, curiosity, excitement, and sensation seeking, associated with the developmental period of adolescence. They are simply young, untaught, inexperienced, and adventurous, easy victims for the recruiting agents of illicit traffic in narcotic drugs. Their problem is medical, custodial, educational, and sociological. We owe them medical relief and sociological and educational attention and training. We owe it especially because ignorance and misconception as to addiction facts and neglect of conditions and widespread education laid the basis for the illicit traffic of which they are the victims.

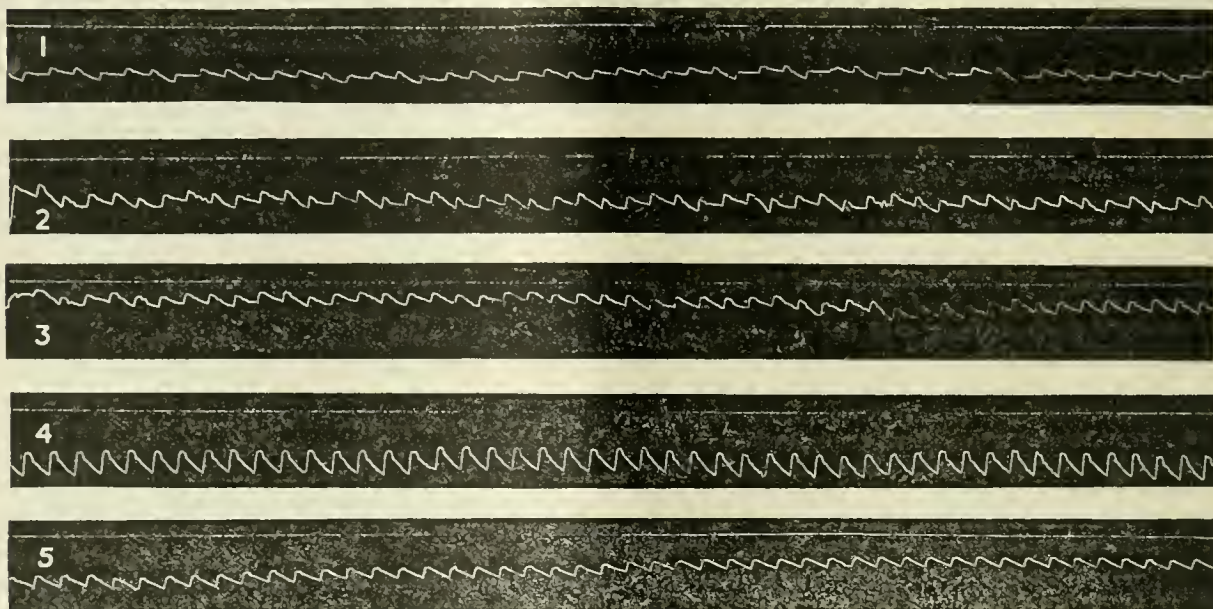
From the foregoing it will be readily seen that the only attribute common to all addicts is the de-

velopment of addiction symptomatology and phenomena. If we are to try to help the addict, the clinical and laboratory study of that symptomatology and phenomena is our fundamental medical duty. There have been many theories offered in explanation of it, and with awakening interest in the subject there will be many more. Each theory and explanation will probably add something to the information possessed, and will turn out to be partly wrong and partly right. None yet offered contains the whole truth nor an absolutely unassailable explanation of all the manifestations of the condition. It is probable that no one theory can possibly do so. Certainly no one of them should receive off-hand acceptance and credence at the present time. The condition is too complex and too varia-

ble in its clinical and pathological problems, and men of equal honesty and ability hold widely diverging beliefs. frequent discussion the various workers in the field. We are all partly wrong and partly right. There is no one of us who cannot learn from any one of the others. The real end of effort is not to prove one or another of us right, but to take each from the other whatever is of value, and all to contribute in true scientific spirit of broad tolerance toward the ideas of others and of willingness to correct or modify ideas and theories of our own, searching for no panaceas or specifics, simply hunting for truth wherever we may find it.

There is too much work to be done and the situation is too urgent for remedy to permit of longer delay in scientific approach. Under present conditions, no man's announcement of theory or of remedy is to be taken as ultimate authority, but simply

Sphygmographic Tracings showing the Physical Organic Dependence upon Opiate Administration in the Circulation of a Narcotic Drug Addict



Patient convalescent from pneumonia with persisting sequelae of marked circulatory deficiency which did not respond to the administration of the usual circulatory stimulants even in large doses. I was called in consultation.

Found patient to be a narcotic addict of many years standing, his addiction developing as a result of physician's medication during illness.

During recent pneumonia and subsequent to it, morphine had been administered in therapeutic doses for relief of pain, restlessness and sleeplessness. The daily average of such medication just prior to these tracings was about one-half grain a day. The last dose prior to these tracings was one-eighth of a grain given at 3:30 p. m.

I first saw the patient and made No. 1 tracing about 6:00 p. m.

Tracings No. 2, No. 3 and No. 4 were made at about 15 minute intervals. They were made following experimental hypodermic injections of morphine sulphate to determine the extent of organic dependence upon opiate medication and the amount of opiate needed to restore organic function and tone.

Tracing No. 4, taking into consideration the asthenic and exhaustion condition of the patient, shows full support to circulation with some overaction.

Tracing No. 5 was taken about an hour or so after tracing No. 4 to determine the holding power of the dosage administered, after the circulation had quieted down from the immediate action of the opiate medication. This tracing interpreted and considered together with the clinical manifestations at the time was decided to be about normal for that patient at that time.

as his opinion based on his personal deductions and his personal experience, and offered for what it may turn out to be worth.

I have for years known narcotic drug addiction to be one of the chronic physical ailments most certain of successful arrest without marked suffering or discomfort. It can be successfully treated by the intelligent clinician who is as familiar with its symptoms and clinical phenomena, and with the various physical actions and reactions of narcotic drugs upon the organs and functions of those addicted, as he should be with the symptoms and clinical phenomena of any other disease.

This is not to be done by any one special remedy or combination of remedies or by any routine method of procedure. Many drugs may be useful

ble in its clinical and pathological problems, and men of equal honesty and ability hold widely diverging beliefs.

The announcement of each new theory or belief should be taken simply for record and investigation. Much that we believe to-day we know tomorrow to be based upon misinterpretation. Much that we believed in the past to apply to and solve fundamental conditions, we found later to have been merely based upon observations of distracting incidentals or non-basic aspects and phases. What we need is some competent, disinterested, and honest effort to get together and evaluate all available material of whatever sort and from whatever source. If it were possible of accomplishment it would be of advantage to get together in open and

at different times to fulfill the indications in a given case, and their skilful selection and use is the measure of clinical ability in the handling of this disease. The belladonna group, hyoscine, cardiac stimulants, strychnine, hydrotherapy, pilocarpine, eserine, eliminants, etc., have all been used for many years and all have certain uses at some time in some cases. No one, however, who is experienced, honest, and competent will claim that any of them or any special combination of them is universally applicable to all cases of narcotic addiction as a special curative specific agent.

All are remedies of election useful in the hands of men who thoroughly know addiction-disease and are expert and proficient in the action and administration of the drugs they elect to use. The dangers and harm of the ignorant or unskilful use of these drugs, however, are daily demonstrated by those recently subjected to unskilful treatment.

I have taken out of my collection of clinical data on narcotic addiction a series of heart tracings which I have had reproduced and printed for distribution as showing graphically one example of narcotic drug action in a narcotic addict, and perhaps stimulating to further study of the clinical condition. These tracings bear on one small phase or phenomenon of addiction, but they are graphic and material and mechanical in their method of securing and they cannot distort or misrepresent. Any theory of addiction which is to survive must be capable of explaining such evidence as these tracings. They are one item of tangible evidence which must be reckoned with and there is a mass of other evidence. In the explanation of material and tangible facts lies the hope of the addict.

BIBLIOGRAPHY

- Hirschlaff: *Berl. klin. Wchnschr.*, 1902, XXXIX, 1149.
 Morgenroth: *Berl. klin. Wchnschr.*, 1903, XL, 471.
 Cushny: "Pharmacology and Therapeutics," Ed. 5, 1910, p. 222.
 Faust: *Arch. exper. Path. u. Pharmakol.*, 1900, XLIV, 217.
 Bishop, E. S.: "Morphinism and Its Treatment," *Journal A. M. A.*, May 18, 1912, p. 1499.
 Marme, W.: *Centralbl. f. klin. Med.*, Leipzig, 1883, IV, 241; *Deutsch. med. Wchnschr.*, 1883, IX, 197.
 Robert, R.: *Lehrbuch der Intoxikationen*, 1893, p. 567.
 Bishop, E. S.: "Narcotic Addiction: A Systemic Disease Condition," *Journal A. M. A.*, February 8, 1913, p. 431.
 Pettet, G. E.: "Narcotic Drug Diseases and Allied Ailments," F. A. Davis Company, 1913.
 Bishop, E. S.: "An Analysis of Narcotic Drug Addiction," *New York Med. Jour.*, February 27, 1915.
 —: "Some Fundamental Considerations of the Problem of Narcotic Drug Addiction," *Am. Med.*, November, 1915, N. S., X, 807.
 —: "Preliminary Considerations of Drug Addiction in Surgical Cases," *Am. Jour. Surg.*, December, 1915.
 —: "Facts About Morphinism," *Am. Med.*, 1916, N. S., XI, No. 1.
 —: "Rational Management of Narcotic Addiction," *Med. Council*, March, 1916, XXI, 37.
 Valenti, A., referred to in: "Symptoms in Chronic Morphinism Induced by Withdrawal of the Drug," editorial, *Journal A. M. A.*, May 23, 1914, p. 1662.
 Bishop, E. S.: "The Narcotic Addict, the Physician and the Law," *Med. Times*, 1916, XLIV, No. 5.
 —: "The Rational Consideration of Narcotic Addiction," *Interstate Med. Jour.*, June, 1916.
 —: "The Rational Handling of the Narcotic Addict," Transactions of the Section on Pharmacology and Therapeutics of the American Medical Association, 1916, pp. 144-155.
 Preliminary Report of the Joint Legislative Commit-

tee for the Investigation of Narcotics, New York Legislature, 1917.

Records and transcribed testimony of the Whitney Legislative Committee hearings, 1916, 1917, and 1918. 151 WEST EIGHTY-FIFTH STREET.

THE PROBLEM OF NARCOTIC ADDICTION OF TODAY.*

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NEW YORK.

AN attempt to answer the query, "Whose problem is narcotic addiction?" will, I believe, sufficiently emphasize the confusion that appears to exist in regard to this grave question. Is it a sociological condition? Has it reached such proportions as to justify federal attention, or is it merely of local concern? And, further, is it not a public health matter, and, if so, has it not reached national proportions? Are we not safe in saying that addiction today menaces national security in a measure? If this is so, and I believe it is, narcotic addiction is a federal public health problem.

What part has society played in making possible existing conditions? A very direct one, and this being so, society must undo the harm done by enacting such legislation as will repair, as far as possible, the damage already incurred and prevent further contamination of the uninitiated.

Thus far we find we are dealing with a national public health problem with pronounced sociologic affiliations. By placing the responsibility at the door of the federal authorities, we are merely acknowledging that a condition exists which has passed beyond our State boundaries, one that must be corrected by federal measures that will standardize and coordinate interstate relations and activities. Our community burdens in this matter are not passed to other shoulders, any more than the community can shift its war obligations and assume an apathetic attitude.

If we are dealing with a medical problem, to which branch of medicine does it belong? Here again we find conflict and confusion. The psychiatrist says the condition is almost entirely psychic and the remedy lies in his field. The neurologist is apt to be just as emphatic in his claims, and the man of internal medicine is disposed to disregard the contentions of the other two, and appropriate the problem to himself. If there were not a measure of truth in each contention, there would be no argument. Have we not reached a point when we should be prepared to approach the problem with open minds and get at the truth? I believe we have. Those of us who have seen many cases will have little difficulty, if we have classified them all, in pointing to the psychic type, to the emotional neurologic type, and to the type in which somatic involvement apparently overshadows the other features.

While I am convinced that addiction is more widespread than is generally believed, I am satisfied to let that feature of the problem rest with the statement that it has assumed National proportions.

Let us now briefly consider the addict himself; the causes of the spread of addiction; the contami-

*Read at a meeting of the Medical Society of the County of New York, March 25, 1918.

nating agent, and its pathologic effects and the remedy.

Between three and four years ago, I took up the study of the personality of addicts at Warwick—on admission, during treatment, and at the time of discharge—and was surprised to find as the time came for them to leave the colony that I was dealing with a normal type of individual in the majority of cases. This conclusion was reached from observations of behavior, such as attitude toward others, industry, truthfulness, loyalty, and dependability. These characteristics were recorded in each case so far as possible. It was fully realized that these observations were of little scientific value, still they were suggestive, and were about all that could be accomplished with the meagre equipment at hand and lack of adequate assistance.

Through the generosity of a public spirited citizen, the services of Dr. E. W. Phillips were secured. He devoted eight months to the work, and in September, 1916, reported a study of 100 cases, which I am incorporating herein in substance as follows:

"The report is not statistical, and many of its figures are only approximate. Because of acquaintance with certain of the subjects, proper allowance for misstatement and error has been made."

"The series contained seven morphinists besides a few who had substituted heroine for morphine, and two alcoholics who had abandoned drink for drugs. Many of the older addicts started on cocaine, but there was no case of cocaine without opium habituation. Relatively cocaine seems to be unimportant."

Age.—Oldest, 48 years (a morphinist).

Youngest, 15 years.

Average age for series of 100 cases, 23 years, 7 months.

Average age for heroine addicts, 22 years, 7 months.

Average age for morphinists, 37 years, 5 months.

Nativity.—Ninety-four were born in the United States. About 50 were children of foreign-born parents.

Marriage.—Sixteen had been married, but of these 4 were morphinists.

Heredity.—Family histories as obtained from these individuals were of little value, so no effort was made to get them, beyond brief perfunctory inquiry. This brought out a history of alcoholism, however, in the immediate families of 27; 4 instances of insanity, and 4 of criminality. These figures are of value only as they have bearing on the social condition and training of the addicts.

Environment, training, and social class.—In estimating these and other variables it was found necessary to use as a standard of comparison the ordinary laborer, competent to do routine work fairly well, to hold a job, and raise a family; in other words, the low normal for American communities.

Size of families at time of admission.—Average 5 persons. They live in five rooms, with toilet usually, but no bath; they move often. The tenement and old-style flat building are the ones usually inhabited.

Neighborhood (always from the laborer's viewpoint.)—Good, 21; fair, 28; bad, 51.

Financial conditions of families.—Good (some money or property, often small tradesmen), 23; fair (prosperous, poor, decent, comfortable), 24; very poor (improvident, ignorant, dirty), 53.

Home training (estimated by speech, manner, conduct, and sometimes by history of childhood).—Good, 14; fair, 34; bad or none, 52.

Education (taking as standard the common school education that the law required before the boy is given working papers. It is assumed that a boy should be in 8-B by 15, which is a year older than the accepted school standards. Anything higher than this is called good).—Good, 9; common, 57; poor, 25; illiterate, 9.

Years retarded.—Average 1.6 years (by school standards it would be 2.6 years). Intelligence ("ordinary" equals low normal).—Good, 21; ordinary, 46; poor (stupid, dull), 20; feeble-minded, 13 (partly by Binet; partly by Terman). It happens that the incidence of feeble-mindedness in this group is unusually high; probably about 6 per cent. is normal for the type under treatment at the colony.

Previous conduct.—Incidental to the history of addiction or from some instances of public evidence, thirty admitted theft or conviction for some crime against property; 23 admitted having been in penal institutions, but this includes those who had been in protectory or parental school for truancy. Of course some concealed the fact of former incarceration.

Occupation.—Clerks (office 9, store 14), 23; mechanical and allied trades, 17; drivers and wagon helpers, 11; chauffeurs and car helpers, 4; singers, actors, musicians, entertainers, 8; no occupation, 10; odd jobs, 7; messengers, 4; laborers, 2; miscellaneous (including a few skilled workers, printers, and the like), 14.

If we seek a relation between occupation and habit we find it at once in the entertainers' group and their percentage is unduly high. It is generally held that drivers as a class are less intelligent than other workmen and their percentage is well above its corresponding one among non-habitues. Parenthetically there was not one of these 11 drivers who was even a fairly good horseman. As to the other occupations, it is to be noted that generally they do not involve much hard labor. Thirteen of these men are known to have gotten a living wholly or in part by crime.

Earning capacity.—Omitting the instance of an actor who claimed to have earned \$150 a week, and who had about him nothing to substantiate his statement, the highest weekly wage was \$35, and that not steadily. The computed average weekly wage of \$13.25 is probably a little too high.

Length of jobs.—Twenty per cent. stated that their longest jobs were less than one year in duration.

Out of work.—Fifty men said they had not been out of work one month during the past year; 12 said they had not worked at all for a year; the average unemployed time in the year preceding commitment was 3.7 months, but this includes time spent in jail.

Self-support.—Thirty-three had not supported themselves for three or more months before commitment; 18 had supported other persons, wholly or in part up to time of arrest. Average sum given to family or paid out for board was \$5.25 per week. Average cost of drug used was \$6.50 per week. These figures are probably about correct, as the ordinary addict takes all the drug he can get, and allowing \$1.50 for other than living expenses, income and outgo balance, but in many instances theft or burglary supplemented the income.

Physical condition.—When admitted to the colony was very poor generally. The average addict is 22½ years old, and for two and a half years he has taken, more or less regularly, about 60 grains of heroine a week. He has been out of work one-fourth of his time, kept very irregular hours, had eaten irregularly and not enough. There are several reasons for this last. The opiate destroys the appetite and does further damage to the digestion by causing constipation and there seems to be created an abnormal taste for sweets. Many drug addicts congregate at candy stores and besides the candy they go in for coca-cola and other caffeine drinks. Ninety per cent. of them smoke cigarettes; of these half smoke to excess (15 or more a day). The teeth, neglected in 67 cases of the series, presently decay, and there is the added disturbance of toothache and mouth infection. The average number of sound opposing molars was 3½. The average gain in weight at the colony was 20 pounds in 2 months. This is probably the average weight lost during drug use, as it is noted many skimp on food to get money for drugs. Similarly only 37 per cent. of admitted cases have good muscles; 26 per cent. fair; 37 per cent. weak and undeveloped muscles. Nose ulcers occur only in old cocaine users, as clean punched-out perforations of the triangular cartilage. There were five such cases in the series and five superficial recent ulcers said by the owners thereof to be caused by some adulterant in the heroine. There was no case of venereal disease in this series of 100 young men.

Previous cures.—"Cures" had been taken by 67, who among them had been cured 110 times. One had 5 such treatments, to relapse each time.

The average residence in the colony was 2.97 months.

The result to date is known in 37 of these 100 cases. In 5 the addict resumed the drug. The others are working and doing well.

The heroine vogue in New York dates back 7 years only. We have had a number of the original crop of heroine users. Some had used cocaine and morphine before, but none gives the history earlier than 1909, when it was introduced by the sellers as being "stronger" than morphine and easier to buy. One of its foci was in ——— neighborhood, and acquaintance with this district sheds some light on the present drug situation. It is dirty, noisy, cheap and tough. It has no park and no decent places of amusement. The houses are old and unsanitary. The people living there are largely of foreign birth; they are poor, ignorant and unskilled. Therefore, they tend to be antisocial and one can listen to their talk, on the streets or in the numerous saloons, and rarely miss the anarchistic note; still more rarely, indecency and profanity, even among children. It is not strange that boys so reared as they pass from the lax and ill-directed parental control to the equally unintelligent control of their own conduct, should tend to escape from a sense of inferiority, not by making themselves more efficient, but by the quick and easy way of narcotics. The very fact that they use the drug socially, forming organized groups that tend to enlarge and perpetuate themselves, is evidence that they are actuated by a variant of the basic human instinct to find comfort and security through cooperative effort and organization. Such are the bulk of heroine users.

There is a sprinkling of persons better bred and trained who for some reason fail adjustment in their own group and turn to the one below it. Then, too, there are the morphinists, older, more intelligent, secretive as to their habit and usually temperate in the dosage of their drug. Their relation to the heroine group is adventitious.

Back of the whole situation is the influence of those who profit by the drug traffic. These are, in ascending order, the pauperized addict who acts as seller's runner, teaches boys (and girls sometimes too) the habit, and earns a miserable living, with enough drug to get on with, till he is caught and punished; next comes the small seller, usually a negro or a bad Italian, who is protected by gang membership; next the big seller who deals with those higher up.

The cost of heroine at wholesale is about 86c. per drachm. The user pays usually \$5 for an "eighth" (a bottle containing 57 grains). Frequently it is adulterated before it reaches him. If he buys it by the "deck" he pays about double this price. Somewhere along the line this enormous profit is distributed; and it is rather significant that sellers are only occasionally caught.

From observations made of a large number of cases, prior to this report and afterward, we find that fully 90 per cent became addicted in the period of adolescence, that time when there is a dynamic urge from within which finds expression in reaching out for new experiences, novel ventures, with feeble remonstrance from the immature mechanisms of control. In order to further its ends, it is characteristic of this period to cultivate gang spirit. In the early part of the present decade heroine was heralded as the narcotic free from habit-forming tendencies. Up to that time cocaine had found favor with this group, but it has given way to heroine. What I have termed adolescent impulse, coupled with ignorance, appears to be largely accountable for the spread of heroinism. While the psychoanalysts find homosexuality an underlying factor in addiction, we have noted but few such cases. It has seemed to me more in the nature of a forceful drive that has failed to find expression in proper outlets, has failed to sublimate, a kind of hybrid intoxication impulse

that must be gratified. Frank mental disorder appears to have no direct casual relation to addiction. It is notorious that drug addicts rarely turn to alcohol; if they do, it seldom gives them what they seek and they almost invariably return to narcotics. Racial preservative impulses are largely in abeyance in narcotism, so we are scarcely justified in claiming sex urge as a cause unless there have been episodes of perversion from which the individual shrinks, and, too, this would hardly hold in the case of a gang addiction. We sometimes see distortions of racial preservative impulses among the older morphinists. There are types of individuals who shrink from pain at all levels; to them narcotics appeal strongly. In narcotism they shut out as far as possible contact with reality and drift along knowing little of the reactions of mastery and defeat. They are sheltered by the inhibition of the pain-perceiving centers and must have adequate re-educational aftercare in order that they may permanently assume a normal attitude toward society. With characteristic intemperance young heroinists are excessive in the use of narcotics and suffer accordingly.

Pipe smoking is usually begun as a group indulgence, while morphinism is solitary and secretive. Both types of habitués commonly use opium with discretion and may indulge in the narcotics for years without apparent evidence of harm. There is a small percentage in whom addiction is accidental; illness, pain, or the injudicious medicinal use of opiates may possibly have coupled them up with narcotism. These are pathetic figures.

The higher centers of control are immature in the adolescent; he chafes under home, school, and religious restrictions, if they exist, and joins with others of his type and launches forth. His standing in his gang is his greatest concern. He is confronted by heroine; his first indulgence, like his first cigar, makes him deathly sick (a defense mechanism probably due to sharp blocking off of the sympathetic with overaction of the vagus), still he is undaunted and strives to measure up to the standards of his gang and finally succeeds. To him heroine becomes the narcotic cigarette. Why do these youths not turn to alcohol? Narcotics appear to release emotional flights of a wider range, are more conveniently handled than cumbersome alcoholic containers, and, further, publicity has thrown an appealing glamour of romance about the addict. With these few suggestions as to causes of adolescent addiction, and a mention of some of the types we will pass on to a consideration of other features of the problem.

The economic loss due to the habitual use of narcotics is stupendous. Inefficiency, ill-health, idleness, and the imperative and never-ceasing crave for drugs often lead to conduct in conflict with law, and in this way a heavy burden is placed upon the community.

The pathological conditions found in morphinism are those of chronic depression as a central action, and inhibition of function as a peripheral manifestation. The depression involves various cerebral centers in the reverse order of their development; here we have a good example of the "law of dissolution." Thus, attention, self-control, and judg-

ment are lost early. Any sustained mental effort is impossible, and logical sequence in thought is lost. Dixon notes three conspicuous actions, (1) Depression of pain-perceiving centers in the cortex; (2) Depression of Auerbach's plexus (constipation); (3) Depression of medullary reflexes (respiratory sedation). Depression of the cord is less conspicuous.

Kraus insists that the peripheral action of morphine is depression of function. Inhibition of the vegetative nervous system leads to disorder of function in the ductless glands with consequent disturbances of nutrition depending naturally upon the amount and kind of narcotic used, as well as, in a measure, upon the peculiarities of the individual involved. The clinical manifestations of depression of function in the ductless glands are very striking; impairment of sex functions points to the gonads; the fat, pale, flabby morphinist is suggestive of athyroidism. In one series of heroine addicts observed by me, 70 per cent. had grossly defective, notched, and rigid teeth resembling those seen in parathyroid tetany, probably due to deficiency in calcium from parathyroid involvement.

Tolerance.—The acquired tolerance to morphine is not clearly understood. Some contend that the body oxidizes the excess; in those not addicted, 40 per cent. of the morphine introduced hypodermatically is eliminated by the stomach and most of the balance by the intestine. Other avenues of elimination are the tears, saliva, breath, and sweat. After habituation has been established and the usual dosage has been taken, no morphine can be found in the intestinal tract unless an excessive amount has been administered, when the excess is eliminated in this way. If an addicted animal is killed after the usual dosage, no morphine can be found in its tissues. *It has been suggested that morphine is split up into inert bodies by a ferment-like action, which seems probable.* As central depression and peripheral inhibition of function are slow down processes, hypoactivity, permanent structural changes do not follow, hence laboratory investigations are more or less fruitless. This is in marked contrast to the conditions in chronic alcoholism in which we have hyperactivity and a biochemical defense of sclerosis and steatosis. The question of immunity and antibodies, Wells (1918) dismisses as follows: Immune substances cannot be produced against ptomaines, and for that matter, against the vegetable alkaloids, or against chemical bodies of known constitution." It is important to bear in mind that tolerance ceases after a day or two, and that narcotism can be induced by relatively small doses at this time. Death has followed an addiction dosage after a relatively brief period of abstinence.

Abstinence Symptoms.—In narcotic addiction there are varying degrees of long-standing disturbances of metabolism and proportional nutritional damage notably in the nervous system. The intake of food is cut down as a rule, digestion is retarded, and assimilation is sluggish, all of which have a direct causal relation to the impoverishment of cell protoplasm found in these cases. The depression of certain cells in the cortex, in the medulla, and in the vegetative nervous system as a selective narcotic effect, probably still further adds to the nutri-

tive disturbances, and may, in a measure, account for the acute hyperactivity and subsequent exhaustion of these cells so characteristic of withdrawal conditions. Prolonged cortical depression materially disturbs development at psychic levels, probably largely accounts for the abnormal attitude toward reality, and is, as noted, very suggestive of the proper line of procedure to be followed in the after care.

The effects of opium wear off in about twelve hours; usually, however, in six or seven hours restlessness, anxiety, and depression supervene, in other words, beginning abstinence symptoms appear. In accordance with pharmacological and biological law, sharp withdrawal of drugs that depress function induces backsway or counterfeit stimulation, the hyperactivity of release. This is well shown in morphinism. Hyperactivity at psychic levels is overshadowed for a time by emotional crises in the vegetative nervous system. Release of the respiratory center is manifested by respiratory disturbances of excitation such as sneezing, gaping, rapid respiration, and the like. We see evidence of sensory release in the cord in twitchings, pain, and cramps. The most conspicuous symptomatology, however, appears to be due to the sharp output of adrenin, and the subsequent activation of the thyroid and other organs, there is acute excitation of sex functions, as shown by pollutions and erotism. The clinical picture is perfect,—wide pupils, pallor, rapid and irregular respiration, and other respiratory disturbances, rapid heart action often running on to exhaustion, inhibition, and blanching of the gastrointestinal tract. The facies in severe cases is that of profound fear. Biedl and others have called attention to the rise of temperature induced by adrenin.

Canon has observed preganglionic fibers that go direct to the adrenals; this distribution probably accounts for the prompt output of adrenin in response to impulses from the brain. Adrenin in turn activates the brain, the thyroid, the liver with the release of glycogen, and inhibits the vagus. Crile has shown that morphine checks the output of adrenin; clinically, a moderate dose will give immediate relief in abstinence symptoms. Deeply narcotized animals fail to react to toxins.

While intestinal intoxication may be a factor in this condition, in my opinion, it is one of secondary importance. Psychic manifestations play an important part, without question, still they, too, are subordinate to the disturbances in the vegetative nervous system. In infants born of addicted mothers, abstinence symptoms cause death usually on the third day after birth, sometimes earlier, unless relief is given. According to Schaeffer, the adrenals in the human fetus are unusually large. Communication with the maternal intestine ends at birth, and as no other source of intestinal intoxication exists in the child at this time, the intake of toxic bodies from this source must cease abruptly. If abstinence symptoms were due to this cause, under the conditions noted, we should hardly expect to find the symptoms increasing in severity and of such gravity as to cause death on the third day.

The brain at birth is probably incapable of responding to psychic stimuli except in a primitive way, so that it would seem to me hardly credible

that the fatal manifestations seen in these cases should have a psychic basis.

It has been demonstrated biologically that on the withdrawal of agents that induce hyperactivity we have depression. In like manner, on the withdrawal of substances that induce depression of function, the pendulum swings to hyperactivity unless stopped. The extent of the backsway depends largely upon the duration and the degree of the depression. It is significant that deep narcotism interferes with the action of toxins. Immunity cannot be induced by alkaloids and tolerance ceases on the withdrawal of the depressing agent.

Addicts are held in addiction largely through fear. Prolonged indulgence usually fails to give them pleasurable sensations, still they must go on in order to avert the crisis of withdrawal in which the backsway of the pendulum from chronic depression of the pain-perceiving centers brings about a sharp excitation. Oftentimes we find that addiction is basically largely an expression of inability to confront pain in its broadest psychological sense. This type of personality coupled with addiction adds to the dread of withdrawal and favors the probability of relapse.

After the subsidence of the acute abstinence symptoms we have a period of nervous irritability and hypersuggestibility which demands special consideration. Physical equilibrium is readily established while stability in the nervous system is a slower process. I am of the opinion that intestinal intoxication, if it exists at all, is of minor importance, and that psychic manifestations are overshadowed by reactions at a lower level. As noted at the outset the pathology invades the territory of the neurologist, the psychiatrist, and the internist. The picture is a composite one; at first glance the nutritional damage excites attention.

Preventive Measures.—It was realized fully three years ago that we were hopelessly involved in a vicious circle in returning men to the city from Warwick under conditions then existing, and for that matter, still existing. They were confronted by heroine sellers, old associates, addicted women, and many relapsed. The crowd attitude is irresistible in youth, and we found ourselves engaged in the absurd endeavor of trying to "cure" adolescence.

It became evident that in order to accomplish anything of account in this work heroine must be abolished. I took the matter up with the Surgeons General of the Army, Navy, and Public Health Service, whereupon the public health service removed heroine from its supply table and from all its institutions. Not only should heroine be abolished, but, in my opinion, the Federal Government should have control of opium and all its narcotic derivatives, and should be responsible as well for their distribution for use in medicine. Should effective restrictive measures be instituted, we should provide adequate hospital facilities at the same time. It is extremely important that ample provision be made for the treatment of women.

It is desirable that all sanatoriums in which addicts are treated should be under State supervision, and that physicians engaged in the care of these cases be licensed much as examiners in lunacy are enrolled, provided they are properly qualified.

morally and professionally. An educational drive should be launched in order that addicts may learn their true condition, what they may reasonably expect from treatment, and, too, what they may expect in case they continue in addiction. In this connection we might ask, what effect is prolonged addiction in the period of adolescence going to have upon the development of future character? What effect will the deficiencies in calcium have upon the growing bony frame? A radiographic study of addicts might be profitable in this connection. There has been entirely too much mystery and glamor thrown about this problem. We should stimulate the right kind of public interest in this matter, and win the support of an enlightened press.

We have been much interested in addiction as a mass problem especially in connection with the loss of man-power in its relations to the war. Attention is called to an article on this subject in the *Journal of the American Medical Association* of March 16, 1918. We have prepared an educational pamphlet for circulation among the military forces with the idea of averting contamination in this way.

Treatment.—We believe that treatment to be effective should be carried on in three stages: First, withdrawal of the drug; second, reeducational measures; third, after-care and follow-up. Of course, modifications should be made to meet individual conditions, still, the general principle should be adhered to. There were exceptional opportunities at Warwick for observing convalescence after various methods of treatment; after some, it was unduly prolonged; after others, serious and apparently permanent injury was noted. Two cases of unilateral paralysis of the third nerve, traced for three years, with no improvement, and functional disuse with much disfigurement, followed a popular method. After another method, mydriasis and flushing persisted for a year and a half, when the patient was lost sight of. There were other cases that we are unable to trace.

Substituting one powerful alkaloid for another, in massive doses, in a purely empirical way, never appealed to me. Our early cases were isolated as far as possible, and were given active cathartics, and as much encouragement as circumstances permitted while the drug was rapidly removed in say three or more days. They were given warm baths, hypnotics, and later, bitter tonics. They suffered considerably and convalescence was frequently slow. Here and there one did fairly well. The difficulties of attempting to put a clinical problem on a scientific basis, the findings of which cannot be confirmed in the laboratory, was appreciated at the outset; in this undertaking, presumably one man's opinion is as good as another's; it is on a par with trying accurately to record a temperature without a clinical thermometer. My conception of the pathology of addiction has been outlined briefly. In planning the treatment I have followed the indications of this pathology.

The indications in the first stage are to hold back the output of adrenin, and so to stimulate the vagus that it may effectively balance the overaction of the sympathetic. Ductless gland products were found to be too slow in action even though they were reputed to be active autonomic

stimulants. On searching the literature, it was found that Biedl, Falta, and Hess and Eppinger had carefully investigated the actions of pilocarpine and eserine and found them powerful vagus stimulants. British and American literature is unsatisfactory on these drugs.

The plan of treatment employed by us is to isolate the patient, as far as possible in accordance with the Weir Mitchell plan; to hold back adrenin with a single dose of morphine, gr. $\frac{1}{4}$. A half hour later, to give pilocarpine, gr. $\frac{1}{10}$ to $\frac{1}{15}$ (a half to a third of the usual medicinal dose). Later the dose drops to gr. $\frac{1}{20}$ or $\frac{1}{25}$. Eserine gr. $\frac{1}{60}$ is given at the same time as an initial dose; later half this amount is given. Eserine is discontinued when the bowels move freely. As the action of these drugs ceases in about three hours, they should be given every two and a half or three hours. This medication is continued for two or three days; should the interval be lengthened beyond three hours at any time, the patient will manifest withdrawal symptoms. Occasionally a single dose will admirably quiet a restless patient after these drugs have been discontinued. The narcotic can be taken away abruptly, without distress. The patients doze most of the time for the first two days. If they are restless one or two doses of morphine sulphate gr. $\frac{1}{16}$ to $\frac{1}{8}$ will quiet them satisfactorily. As a rule patients cannot tell when the narcotic is discontinued; they have no craving. In order that we may get these results, the drugs should be fresh and active, and the treatment should be carried on with precision and intelligence, which can only be accomplished through good nursing. I have seen no untoward symptoms. The heart action should be slowed down from 6 to 8 beats. This is a good indication as to the proper dosage. The saliva should be expectorated, otherwise antiperistalsis will be induced. The patients are often ravenously hungry by the end of the first twenty-four hours. After the third day we may give luminal, elixir of veronal, or sodium bromide for the wakefulness. Bitter tonics with alkalies are often indicated; calcium may be given in a single dose each night so as not to upset the digestion. The diet should be easily digested and nutritious. We give fluids the first evening. Rest, quiet, and nutrition are our sheet anchors at this time. By the fourth day the picture has changed to one of nervous exhaustion, nervous irritability, and marked suggestibility. During the period of medication the pilocarpine and eserine have a very striking tranquilizing effect. If there is any virtue in elimination, the sweating, salivation, and purgation should accomplish it. We use simple measures, such as bathing, light massage, and occasionally the sinusoidal current, after the vagus stimulants have been discontinued. It is interesting to note that fright and anger will throw the patients into withdrawal symptoms at once. It is wise to discontinue medication as early as possible, for these types are inclined to seek props and pick-me-ups on the slightest pretext.

The second stage. An exhaustive history must be taken in order that we may be prepared to undertake reconstruction of the personality, effectively. Our plan is one of reeducation and the development of will, judgment, and a proper attitude

toward reality. The methods of Dejerine and Gauckler are excellent. They are based upon the principle of disclosing to the patient his true condition from all angles, and stimulating his judgment, not by suggestion, but rather by indirect methods.

The third stage. Patients should now be ready for their try-out in the community. Their routine should be carefully mapped out so that they do not become mentally or physically fatigued. They should report at least once a week for some months. When this plan of treatment is carried out the results are satisfactory, unless we are dealing with cases in which addiction is adventitious. Convalescence begins early and progresses rapidly. Now and then we find a case in which there is no intention of relinquishing the use of narcotics. We all see cases in which narcotism should be continued for humane reasons.

Treatment in the first stage should be regarded as merely preliminary. We believe we are safe in saying that unless treatment can be carried through the second and third stages, it might better not be undertaken, in the majority of cases. In our private work we aim to take the patients off their drug at a suitable place in the city; to give the treatment in the second stage out of town. The after-care and the follow-up are attended to in the city at a third point conveniently located and freed as far as possible of suggestive associations. The advantages of such a plan are obvious. Too much emphasis cannot be put upon the importance of having control of our patients while they are under treatment, and this can be accomplished only in suitably equipped institutions. These patients almost invariably overestimate their mental and physical resources, and they are apt to chafe under restrictions of any sort. Their care calls for nicety of judgment, great tact, and abiding patience.

I am indebted to Dr. George W. Crile, of Cleveland, and to Drs. Charles H. Mayo and E. C. Kendall of Rochester, Minn., for their assistance in working out the pathology and treatment.

50 EAST FORTY-SECOND STREET.

CELLULAR CHANGES IN VARIOUS FORMS OF ACUTE LEPTOMENINGITIS.

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THE various types of acute leptomeningitis—purulent, pneumococcal, tuberculous, and epidemic cerebrospinal—can be clinically more or less successfully diagnosed. The differential clinical diagnosis is based not so much on the symptoms and course of the disease, as on the lumbar puncture findings. However, a differential *anatomopathological* diagnosis at least of some of the forms of acute meningitis is exceedingly difficult, and it must be conceded that so far comparatively little, if any, effort has been made for the purpose of establishing or determining what changes in the meninges obtain in any given form of acute meningitis. In fact, a pathological diagnosis of the latter is not considered

*From the Pathological Laboratory of Cook County Hospital.

possible with the probable exception of typical cases of the purulent and tuberculous varieties. It is also a fact that, while the literature relative to the latter two forms, and especially the tuberculous meningitis is enormous, there is very little written about the other forms. Therefore, I wish to report briefly my findings of cellular changes in eleven cases of acute meningitis, of which two were purulent, four tuberculous, three epidemic cerebrospinal, and two pneumococcal.

Purulent Meningitis.—The two cases of this form were from patients who developed an acute meningitis secondary to an otitis media. The meninges, *i.e.* the pia-arachnoid, macroscopically were greatly infiltrated with pus and appeared much thickened. Microscopically, there were pronounced vascular and cellular changes. The former were especially in evidence in the inner layer of the pia immediately adjacent to the brain tissue. The vessels were greatly distended, hyperemic, and always excessively infiltrated. The infiltration was mainly limited to the dilated perivascular spaces of the adventitia and consisted of various hema-

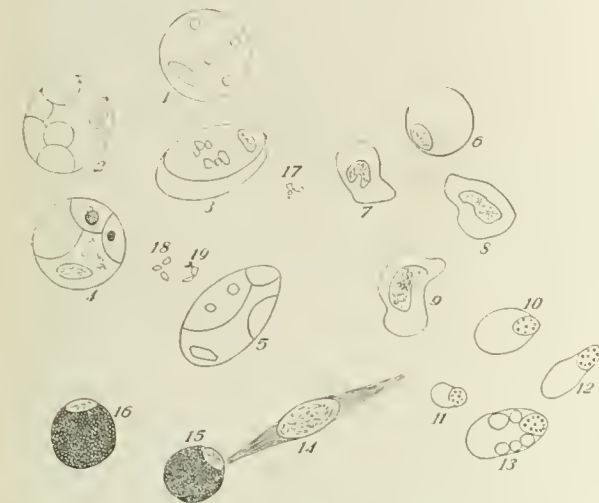


FIG. 1.—Cellular findings in purulent meningitis. 1-5, macrophages; 6-9, polyblasts; 10-13, plasma cells; No. 13 is vacuolated; 14, fibroblast; 15-16, Gitter cells; 17-19, pus cells.

togenous elements, principally *plasma cells* and *polyblasts*. The same elements could be found in very large numbers in the distended meshes of the pia connective tissue, whose collagenous fibers were much separated. In the meshes, besides the plasma cells and the polyblasts there were present also numerous *macrophages* and *fat-granule bodies*, also known as "Gitter cells" (Fig. 1). The plasma cells appeared quite typical—showed a large cell body with a dislocated or rarely centrally located nucleus surrounded by a distinct membrane. The inner surface of the latter was covered with densely stained particles of chromatin in the form of spokes. Some of the plasma cells hardly showed any cytoplasm, while in some it was vacuolated, or contained more than one nucleus, and some plasma cells appeared of an enormous size, as giant plasma cells. The polyblasts showed as mononuclear leucocytes, sometimes round in shape, but as a rule their cytoplasm was irregular in shape, pale, and often vacuolated. Their nucleus was biscuit- or kidney-shaped, pale, and its chromatin was in the form of a thin network. Their size was like that of the plasma cells, very large.

Much more numerous than the polyblasts were other mononuclear elements, namely the *macrophages* (Fig. 1). These were much larger in size than the two previous forms and consisted of a great number of large vacuoles packed with pus cells, erythrocytes, pigment, fat globules, etc. In alcohol specimens the macrophages frequently appeared empty, showing an irregularity in shape, flattened, mostly eccentrically located nucleus. The macrophages were numerous in those areas that contained few pus cells.

The *fat-granule bodies* or "Gitter cells" were found in large numbers around the blood vessels as well as in the meshes of the pia. They were quite typical—honeycombed in appearance, round or oval in shape, consisting of an enormous amount of minute vacuoles packed, in suitably stained (scarlet red, for instance) specimens, with fat-like or lipid substances. In alcohol specimens the vacuoles appeared empty, and the nucleus was almost always excentrically located and frequently much flattened.

Besides these four types of cellular elements there could be distinctly seen in the meshes *fibroblasts* (Fig. 1). These contained an oblong large pale nucleus surrounded by a spindle-shaped cytoplasm emitting processes from its opposite poles. Like the macrophages, they frequently contained pigment, fat, etc., and like the rest of the infiltration cells they were unusually well developed and often vacuolated.

Some areas of the inflamed pia showed none of the above-described cellular changes, but were covered by an enormous amount of *pus cells*, mainly *polynuclear* elements. In such areas the latter formed the principal mass of the infiltration cells and actually dominated the field. Frequently they were packed with pyogenous microbes, and always could be seen in larger or smaller amounts even in those areas where some of the former elements were predominating. Therefore, the presence of *pus cells* mostly in the form of polynuclear elements must be considered quite typical for the purulent variety of acute meningitis. Here, namely, it is possible to demonstrate dense foci of pus cells, without any of the previously mentioned cells being present among them. Occasionally a lonely macrophage can be encountered in the pus focus, but where the pus cells are less numerous, where the areas are free from pus cells, there are to be found large numbers of plasma cells and macrophages, the latter frequently packed with pus cells. As the plasma cells are nothing but modified lymphocytes, we may say that lymphocytes, like the macrophages, are to be met with only in these areas that are poor in pus cells, but where the latter predominate, the lymphocytes are totally lacking.

The above cellular changes are not equally represented all over the changed pia. The inner layer of the latter is usually very vascular, rich in vessels, and is therefore called by Cerletti's *zona vasalis*. The middle layer showed a great wealth of fibroblasts, while the macrophages and "Gitter cells" were very numerous in the *external* portions of the pia. Plasma cells were equally well represented in every layer and were very numerous around the vessels. Such peculiarities in the distribution of the pia changes in meningitis were described by

Cerletti in a pernicious anemia case from which the purulent variety differs by the presence of a great number of pus cells. The occurrence of the latter in the form of foci of diffuse infiltrations of the pia meshes can thus be looked upon as typical for purulent meningitis where a microscopical diagnosis should not afford any difficulties.

Tuberculous Meningitis.—Equally typical are the microscopical findings in tuberculous meningitis which was studied in four cases, all from children. In all these cases the pia of the base, around the chiasma, peduncular region, pons, and medulla, macroscopically appeared thickened, as if infiltrated with pus. Microscopically, in these areas, there could always be seen an enormous amount of vessels with greatly thickened proliferated and hypertrophied walls (Fig. 3). The latter were often merged with the neighboring areas, forming sometimes one uninterrupted area in which it was commonly hard to make out which of the infiltrated places belonged to the vessels and which to the pia. With the lower power the specimens appeared very badly stained, and but with great difficulty cells could be discerned containing a pale homogeneous nucleus that was either totally devoid of chromatin or contained one or two minute granules surrounded by a very small rim of protoplasm (Fig.

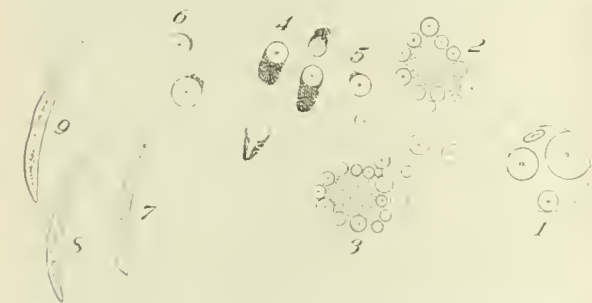


FIG. 2.—Some cellular findings in tuberculous meningitis. 1, macrophage; 2-3, degenerated plasma cells surrounding amyloid bodies; 4-6, plasma cells as originally described by Unna; evidently degenerated; 7-9, "rod" cells ("Stäbchenzellen").

2). Some of the cells appeared as naked nuclei, *i.e.* without any protoplasm whatever, and could be found also within the blood vessels. Some of these cells showed small processes, pseudopodia, when they much resembled fibroblasts, which here are quite numerous. In the external layers of adventitia the same pale homogeneous nuclei could be found with a densely stained cytoplasm, the cell bodies assuming quadrangular or irregular shapes, usually very small in size. In Van Gieson specimens these cells resembled plasma cells crowding in enormous numbers the meshes of the vessel walls and of the adjacent pia. Nearer to the brain tissue they still more resembled plasma cells, but were not altogether typical. Their cytoplasm stained much denser than the nucleus which, as I said, always appeared pale and without the characteristic arrangement of the chromatin globules. Such plasma cells as found here much resembled those originally described and depicted by Unna² (Fig. 2). Sometimes they formed large round foci, resembling tubercles surrounding amyloid bodies, pressing on the vessels against their walls and frequently causing narrowing of their lumen. These cells are also found in large masses in the pia meshes, which besides are packed with fragments

of various cells and with an amorphous unstainable necrotic mass. Any detailed or adequate description of the amorphous mass is hardly possible as various stains tried (hematoxylin-eosin, toluidin-blue, Van Gieson, methyl-blue-eosin, etc.) did not furnish any satisfactory data regarding its structure. It covers the entire visual field and is usually described as a cheesy or tuberculous mass (Ranke,¹ Hektoen,¹ Wolff²). Aside from the plasma cells, the fibroblasts, and the amorphous mass, the microscopical examination also reveals peculiar vascular changes. The vessels are much infiltrated with these cells; their lumen is, as a rule, preserved, though sometimes, but very seldom, obliterated by thrombus. The intima is in the form of large swollen endothelial cells with distinct processes and a homogeneous pale nucleus containing a nucleolus. The endothelial cell bodies often thin out into processes which anastomose with similarly thinned processes of the neighboring cells, forming a row resembling a chain. In some specimens the intima is separated, as if torn away from the elastic membrane, a few blood cells filling sometimes the space between the intima and the elastic membrane. In larger vessels I could find in these spaces also polyblasts, plasma cells, macrophages, and "Gitter cells" (fat-granule bodies), but not so frequently and not in such amounts as did Hektoen, Ranke, or Diamond.³ Macrophages are unusually numerous in Ranke's microphotograms, as well as in Diamond's specimens, which I had the opportunity of studying. Diamond described them as subendothelial—epithelioid cells; while Hektoen calls them giant cells. The typical vascular changes consisted of a tremendous development of connective tissue around the vessels which looked like a veritable scar inclosing various infiltration cells. These were almost exclusively plasma cells in the form pictured above and which evidently were degenerated. There could also be seen a few polyblasts, macrophages, and so-called "rod" cells ("Stäbchenzellen"), the latter only in specimens stained with toluidin-blue. Polynuclear or pus cells, so numerous in the purulent variety of acute meningitis, were here totally absent. The polynuclears were found by Ranke, Gehry,¹ and Diamond, but in very few numbers, while Rhein⁴ claims he could see them quite frequently. In the great scarcity of the polynuclear elements tuberculous meningitis differs, in my opinion, from the purulent form where, as I said, they are unusually frequent. This fact, in connection with the peculiar appearance of the visual field which showed an abundance of vessels with greatly hypertrophied and infiltrated walls (periarteritis or arteritis of some authors), is I believe quite characteristic for tuberculous meningitis and should be of great help in the differential diagnosis. This can be gathered from the following somewhat unusual case, where a differential diagnosis from purulent meningitis was very difficult:

A child, six weeks old, was brought to the pediatric service of Cook County Hospital, Oct. 2, 1917, in a comatose state. Three weeks previously the child began vomiting, had diarrhea and repeated convulsions. Since birth the patient had been fed on a mixture of milk and water (one ounce of milk and two ounces of water) and condensed milk. The family and previous histories were negative.

The examination showed an extremely emaciated infant whose entire body and extremities were cold. The

breathing was of a Cheyne-Stokes type, cyanosis was absent, the fingers and lips had a good color. The heart sounds were distinct and of normal rate; so was the pulse, though very feeble. The eyes were closed, turned with the head to the left, and showed a nystagmus. The pupils were dilated, unequal; the left was larger than the right. Brudzinski's sign was positive. The spinal puncture gave an intensely yellow spinal fluid under increased pressure with 300 to 325 cells, mostly mononuclears (80 per cent.) per cu. mm. Death followed a week after the child's admission to the hospital.

The postmortem, as the records show, revealed a basilar tuberculous leptomeningitis, caseous tuberculous ependymitis, a marked dilatation of the ventricles of the brain, hyperemia and edema of the leptomeninges. The examination of the viscera and of the spinal cord was not made because of limitations placed upon the consent to an autopsy examination.

Further examination of the brain showed that the meninges, especially around the fossa sylvii, were covered with tubercles and appeared greatly hyperemic and thickened. The inner surface of the pia, the lateral, the third, and the fourth ventricles were filled with a generous layer of cheesy soft pus-looking mass that was somewhat loosely attached to the pia and also invaded, in many places, the parenchyma of the brain tissue proper. The latter was greatly edematous, soft, and glassy looking, the convolutions were somewhat broadened, the sulci narrowed. The general impression was as if the entire mass of the brain was bathed in or infiltrated with pus.

The microscopic examination of the cheesy mass showed a great number of vessels with narrowed lumina and enormously thickened and infiltrated adventitia. The infiltrated vessels merged with the surrounding tissues which, like the vessel walls, were packed with a great number of various cell elements. Some of these appeared as densely stained homogeneous cell bodies, some were vacuolated cells, or were broken up in granules, in unstainable fragments of various cells as lymphocytes, red cells, etc. Some appeared as "gitter-cells" and all these cell masses filled up the vessel walls and the surrounding tissues to such an extent that the vessels could be discerned only with great difficulty. The infiltration mass appeared as necrotic tissue that stained very badly. The brain tissue adjacent to the necrotic cheesy mass showed an enormous proliferation of glia tissue cells which showed an abundance of protoplasm and of cellular processes (Deiter's cells). The ganglion cells were uniformly changed. They all appeared vacuolated with densely stained tortuous processes, a pycnotic, *i.e.*, intensely stained nucleus, and a nucleolus. Many portions of the brain showed a distinct glia reticulum covered with an enormous amount of glia nuclei which frequently formed foci. The brain vessels were greatly increased in number, with infiltrated and proliferated adventitial layers. The changes described in the glia and parenchyma were equally pronounced in the pons and medulla. The proper pathological diagnosis of this case would be a meningoencephalitis of tuberculosis nature as evidenced by the presence of the tubercles as well as by the microscopical findings. The involvement of the brain tissue in this case was exceptionally severe, while in the previous cases of this series the brain tissue was very little involved. In other words, the meningeal infiltration as a rule did not invade the brain tissue proper which, however, sometimes showed cellular vascular infiltrations which almost exclusively consisted of plasma cells.

In *epidemic cerebrospinal meningitis* the pia was, as in the previous two forms, greatly infiltrated with plasma cells, lymphocytes, polyblasts, "gitter cells," and also polynuclear leucocytes. The infiltration of the vessels was very intense and consisted in many instances of plasma cells only. These cells also predominated among the infiltration elements of the pia, where they frequently showed as pure cultures, especially in its inner zone, that is, the one adjacent to the brain. Polynuclears and lymphocytes were also to be seen, especially in the middle

and external portions of the pia, while vessels were equally numerous in all the pia layers and often showed an enormously proliferated adventitia surrounding the vascular lumen in the form of a muff. A few plasma cells were also to be found in the marginal glia of the brain tissue, but none in its remote portions. Aside from the plasma cells, polyblasts, lymphocytes, and polynuclears, there were also present numerous rod-like cells ("Stäbchenzellen"), macrophags, and fibroblasts. The rod cells could be seen only on specimens stained with toluidin-blue or similar stains. They showed, as their name indicates, as small rods with dull edges, containing an oblong nucleus filled with numerous small chromatin particles. They are as Cerletti positively demonstrated, mostly adventitial cells and do not show in specimens stained, for instance, with methyl-blue-eosin when they appear as nuclei of the adventitial cells. The macrophags and "gitter cells" were very numerous in those portions of the infiltrated pia that were comparatively poor in lymphocytes and polynuclears, while in densely infiltrated areas they were almost entirely absent. Scattered among the various elements in the pia there could be discerned large pale nuclei with few chromatin granules, invested with a distinct membrane and a very faint, hardly visible rim of protoplasm. In some of these nuclei, after a long diligent search, there could be discerned a larger amount of cytoplasm breaking up in processes emanating from the opposing poles, and occasionally showing vacuoles. These cells were most probably fibroblasts which, though quite numerous, were overshadowed by other types of infiltrating elements which, as I said, were mainly plasma cells, lymphocytes, and polymorphonuclear leucocytes. The presence of the latter distinguishes the epidemic form of meningitis from the tuberculous variety where they are usually absent.

In *pneumococcal meningitis* the pia shows the same elements as in the previous forms—plasma cells, pus cells in the form of polynuclear leucocytes, fibroblasts, macrophags, "gitter cells," and comparatively few lymphocytes. In osmic acid specimens they show an enormous number of dark granules, sometimes big enough to fill the entire cell body. Especially numerous are the pus cells, macrophags, and "gitter cells." In some specimens the latter two cell varieties predominate, in others the pus cells. Some macrophags very much resemble the so-called myelophags which are gliogenous elements found in secondary degeneration of nerve fibers. The function of the myelophags, as was discussed by me elsewhere,¹ is to break up the fragments of damaged nerve tissue (myelin and axone) into smaller particles, convert them into fat-like, so-called lipid, substances and deliver them to other gliogenous formations known as "gitter cells." Their function is partly phagocytic, partly that of sweepers or cleaners. This same function is rendered by the macrophags in acute meningitis where they clean up the invaded, polluted, so to speak, meninges from the various débris (pus cells, degenerated lymphocytes, pigment, fat, etc.), converting them into lipid substances and storing them up in the "gitter cells." The latter are here perfectly similar to those found in the pathological glia tissue. Like in the purulent and cerebrospinal

varieties of acute meningitis the macrophags and "gitter cells" are to be found principally in those parts of the pia which are comparatively little infiltrated. They are frequently found together with plasma cells which are of enormous size, especially near the blood vessels. The latter are, as in any other form of meningitis, greatly infiltrated and show within their lumen the same plasma cells as well as macrophags and lymphocytes. Some vessels are densely surrounded by large fibroblasts and "rod" cells, and their adventitial spaces are filled with a great number of "gitter cells" loaded with fat. The fibroblasts are always very large in size, spindle shaped, with a chromatin-rich nucleus, and are often packed with pigment.

The microscopical findings in pneumococcal meningitis can be summed up as follows: Some areas are densely infiltrated with pus cells without any other element being present; other places show hardly any pus, but a great number of plasma cells, lymphocytes, and especially macrophags loaded with pus cells, lymphocytes, etc. Near the brain tissue the pia is rich in macrophags and very poor in pus

latter there can be found areas exclusively covered by plasma cells and macrophags and totally devoid of pus cells, which is not the case with the purulent form where pus cells can always be demonstrated. In the cerebrospinal epidemic type the polynuclear elements are as frequent as the lymphocytes, but again combined with the above mentioned types of infiltration cells. The polynuclear leucocytes are comparatively rare in tuberculous meningitis. Their presence, therefore, alongside the lymphocytes may speak for the cerebrospinal epidemic variety of acute meningitis.

From this brief sketch it can be seen that there exists some basis for a differential diagnosis of acute meningitis, which can be made from the presence of various types of infiltration cells, provided suitable staining methods are used. Of these methods the best ones proved to be for this purpose: Van Gieson's, hematoxylin-eosin and methyl-green-pyronin, as well as toluidin-blue and Alzheimer's method V (methyl-blue-eosin).

REFERENCES.

1. Cerletti: Die Histopath. Veränderungen der Hirnzinde bei Malaria Perniciosa (Nissl-Alzheimer's Arbeiten, IV., 1910).
2. Unna: The Histopathology of the Diseases of the Skin. Eng. transl. by Walker, Edinburgh, 1896.
3. Ranke, Otto: Beiträge zu der Lehre von Meningitis Tuberculosa (Nissl-Alzheimer's Arbeiten, II., 1908).
4. Hektoen, L.: The Vascular Changes of Tuberculous Meningitis, Especially the Tuberculous Endarteritis, *Journal of Experim. Med.*, I., 1896; The Fate of the Giant Cells in Healing Tuberculous Tissue, etc., *Journal of Experim. Med.*, III., 1898.
5. Wolff: Ueber Plasmacellen bei der Meningitis Tuberculosa, *Frankf. Zeitsch. f. Path.*, V., 1910.
6. Diamond, I.: The Cellular Changes in Tuberculous Leptomeningitis, *Amer. Jour. of Med. Sci.*, July, 1903.
7. Gehry: Zur Histopath. der tub. Men. (*Arch. f. Psych.*, Vol. 45, 1909.)
8. Rhein, John: Tuberculous Meningitis. A Pathological Report of Nine Cases, *Journal of Am. Med. Assn.*, 1912, July 20, p. 1651.
9. Cerletti: Die Gefässvermehrung im Zentralnervensystem (Nissl-Alzheimer's Arb., IV., 1910).
10. Hassin, G. B.: Histopath. Changes in a Case of Amyotrophic Lateral Sclerosis, *MEDICAL RECORD*, 1917, Feb. 10; Histopath. Findings in Two Cases of Subacute (combined) Cord Degeneration, *MEDICAL RECORD*, 1917, May 26.

31 N. STATE STREET.

A PLEA FOR THE USE OF POTASSIUM NITRATE IN THE TREATMENT OF CANCER

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IN a previous article which appeared in the *MEDICAL RECORD* of September 1, 1917, under the caption, "An Hypothesis Regarding the Physiochemical Nature of Cancer," the writer suggested the timeliness of boldly questioning the efficacy of surgery in the treatment of carcinoma, and remarked, "Good reason exists for believing that in this particular field the surgeon, having been weighed in the balance and found wanting, should step aside to give the hitherto discredited physician another chance to propose measures of relief." He still feels, from what is about to follow, that this suggestion will bear reiteration. However, before giving his reasons why the physician should wrest the

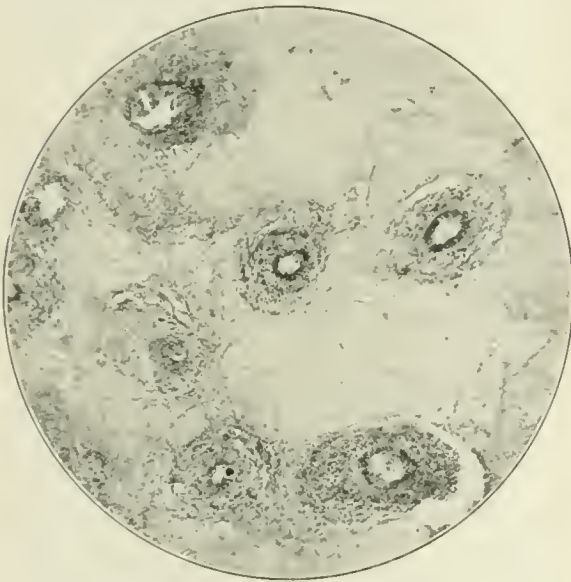


FIG. 3.—Tuberculous meningitis. The pia shows six infiltrated vessels and other changes explained in the text.

cells, while the middle portion of the pia shows just the opposite. In no other form of meningitis is the role of the macrophags so apparent; in no other form are they so numerous as in the pneumococcal type. The brain substance proper shows, as in the previous two varieties, some vascular changes, as perivascular infiltration and occasionally some ganglion-cell changes which will not be described here.

These are, in brief, the findings of cellular changes in the four main varieties of acute meningitis. In all of them plasma cells, macrophags, and lymphocytes are constantly to be found. The pus cells, when present, alone or in combination with these elements, may speak either for a purulent or a pneumococcal meningitis, and a differential diagnosis then may be very difficult, though in purulent meningitis the pia infiltration with pus is much more pronounced and the fat granule bodies ("gitter cells") are also more numerous than in the pneumococcal variety. On the other hand, in the

cancer patient from the surgeon's knife, a brief review of the salient features set forth in the original hypothesis will be pertinent to the subject, of which the following are abstracts:

The initiative stage of cancer is that of hyperemia, occurring in any part of the body, and caused either by traumatism or toxic products from bacteria or chemical substances. The next step is the passing of the hyperemia into an inflammation. As inflammation is the first step in physiological repair this function becomes operative and is manifested by the process of proliferation of the cells involved. In the normal processes of repair the cell division is perfect and uninterrupted, and proliferation and growth continue onward until healing is completed. But if there exists in the blood a condition, which might have the effect of stimulus, a formative stimulus, as it has been conjectured, the physiological processes of cell division become disturbed and irregular, the cytoplasm no longer dividing with the nucleus, the result is a giant cell. "A single organism can grow and develop only up to a certain point, limited by its degree of specialization. That further progress may be made, the individual life must cease and give place to a successor." If one is to believe this fundamental truth as expounded by Prof. F. H. Pike, it is evident that a giant cell has lost its degree of specialization and is incapable of further proliferation and growth and must die without progeny.

Statistics were given to show that those organs having a large blood supply, or those physiologically active in metabolism, constructive or destructive, are more liable to be affected with cancer than those not so highly vascularized. The greater proliferative capacity of the female as compared with that of the male, is thought to be the cause of the higher percentage of cancer in women than in men.

Excluding all other causes, traumatic or bacterial, and considering the chemical influence solely, it was assumed in the hypothesis that the active and predominant cause of cancer lies in the excessive use of sodium chloride or common table salt. That there might exist in certain families idiosyncrasy for the use of sodium salt led the writer to infer that the prevalence of cancer in such families was due purely to this idiosyncrasy, and not to any particular hereditary tendencies to cancer capable of transmission from parent to offspring.

The writer stated that traumatism was an inciting factor, yet not the direct cause of cancer; in other words it serves merely to kindle the hyperemia. In so far as proliferation is the first step in the repair of tissue, it might be reasonable to assume that malignancy might be instituted in the cell at the time that mitosis was taking place, and, instead of the division being physiological and regular, the cytoplasm did not divide with the nucleus but produced a degenerate cell. In the MEDICAL RECORD of February 9, 1918, page 258, it is noted that "MacCarthy believed the disease to begin in the waiting or repair cells," and Dr. Charles H. Mayo remarks that, "We thus saw how the stimulation of continued traumatism might stimulate to activity such repair cells when lack of control, differentiation, and migratory hyperplasia would place them within the cancer classification." Mayo is

further reported as saying. "Nearly one-third of the cancers that affected man were found in the stomach where acidity was constant and high. The duodenum which by right of continuity of tissue, close association with an opportunity for grafting, and apparently far more commonly affected by ulceration than the stomach, was almost never affected with cancer, which, however, spread into all other tissues around it when developed from gastric cancer."

The importance then of the constancy of acidity in cancer should be borne in mind as being of utmost importance with its relation to sodium chloride in the plasma and tissues.

Can the question be properly raised, "Is cancer a distinct entity?" In the light which pathology has thrown upon the different phases of inflammation, might not cancer be nothing more than an exaggerated phase of an original inflammation, possessing no other characteristics than the peculiarity of the presence of atypical cells in the inflamed tissues? What is there to lead one to believe otherwise? Does not cancer start with an inflammation, and has anyone ever seen a cancer in which inflammation was not present? The mere fact that cell division is interfered with, in the process of an inflammation, cannot make that condition a distinct and separate pathological state while the original cause of the inflammation still exists. It seems not impertinent to ask why cancers do not develop in uninflamed tissues, but are prone to develop in old inflammation. It seems to the writer that without inflammation there can be no cancer. (In this case the deduction is that cancer is an inflammation of a malignant type.)

The word cancer is derived from the Latin *cancer*, a crab, as carcinoma from the Greek *karkinos*, which also means a crab. Both of these different speaking nations evidently recognized in this disease the close resemblance to this particular crustacean and so named it accordingly. There seems no special reason why the crab should have received this distinction unless in ancient days the lobster was unknown. Both of these creatures have claws and can travel in similar directions, forward, backward, or laterally. What's in a name then, since this disease would kill as quickly under any other name? The word cancer has come to be synonymous with death. To be afflicted is to die sooner or later, and with the knowledge that there is no help other than futile efforts, surgical in character, which tend only to postpone the death sentence but never permanently to cure the patient. If for no other reason than the awful fear and hopelessness with which the word cancer fills the sufferer this word cancer should become obsolete, and there are good reasons for discarding it. If the ancient physicians were ignorant about cancer and gave it this name there is no justification for our continuing to use it. Although we may have not learned much more than they already knew, which in particular was its certainty to cause death, we may in the light of modern psychology give it another name—a name which has some pathological significance. The writer suggests the term "malignant inflammation" because it is an inflammation of malignant type, and at no time from its inception to its complete cessation, through dissolution of the patient, does

it cease to be an inflammation. The pathology is clear and undisputed. No cancer was ever known to exist that did not have as its starting point some area of inflammation. No cancer ever passed from this stage without first going through the stage of a tumor, and the path of its progress is by four ways, namely, hyperemia, inflammation, tumor, and cancer, and it can be undeniably affirmed that there does not exist a cancer in which there does not also exist some degree of inflammation.

Because of the centuries that have passed by, leaving cancer incurable, the mind has come to look upon it as a real entity, as a thing with individual characteristics, and the histologists have helped to maintain this belief through their discoveries of the different types of cells in cancer. The thing itself cannot be isolated or separated from adjacent tissues, from the fact that no surgeon can tell where the line of demarcation exists between the cancerous tissue, the inflamed tissue, or the healthy tissue, and to make sure that all diseased tissues are removed a wide cut is the usual surgical method. Cancer is not a thing that can be enucleated as a pea from its pod or a cyst from its site. It is a condition, and is dependent entirely upon the factors which first incited the primary stage of inflammation.

Does it not seem from the foregoing that the proper treatment of cancer is by the channels best suited to subdue inflammation? Not with an effort to control the progress through local medication, but decidedly by means which will reduce the predisposing causes that bring about the original inflammation. If acidity is a factor or the actual factor, the things which cause this condition must first be removed. What better agent can there be in the human economy to produce acidity, or acidosis, than an excess of sodium chloride in the plasma and tissues of the body? The existence of hydrochloric acid in the gastric juice depends altogether upon the sodium chloride ingested with the food. An excess of this acid must be due to an excessive use of common table salt. What more suitable agent to incite inflammation in the cells than a plasma saturated with salt in which they are by nature obliged to live?

The splitting up of sodium chloride sets free the chlorine which engages in the formation of gastric juice, while the sodium, being a highly oxidizable substance, is soon consumed. There is, however, reason to assume that more sodium can be set free than the conditions present are capable of oxidizing if an excess of salt is used. Under such possibilities the cells soon become impregnated with sodium much to their detriment, since sodium is not the natural element of cell tissue, while potassium is. Furthermore, ingestion of the element sodium is augmented through the various salts of this substance which find their way in the preparation and preservation of perishable foods; for example, we find that not only sodium chloride is used to great excess but that soda in the form of the bicarbonate is commonly employed as a household remedy for acidity of the stomach. Along with this are other salts of soda as the benzoate, baborate, salicylate and baking powders containing soda, these serve as a fruitful source of supplying an excess of soda to the system, much-

beyond the capacity of the oxidizing and eliminating forces of the body to compensate.

Bock (1907), according to Cushny, injected an isotonic (1.1 per cent) solution of potassium salt intravenously in rabbits at a very slow rate, so that there was practically no hydremia, the solution being eliminated from the vessels as rapidly as it was injected. He also observed that "During the first diuresis the increase in sodium appears to be of the same nature as the increase of chloride when bromide is given, and the inference is that potassium displaces some of the sodium in the tissues and thus increases its concentration in the plasma and filtrate." The concentration of potassium in the plasma and filtrate was of course much lower than that of the sodium. His further experiments and the findings are of interest from the standpoint of the kidney, but have no special bearing here, however. Bock states that the "potassium salt is highly poisonous to the heart in anything over about 0.05 per cent."

The nitrates are not the only agents by which the chlorides may be displaced, for the sulphates equally enjoy this property. But in the treatment of cancer, allowing that the disease is caused by an excess of sodium chloride in the tissues, the main object is not only to displace the sodium and the chlorides, but while doing this to replace the potassium in the cell. The chlorides, nitrates, and sulphates are all diuretic, but "The unabsorbable sulphate always limits the reduction of the fluid below a certain level by offering osmotic resistance" (Cushny). Such an objection would not be present when the nitrates are administered; and because of their solubility they are to be preferred, and in the form of salt such as potassium nitrate.

According to the principle of maximum work in thermochemistry, which was demonstrated years ago, whenever several chemical reactions are possible, as the result of the admixture of various chemical reagents, the reaction which takes precedence over all the others is that which leads to the greatest development of heat; or in other words, the particular chemical compound will be formed first whose so-called "heat of chemical formation" is highest; and that compound will also be the most stable, or the most difficult to decompose or displace. When nitrate of potassium, composed of potash and nitric acid ions, enters the plasma of the blood, which always contains chloride of sodium, it is possible for a double decomposition to take place, by which potassium chloride and sodium nitrate are formed. Now, it so happens that the heat of formation of potassium chloride is higher than that of sodium chloride, except chloride of lithium (which is only about 1 per cent. higher, and is of no special interest in the present connection because it is not a natural constituent of blood or tissue), consequently, according to the established recognized principles of thermochemistry, not only will there be a tendency to the formation of chloride of potassium (by virtue of the principle of the tendency to maximum heat development just mentioned) but this salt will be a more *stable* constituent of the blood or of any of the fluids or tissues of the body than chloride of sodium.

At the same time that chloride of potassium is formed by the union of the potassium ions with the

chlorine ions of the chloride of sodium present in the fluids of the body, the nitric acid ions, let loose or released from the potassium nitrate, will combine with the sodium ions of the chloride of sodium, forming nitrate of sodium. This substance can pass out of the cell tissue into the blood and take part in other chemical reactions in which nitrogen plays an essential rôle.

An interesting circumstance in connection with the exchange of ions taking place between chloride of sodium and nitrate of potassium, is that the sum of the heats of formation of the two end products remains substantially the same as the sum of the heats of formation of the two initial products. This means that very little energy needs to be supplied from the blood, or from other sources of physical or chemical energies of the body, in order to effect the double reaction just mentioned.

According to White's *Materia Medica*, potassium nitrate, owing to its high diffusive power, quickly passes into the blood unchanged. It is classed as a powerful cardiac depressant, causing the beats to become feeble and fewer. Large doses lead to great weakness, fainting, and death. Small doses are diuretic from their direct action on the renal cells. The dose is given as five to twenty grains. The drug is excreted unchanged in the urine.

Loewi (1902) quoting from the *Secretion of Urine* by A. R. Cushny, states that the intravenous injection of nitrate caused an increase of the chloride excretion. This fact might give rise to the question as to whether it might not be possible to remove too much salt from the body below the physiological amount required to maintain health, but this seems improbable as Cushny remarks, "That some constituents of the plasma are only excreted in so far as they exceed a certain threshold value," and in another passage he says, "The elimination of one constituent of the plasma which is present in excess does not necessarily involve changes in the others." For example, he continues, salt added to the food is excreted in the urine and the total chlorides increase, but the amount of urine and of the other constituents may remain unchanged; the percentage of chloride of course increases. But it not infrequently happens that excess of salt in the food leads to an increase in the water of the urine, and the percentage of salt in it remains unchanged while the total salt rises; the other constituents remain with little change in absolute amount, but the percentage falls from the increase in the water. This variation in the behavior in the kidney as to salt is probably more apparent than real. For the salt is presented to the kidney not as it was ingested but as it occurs in the plasma; if the salt has passed into the blood without much disturbance of the circulation of the blood and lymph, it comes to the kidney in the form of a slight excess of chloride in the plasma. But if exchange currents have been set up between the tissues and the blood, the plasma reaching the kidney may have excess of both water and salt, and both are eliminated together. The difference in the reaction arises from the varied activity in the tissues in general and not from incontinence of the kidney.

It follows then that removal of the excess of the chlorides should be accomplished with safety. It is

probable that, after the administration of potassium nitrate the excretion of this salt in the urine would be less than the amount ingested, and this could be accounted for by assuming that the potassium had taken the place of the sodium in the tissues. It would seem reasonable not to expect any of this salt to appear in the urine as an excess until its threshold value had been determined by the cells. It should be borne in mind that at no time will the cell part with any of its constituents until the amount exceeds its threshold, and that the cell may exist this is self-evident, for were it to part with any one ingredient, or portions of all, it would have no stability as an existing thing and so cease to be; in other words, it would evaporate.

The most ideal manner to administer potassium nitrate for the treatment of cancer would be by hypodermic injection, and the dose should be proportioned according to a limit of safety, bearing in mind that a solution over about 0.05, according to Bock, is poisonous to the heart. However, there is no record of this drug having been given hypodermically, so that the dose would have to be adjusted to suit the individual condition of the patient, and this must depend entirely upon the judgment of the physician.

White, in his *Materia Medica*, states that, "External to the body, nitrates prevent coagulation of the blood, or dissolve the clot if it be already formed; but it is not known that they have any effect on the blood in the body."

These cautions regarding the use of potassium nitrate are merely mentioned from the standpoint of information, and are not set forth with the idea of fostering fear in the mind of the physician who might give a hypodermic injection of the drug, and thus create in his mind a bugbear of the possibilities of an embolus.

The writer in the past seventeen years has administered hypodermic injections of various substances, other than potassium nitrate, in nearly every accessible part of the body, including such unusual regions as the scalp, cheeks, throat, and neck, and going very close to some of the large blood vessels lying there, but he has yet to observe the first symptom indicating the occurrence of embolism. A similar experience can be cited in the practice of a veterinary surgeon who stated that he had repeatedly tried to create emboli artificially in the veins of dogs, by injecting air, but had never succeeded in doing so, and remarked that he did not think emboli could be artificially created. This, however, might not be the general belief or experience of physicians, and the suggestions given here may be accepted for what they are worth. Nevertheless, hypodermic injections, as a rule, are considered free from danger.

There are many important reasons why nitrate of potassium should be administered in minute doses and highly diluted in water. On the one hand, the introduction of salts of potassium into the blood at too great a rate is objectionable because of the toxic action on the heart; this action becomes more marked when the quantity of potassium salt contained in the blood exceeds about 1/20th of one per cent. The moment the quantity of potassium salt present in the blood exceeds the proper physiological limit, the excess is worked off through the

kidneys by increased secretion of urine containing a higher percentage of potassium than normal. On the other hand, dilution of the solution containing potassium nitrate accomplishes several important objects. First, the process of osmosis by which alone this salt can pass through the walls of the intestine into the blood is greatly facilitated. A strong solution of the salt would indeed pass through only quite slowly if at all, and the more it is diluted the more readily it will pass. As a matter of fact, the more nearly the solution approaches the specific gravity of pure water the more readily it will pass. What is true of the osmotic action by which passage is effected into the blood from the intestines, is even more true in the case of the osmosis by which substances are transferred from the blood into cell tissues through the walls of the capillaries. It is quite conceivable that although the blood may contain a given salt in considerable amount, very little, if any of it, may pass into the tissues. Indeed, paradoxical as it may seem, in certain circumstances the greater the quantity present in the blood, the slower the rate of its transfer, and therefore the smaller the amount transferred in a given time. This underlying principle of physical chemistry is perfectly well established and should be employed more generally when administering substances whose medicinal effects are dependent upon the property of osmosis.

Second, the chemical reactions on which the therapeutic actions depend are also much facilitated by dilution. The effect of dilution, it is well known, is to produce a state of partial "dissociation" or "ionization" in the elements of a salt held in solution in water, so that some of the atoms are less tightly linked, or less intimately bonded together, in other words, they are partially freed from each other, and exist as "ions," and when in that ionized state they are more susceptible to the action of all reagents and reactions, whether chemical or physiological, which tend to cause chemical changes in them. It is well known that dissociation and ionization render possible many chemical changes and reactions that cannot be produced otherwise.

The foregoing considerations are logical and scientific, applicable not only in this case, but almost in every case where therapeutic agents are to be administered in liquid form. They point to the desirability, in the general case, of not letting the remedial agent cause congestion and crowding, either at the entrance-gate through which they pass into the blood, or at the outlet-gate through which they pass out of the blood into the tissues or into the secretory or excretory organs. A cardinal principle that should be borne in mind is that it is not the amount administered, but the quantity which can be *effectively* utilized that counts. Whatever portion has no chance of being effective had better not be administered, but the dual reason that not only is it in the way and prevents the action of the rest, but the task of eliminating the excessive and useless portion may impose more or less serious, and at best always objectionable, work on the heart and the other organs of the body.

Since the object sought is to replace sodium chloride in the tissues by potassium chloride, and since the end-reaction obtained, when potassium nitrate is administered, is the formation of potassium

chloride, the idea will suggest itself quite naturally of giving potassium chloride directly instead of potassium nitrate. But if this is done the potassium chloride would remain in the blood almost entirely, or, if it passed into the tissues, it would not replace or displace the sodium chloride other than in a mechanical way, whereas the potassium nitrate acts chemically by causing actual removal of the sodium elements of the sodium chloride already in the tissues, and their replacement by the potassium elements of the potassium nitrate, at the same time that the displaced sodium elements are removed by combination with the nitric acid elements of the potassium nitrate to form sodium nitrate. The effect of this double reaction is to introduce the potassium in the tissues in the most stable form, namely, potassium chloride.

There appears to be no other salt which can serve the same purposes as the nitrate. If one should be found later it would probably have thermochemical properties very near those of the nitrate, and the acid radical would probably have as good solvent power for sodium as nitric acid has. There are potassium salts which approach the nitrate in one or the other of these two important respects, but the researches made by the writer have thus far failed to bring to light any other salt that fills the requirements as fully and as satisfactorily as the nitrate.

The weakness of carbonic acid and of acetic acid, as compared with nitric acid, explains at once the unsuitability of the carbonate and the acetate salts of potassium as substitutes for the nitrate. The same criteria would apply in determining the relative suitability of other potassium salts. Take, for example, potassium carbonate. Owing to the fact that its heat of combination is lower than that of potassium nitrate (92.4 calories as against 96.1), it would be expected that it would react more promptly with sodium chloride to produce potassium chloride (100.8 calories) because the heat set free is greater when starting from 92.4 than from 96.1 calories. It is known, as a matter of actual test, that the reaction is much more prompt. Unfortunately, however, the end products are not suitable. The carbonic acid of the potassium carbonate and the sodium of the sodium chloride are set free independently instead of uniting and forming a new compound, sodium carbonate. The result is that the blood, or the cell tissue in which the reaction takes place will contain free carbonic acid and sodium hydrate, both of which, it is needless to add, are highly objectionable and must be eliminated, the first through the lungs and the second by the kidneys. This illustration of the importance between the action of the nitrate and other salts of potassium emphasizes the great importance of understanding and bearing constantly in mind the possibility of deleterious effects due to primary or secondary chemical reactions which may take place between the remedial agents administered and the blood or the tissues.

Now, from what has been stated, the most logical deduction to be made is that if potassium nitrate is administered the sodium chloride will be displaced, and the cells relieved from the irritant action of the sodium chloride, would lose their malignancy and continue toward physiological

repair, and recovery would be the inverse of the manner in which the disease developed. That is to say, starting with a hyperemia, followed by inflammation, which progresses into tumor formation, and then into cell degeneration recognized as cancer, the first improvement would be noticed as a sloughing away of the malignant or dead cells, the repair or waiting cells being at the point of mitosis would become constructive and as soon as the lesion had healed all inflammation would disappear. The cancer lesion would take on the characteristics of a traumatic wound in the process of healing. Local treatment such as the application of the Dakin solution followed by appropriate surgical dressing would complete the cure of the case. The Dakin solution hastens healing by dissolving the dead and poisonous tissue and matter while not injuring the living tissues.

Regarding potassium nitrate from the viewpoint of a therapeutic agent in the treatment of cancer, the writer feels that enough has been offered here to show reasons why this drug should be given a trial. In the past, the internal treatment of cancer, decidedly meager and undoubtedly empirical, has not been productive of any remedial advantages from which a system of treatment might be formulated, and if perchance there were evidences of improvement or of cure in any given instance no logical reasons for such phenomena were forthcoming.

But in this instance we start with the hypothesis that sodium chloride is the cause of cancer, and we learn that potassium nitrate is effective in displacing this substance in the manner already described, namely, that the nitrates displace the chlorides, and the potassium salt displaces the sodium salt, and at the same time takes the place of the sodium salt in the cell, of which it is a natural component. The generally accepted view then, that all medicine is more or less empirical, may in this instance lose weight from the fact that the cause of the disease is known and the reason for the action of the remedy for its cure is also a matter of knowledge, and this in spite of the fact that no less an authority than Osler himself has said that "We medical men know little or nothing of the real action of drugs, and we put them into bodies of the action of which we know less." Be this as it may. When it is realized that the death rate of cancer has almost reached the appalling number of one hundred thousand lives yearly, and that in New York City alone the weekly average of deaths from cancer and malignant tumors is in the neighborhood of ninety, it would seem that any drug which offered the slightest hope in ameliorating this awful scourge is deserving of trial, and potassium nitrate seems to the writer the most logical one to try.

452 FIFTH AVENUE.

Influenza Meningitis.—According to Lorey but few cases of this affection are upon record and these purulent and in children only. He describes a case which illustrates quite a different type. A woman aged 49, in the midst of health, was stricken with meningitis which ended after six weeks in recovery. The lumbar punctates were all clear, but in the sediment influenza bacilli were found and readily cultivated.—*Correspondenz-Blatt für Schweizer Aerzte.*

SOME OF RABELAIS' IDEAS OF THE STOMACH.

By DOUGLASS W. MONTGOMERY, M.D.,
SAN FRANCISCO.

RABELAIS' ideas of the stomach were necessarily very crude; he knew of the existence of the organ, and that it was a bag for the reception of food. The knowledge of those who had preceded him seems, however, to have been cruder than his. For example, he draws attention to the fact that drink flows over the tongue and down the esophagus into the stomach, and not down into the lungs by way of the rough artery (the trachea), as was the opinion of Plato, Plutarch, Macrobius, and others.¹ The drink, le boire, referred to was water, but a peculiar kind of water, that resembled wine of any kind which the man drinking it might desire. It therefore had the attributes of wine.

Wine (alcohol) was not then regarded as it is to-day, as a poison generated by the action of micro-organisms on sugar, but as a spiritual essence easily transubstantiated into an infinitely more highly spiritualized fluid, the blood of Christ. It would be perfectly logical, therefore, for a mystic to believe that the highly spiritualized fluid, wine, might take the same route into the body as the spirit, air, the Breath of Life. Rabelais' correction of this view, therefore, was probably not an idle remark. This applies to many a remark by Rabelais, in appearance most idle, in substance most grave.

The Idea of Hunger as Referred to the Stomach.—Hunger is a most interesting phenomenon, both politically and personally. The earth has been called the hungry planet.

Actuated by the electromagnetic energy of light, everything seems to be anxious to combine or to dissolve combination with its neighbors, and in the processes in the corporeal workings of the more highly organized animals the sensations of hunger are developed. In starvation, every cell in our body calls for food, but the principal sensations refer to the stomach. As each organ, however, when irritable or irritated gives rise to the sensations peculiar to it, as, for instance, the sensation of itchiness in an irritable skin, so an irritable stomach, as in gastritis, may feel hungry even when the individual is not in need of food.

Ingenious experiments have shown that the pangs of hunger are associated with strong contractions of the stomach, and sympathetic ones in the bowels, causing rumblings due to shifting gas. Long previous to the demonstrations of the hunger contractions by the x-ray, literary men, as not being totally unacquainted with the sensations of hunger in their own persons, have poignantly described these pangs and rumblings. The phrase, "The clamors of the stomach," is a frequent mode of expressing intense desire to eat, and Merlin Coccaie, in his "Histoires Macaroniques," says that "Falcquet felt in his belly that his entrails were empty; his stomach cried out." And in another situation he says, "My belly growls with hunger." Rabelais repeatedly mentions the braying, bawling, and barking of the stomach because of hunger.²

A very interesting circumstance in regard to the sensation of hunger is that absolute fasting is said

by those who have suffered it to be not distressing, while insufficient feeding is productive of real suffering. The most harrowing stories of misery endured by Arctic explorers, for example, refer rather to short rations than to downright starvation.⁴

The desperation to which hunger leads impressed Rabelais profoundly, and he has written an eloquent chapter on the absolute dominance of Messer Gaster, the stomach king, who has no ears, and hears nothing whatever, and before whom, although he speaks only by signs, all other lords, kings, and governors bow in obedience.⁵

Rabelais quotes Hippocrates as saying that youth is impatient of hunger, chiefly if it be vigorous, lively, brisk, stirring, and bouncing.⁶ The aphorism alluded to reads: "The elderly are the most patient of abstinence; after them come those in full adult life; the adolescents are highly impatient, and infants have no patience at all, especially those who are the most vivacious." Hippocrates evidently had heard the strident cry of the hungry baby.

The Delights of the Stomach.—The miseries caused by hunger are great, but an appreciation of delights attendant on the satisfaction of the appetite are of more importance to the physician. It enters into his daily work to satisfy this desire, and at the same time to secure the observance of temperance along the lines he wishes, in order to bring the patient back to health.

Appetite is different from hunger, and may be described as a pleasurable normal desire for food, while hunger is a painful craving. Rabelais, in his description of the physiology of digestion, says that appetite is caused by a little sharp black bile transmitted from the spleen. It acts on the orifice of the stomach, admonishing it to lay in victuals.⁷

This black bile, which was so very important in the conception of the bodily functions in the old physiology, was never demonstrated. Two centuries later, when the Galenical system was breaking down, and when ardent Galenists were forced to admit they had never seen the black bile, they evaded the question by saying that possibly nobody had seen it but Galen, and that if he had not seen it he should have done so, and there was an end to the matter.

On an island, Pantagruel encountered a race of men who worshipped the aforementioned omnipotent sovereign, Messer Gaster. They were a strange generation, some merry, dainty, soft as down, others sour, grave, severe, and glum. They were alike in working not at all, and in being a weight and useless burden upon the earth. They were called gastrolaters, or belly worshipers.⁸

Friar Jean cannot be included among these belly worshipers, although he was a generous feeder and a famous drinker. At a feast given him by Gargantua he acknowledged that so far as liquor was concerned he had a paved stomach, as hollow as the bottle of St. Benedict, and always open like a lawyer's pouch. A lawyer's pouch is called *la gebecière d'un avocat*, the game bag of a lawyer, an excellent and appropriate designation.⁹

Pastimes During a Calm at Sea.—In a dead calm at sea, Pantagruel and his companions encountered difficulties in passing their time. They fell to asking how certain things might be done. For instance, Xenomanes, who seems to have been rather stout,

inquired how the stomach might be so balanced as not to tip more to one side than to the other.¹⁰ This idea may have come to Xenomanes from the rocking of the ship. Furthermore, it is a real physician's problem, repeatedly presented to every one of us, either on the operating or on the examination table, and is only one of many indications showing that Rabelais was undoubtedly a practising physician. This is an instance where the word "stomach" is made to include the whole abdomen, a frequent use of the word even at the present time.

REFERENCES.

1. Pantagruel, Book V., Chap. xliii.
2. Rabelais Médecin, par Félix Brémont, Le Tiers-Livre, Chap. xv, page 67, note 367.
3. . . . la faim était on corps pour à la quelle remede aboie l'estomach, Pantagruel, Book III., Chap. xiii.
4. Mon estomac aboie de male faim comme un chien, Pantagruel, Book III., Chap. xv.
5. Mon estomac brait de mal rage de faim, Pantagruel, Book V., Chap. xxxi.
6. . . . pour refrener les aboies l'estomach—to control the barking of the stomach, Gargantua. Chap. xxiii.
7. W. F. Smith gives a parallel reading from Horace: Cum sale panis latrantem stomachum bene leniet—bread with salt calms well the barking stomach.
8. Human Physiology, by P. G. Stiles, 1916, p. 194.
9. Pantagruel, Book IV., Chap. lvii.
10. Pantagruel, Book III., Chap. ii.
11. Rabelais Médecin, par Félix Brémont, Le Tiers-Livre, page 18, note 311.
12. Pantagruel, Book III., Chap. iv.
13. Pantagruel, Book IV., Chap. lviii.
14. Gargantua, Chap. xxxv.
15. Pantagruel, Chap. lxiii.

323 GEARY STREET.

Prostatic Abscess.—The subject for general discussion at the IV. Congress of the Spanish Urological Association, held at Madrid, Oct. 24-28, was prostatic infection (exclusive of gonorrhea). It was subdivided into acute and chronic infections and tuberculosis. The paper was read by Dr. Baragán of Madrid who reached the following conclusions: All of the diseases of the prostate predispose to secondary infection. In 80 per cent. of cases prostatitis is secondary to posterior arthritis and 80 per cent. of the latter affection is curable by medical treatment. In abscess formation the condition is severe and demands early operative relief and the higher the seat of the pus the more grave is the condition. The perineal route is the choice for intervention. In spontaneous rupture into the urethra the condition is more benign than when rupture occurs into the rectum. If the rupture occurs above, the outlook is much more serious. The author reports 55 cases of prostatic infection, exclusive of gonorrheal and tuberculous material. Of this number 36 were due to the use of infected catheters and to false passages, 4 were secondary to rectal processes, 4 to foreign bodies in the urethra, 8 to renal and vesical affections and 3 followed perineal section.

In discussion Esquivel reported a case of prostatic abscess complicating typhoid fever. Pus in large amount escaped from the urethra. The condition healed under urethral and rectal irrigation. Miravel reported a case of prostatic abscess in an old subject due to the presence of an intraprostatic calculus and a second case in a typhoid fever subject with Eberth's bacillus in the pus. Cifuentes reported cases of abscess which followed nephrolithotomy and perineal section respectively. Negrete reported cases of abscess due to *B. coli*, and Sánchez de Val a case in which operation on a periprostatic abscess failed to relieve symptoms of general sepsis. A second operation revealed a focus of pus within the prostate. Alcina mentioned a case in which massage of a prostate caused escape of pus into the urethra; also a case of abscess following a fall on the perineum. Pérez del Terro narrated cases of abscess secondary to rectal lesions (piles, fistula).

Military Medicine.

Accidents from Inhalation of German Gas.—Cheyrou (*Journal de médecine et de chirurgie pratiques*, February 25), states that after a bombardment with gas shells, one may see mild cases of gassing change suddenly for the worse. He wishes to study especially this type of case by itself. It is not a question of the typical results of gassing or the new forms of gas, but of certain recent effects of bombardments in Argonne. The gas shells were composed of palite and the agent which caused the symptoms was the chloroformate of monochlorated methyl. In some subjects after gassing the predominant disturbances were digestive, in others respiratory. In some subjects the degree of intoxication may be estimated by cardiac symptoms and in others by depression and general fatigue. The main feature is that whatever the symptoms they may be so mild as to seem insignificant. The sequelæ comprise cardiovascular phenomena, cardiac fatigue, and pulmonary tuberculosis. Hence even those with minimal symptoms should be evacuated to the rear with the aim of forestalling or minimizing these sequelæ. Of two bombardments in succession suffered by a certain battalion, the first caused plenty of initial troubles, but no sequelæ. It was necessary to evacuate a number of troops because they were temporarily unfitted for duty and as soon as they had recovered they returned to the front. Many were treated without evacuation. The next bombardment followed at night with a mixture of explosives and gas shells. The troops complained of their eyes, respiratory passages, and digestive tract. No burns were visible. The predominance of intestinal over respiratory symptoms in some cases was due evidently to swallowing of the gas. The symptoms passed off slowly and everything went ahead as if nothing had happened. As the ground and air are infected with gas to some extent the areas of explosion were disinfected with dry chloride of lime. During the next few days the symptoms which persisted in a number of the men were very slight and required only the simplest remedies as bicarbonate of soda for the stomach, mentholated vaseline for the nostrils, etc. About nine days after the gassing the bicycle messenger who had given the alarm of the impending bombardment was seized suddenly with dyspnea and was found to have a stitch in the left side and dullness of the left base. He was at once evacuated and became steadily worse. He had fever, tachycardia, sputa of apricot color, progressive increase of dyspnea, delirium, ending in death in asphyxia. The usual remedies gave no relief. The lesions were those of simple total congestion of both lungs and of all the viscera. Death was pronounced due to palite. Two men exposed with him got off with bronchitis—one had an attack of pulmonary edema—and were soon back in the ranks. These palite shells explode feebly after a long hissing sound and the vapor does not appear to penetrate the soil. The odor suggests perfume of sweet almonds. The substance appears to linger in the neighborhood, disappearing but again returning if the air becomes humid. It resists the action of disinfect-

tants and the earth when examined shows no trace. The tactics of the Germans seem to be to mix gas shells in variety, each having different properties. The apparently inoffensive gas with mild explosive force, odor, and initial symptoms may readily go unrecognized. The bicyclist was nearly 40 years old and his age may explain his greater vulnerability, for the younger the man the more resistance is offered by his heart. The extensive congestion of the lungs throws a great strain on the latter. Ordinarily venesection, camphor, and perhaps sparteine would have disembarassed the heart.

Meteorism in Italian Soldiers.—Cecconi, in *La Riforma Medica* for February 23, finds that the military "big belly" which has attracted more or less attention, possesses a medicolegal significance. Pisani, a student of the subject, ascribes the condition to spasm of the diaphragm. But there are no pulmonary symptoms to suggest respiratory insufficiency on the one hand, and abdominal breathing is seen to go on. The picture in no way corresponds to what we know of diaphragmatic spasm, which, moreover, is extremely rare and probably psychogenic meteorism from whatever mechanism is common in hysteria and the diaphragmatic theory has been invoked in this connection.

The author, who has been studying this condition for thirty months, cannot rid himself of the belief that this meteorism is largely artificial and simulated. In one group of cases the subjects are sound and well nourished and aside from the meteorism have no complaints. Placed in dorsal decubitus the meteorism which before seemed more pronounced in the upper abdomen, is seen to be somewhat lower placed and less marked when the patient stands the condition is augmented. Palpation of the lower abdomen reveals a strongly arched lumbar spine. Respiration seems superficial with occasional deeper breath and chiefly thoracic. In the deep inspirations the diaphragm contracts. Under persistent palpation abdominal resistance diminishes, its volume becomes less, while the lumbar prominence seems flattened. The mental status recalls that of the simulator. The control of the flexibility of the spine which almost equals that of the contortionment, together with the possibility of control over the diaphragm, oblique and transverse muscles suggest unusual voluntary, perhaps unconscious manifestations.

The soldier's big belly has been studied in the French army and attributed to a simple voluntary contraction of the diaphragm. Voluntary or natural obstipation and air-swallowing may, of course, lead to meteorism. In no x-ray case of the authors was there any evidence of tonic spasm of the diaphragm, although he has seen it in subjects who had no meteorism.

In a second, less numerous class of big bellies the abdomen is uniformly distended and highly resistant to palpation. The percussion note frankly tympanitic and from time to time there are eructations. The diaphragm is compressed and the functions of the entrathoracic organs prejudiced. The x-ray shows a high position of the diaphragm. This class of patients seem to be air-

swallowers pure and simple, and probably simulators in part. There is a third class which as yet has not been much studied. The meteorism is perhaps limited to the colon so that the flanks are principally involved. These cases are residual and only a few were studied, so that their status is obscure. They may be vagotonic subjects and a vagotonic component may be present in all of these cases. The author does not write of any patients charged with simulation, and it seems that thus far he has not "got the goods" on them.

Bone Grafting for Closing Openings Following Gunshot Wounds in the Skull.—Lieut.-Col. C. G. Morice, N. Z. M. C., writing in the *New Zealand Medical Journal* for December, 1917, says that since the adoption of the metal helmet for soldiers the number of the non-fatal head cases has greatly increased and the need for late operation has been correspondingly more marked. During the six months previous to the writing of the paper nine cases presented themselves at the Victoria Military Hospital with various nerve symptoms, following upon wounds resulting in the loss of portion of the cranial bones. Three of these were advised not to have operation, as their injuries were recent and their symptoms mild. The other six were so seriously handicapped as the result of their injuries, and drugs having completely failed, that it was necessary to take radical measures to improve them. The symptoms vary considerably, according to the position of the injury, etc., but the following list includes all that have been complained of: (1) A feeling of insecurity and nervousness and especially dread of a blow on the head; (2) fear in crossing a street or when left alone; (3) giddiness on stooping or turning round; (4) loss of consciousness with more or less epileptic symptoms; (5) general malaise, loss of memory. One patient had uncontrollable fits of temper, the possible results of which frightened himself as well as his relatives. Various substances have been suggested at different times for filling up gaps in the skull, but up to the present time pieces of periosteum-covered bone are most in favor. Thus in 1915 Murphy used flaps of fascia and fat taken from the thigh, but admitted that he got improvement in only about 5 per cent. of the cases. Portions of the scapula with periosteum on both sides have been used, also pieces of rib, which certainly have a useful curve; and just recently rib cartilage has been recommended in the *British Journal of Surgery*. The outer table of the skull alongside the aperture has been separated from the inner and swung over to cover the opening; plates of silver, perforated celluloid, and other material have been well spoken of, but Morice has been quite satisfied with pieces of periosteum-covered tibia, especially since using the electrically driven saw recently introduced into the Wellington Hospital.

The scalp, after being shaved twice at four or five days' interval, is thoroughly cleaned by the spirit and iodine method. The head is then covered with a sterile cloth, a tourniquet applied, and a curved incision made through cloth and scalp down to the pericranium. The flap is turned back and the pericranium incised one-eighth of an inch outside the margin of the defect. The

membrane is then reflected inward and outward for about half an inch. The outer table of the skull is removed all round the aperture by means of gouge and mallet for about the same distance. The size of the prepared area is carefully taken, hot swabs are applied and the flap of scalp turned back into position while the graft is being prepared from the leg. The subcutaneous surface of the tibia is exposed by a slightly curved incision convex backward. The periosteum is incised round an area one-quarter of an inch larger than the dimensions taken of the cranial defect and reflected inward to the same extent. With a circular saw a graft is cut with very beveled edges and detached by means of a broad chisel. If necessary to obtain a considerable curve corresponding to that of the skull, cross cuts are made with the saw and the piece of bone, bent or even cracked across. The periosteum of the graft is sutured to the pericranium all round and the flap of scalp replaced in position. A large sterile dressing applied with moderate pressure is used and need not be changed for ten days. At the first dressing some effusion may be found under the flap, but is easily let out, and there should be no further trouble. The leg wound is generally complained of as being much more painful than the scalp and may require hot fomentations and considerable elevation for a few days. As soon as the patient is able to let the leg hang down he is allowed out of bed and this is generally about the end of the second week.

Testing the Heart for Military Service by Sprint Racing.—Karcher writes of the Swiss military service in the *Correspondenz-Blatt für Schweizer Aerzte* for March 16. Many tests for cardiac sufficiency have been tried out since the war, but evidently the subject is far from complete. Recently experiments have been made for all ages of troops, which were at first practiced only in new recruits. They consisted of 100 meter running competitions. In certain cases light work preceded the sprints, consisting of the twenty genuflexions, etc. Four classes of men were isolated after the tests, as follows: 1. Those unable to finish the distance; 2. those who finished with marked dyspnea; 3, those who looked bad as a result of the effort, and 4. those whose pulse and respiration had not become normal after two or three minutes. These classes were then minutely examined for possible nasal affections, goitre, cardiac and pulmonary lesions, renal affections, and bad feet. The original tests on 100 recruits, who represented much variation as to occupation natural vigor, etc., gave mostly good results. Exceptions were due to weak feet, varicose veins, goitre, and isolated cases of organic heart disease and probable tuberculosis. The average pulse rate after the race was 138 variations, being from 100 to 162. Rapid recuperation was seen in a third of the men and one man in eight had not recovered pulse equilibrium after five minutes. The general impression is that there is no such thing as a standardized recruit, personal equation playing havoc with records.

In regard to the troops proper no distinction was made between the regular mobilized army and the landwehr. The men tested were all moun-

tain troops, from whose ranks the unfit had been largely eliminated. After application of the test four classes were isolated, to wit: true cardiacs, subjects with extracardiac circulatory disturbances, tall, weakly, prematurely exhausted marching troops, and prematurely aged men long in the landwehr. Among the cardiacs the tests were made despite the fact that the men were already known to have effort dyspnea, etc. Such individuals, however, may stand the race fairly well. In a soldier in his forties the pulse was 164 after the effort, but two minutes later had dropped to 78. As sometimes happens, however, the pulse shot up again after 5 minutes and dropped more slowly than before. A single test two minutes after a race may therefore be fallacious. Not only must it be repeated, but other factors may outweigh negative finds. The tall, slender young marching troops who tire readily and react badly after the running tests were found to give a positive reaction. The prematurely old landwehr contrasted strongly with some of their fellows of the same age, a fact attributable to poor hygienic and economic conditions and perhaps abuse of alcohol. Reaction after the race was variable. In the majority the blood pressure was low for the age (the normal average for the landwehr is about 125 mm.). In the extracardiac type of circulatory disturbance the presence of goitre plays a rôle, that disease being endemic for the locality. Evidently the sprint race has not been tested sufficiently to reach general conclusions. It is not dependable as a sole test and its value seems to lie in the direction of a good emergency test for weeding out doubtful cases.

Pediculosis and the War.—Dr. H. H. Hazen, writing in *Medicine and Surgery* for February, 1918, referring to pediculosis, says that it is an almost universal affection of the men in the trenches. Not only may the pediculi carry the germs of typhus, but they also carry ordinary pyogenic organisms and secondary skin infections are frequent. In the old days we were led to believe that if a person wore some roll sulphur beneath his clothes the chances were that he would not be troubled by lice, but this beautiful theory has been absolutely destroyed. One important new discovery is that of Semon and Barber (*British Journal of Dermatology*, 1917), namely, that the body lice frequently deposit their nits in the pubic hairs, and that these must be destroyed in order to rid the person of his infection. Gasoline is excellent for this purpose or a carbolic acid lotion will do almost as well. Many insecticides have been suggested. Castellani and Jackson (*Jour. Trop. Med. and Hyg.*, 1915) state that for use on a large scale the best powder is naphthalene, but that for a better class of patients menthol is preferable. Other substances possessing merit are kerosene oil, lysol, camphor, oil of turpentine, anise oil, powdered pepper, and oil of cloves.

Casualties in the American Army in France.—The casualty list given out in Washington shows that from the time of the engagement of the American Army in actual warfare in the French front until April 26, 552 men have been killed in action and 128 have died of wounds. During

this same period 945 have died of disease, 198 of accident, and 94 from other causes. There have been 467 severely wounded, 1,654 slightly wounded, and 86 are reported as missing.

College for War Hospital.—Richmond College, at West Hampton, Va., has been turned over to the Government for use as a military hospital. The college will occupy buildings in Richmond.

Lectures for War Department Employees.—Surgeon General Gorgas has arranged for a series of "Half Hour Health Talks" for the civilian employees of the War Department. These lectures are to be held Tuesday and Thursday afternoons at 4.45 o'clock, in the auditorium of the Department of the Interior. The lectures will be illustrated and will be given by officers of the Medical Reserve Corps of the Army.

War Nurses Plead for Military Rank.—A large delegation of women and Army Medical Officers appeared before the House Military Committee on April 16, for the purpose of advocating the proposed legislation which would confer military rank on war nurses. The following ranking has been proposed: Superintendent of Nurses, Major; Assistant Superintendents, Directors, and Assistant Directors, Captain; chief nurse, First Lieutenant, and head nurses and nurses generally, Second Lieutenants.

Lieutenant John S. Abbott, a St. Paul physician and instructor in the University of Minnesota, is reported as missing after the engagement of March 24 in France. Dr. Abbott enlisted in the British Medical Corps before the United States entered the war and has been in service in France for several months.

Summer Hospital Course.—Teachers' College, Columbia University, announces summer courses under the auspices of the Government for the training of reconstruction aids for the military hospitals. The course will begin on July 1 and will last six weeks. It will offer the opportunity for specializing in occupational and physical therapy.

Ophthalmic Hospital Makes War Plans.—The Directors of the New York Ophthalmic Hospital announce that plans have been made for specialization in the treatment of eye, ear, nose, and throat conditions in soldiers and the dependents of soldiers.

Lieutenant George Francis Patton, M. R. C., U. S. A., attached to the 165th Regiment, the old 69th, has been decorated with the Croix de Guerre for bravery. During a heavy bombardment from the German batteries, in which gas shells were being used liberally, Lieut. Patton found that his gas mask hampered him in the dressing of wounds, so he removed the mask and went on working over the wounded until he was overcome. Dr. Patton was a graduate of the Baltimore Medical College in 1910, and at the time of entering the Reserve Corps was assistant attending surgeon to the Bronx Eye and Ear Infirmary.

Health of the United States Army.—In an address delivered recently in Chicago, Surgeon General Gorgas is quoted as saying that the United States Army has surpassed the record of the Japanese Army, heretofore considered the model of the world, in holding down the percentage of disease among its forces.

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DEVELOPMENTS IN INDUSTRIAL PHYSIOLOGY.

NONE of the remarkable scientific developments of the modern age can receive just recognition without a clear understanding that neither new discoveries nor development of present achievements can long go on without the intervention of better and stronger human beings—unless greater attention is paid to the physical needs, physiological and psychological requirements of the individual. Otherwise achievements are retrogressions rather than progress. All human effort is really purposed for the improvement of the human being and the making of this world a better place for him to live in. There is none that is nearly so intricate as the human machinery, and if modern developments in science are anything they are the means of bringing this intricate human machinery to the fore and harnessing it to the requirements of industry, the needs of the battlefield, or the needs of the home. But while the human machinery can be worked at various speeds and accommodated to various vocational needs its usefulness is closely limited by its liability to fatigue. And any efficiency development that has in mind only quantity and quality of material production or machine efficiency, and ignores the human element which necessarily controls, becomes the height of inefficiency. Large industrial organizations are beginning to understand this and much of their newer progress in organization and operation is planned with this in view. But this understanding must take place everywhere, in all industries particularly, before the maximum good will come of it. Progress in the development of human efficiency must be commensurate with the progress in industrial or mechanical development.

Inquiry into the human capabilities for work is intended to determine with what tools he can best work, during what hours he works best, when most fatigue is likely to occur, under what conditions he works best, etc. The Committee on Industrial Fatigue is now carrying on investigations in conjunction with the Public Health Service. In estimating fatigue of workers results are apt to be confused by the fact that voluntary effort may for a time increase the output beyond the real capacity,

while voluntary effort may reduce it below the normal capacity. In an ordinary muscle under stimulation there is a gradual rise in lifting power to a maximum and then a gradual fall. In the human organism as a whole, however, many conditions affect this curve to make it more intricate. Yet the more intricate a work and the more it requires coordination, the nearer this curve will be to that in the single muscle. After rest and food the curve of work is likely to reach a higher maximum than before it, both because of this fact and because of the practice, but the fatigue drop at the end of the day is usually much lower than that at the end of the half day because of the cumulative effect of the fatigue products. It would appear that the first effect of these findings would be to accommodate the most intricate and trying work to the period of maximum capacity and the less important work to the fatigue stages. However, nearly every occupation is defined by its own characteristic curve. The allotment of work must, therefore, be made accordingly. Yet no two days can show the same curve of work. When the daily curves are found to be uniform there must be a strong suspicion that the workers have voluntarily limited their speed and the amount of production. The curve of work would then not be a natural one but a voluntary one, and unless recognized as such would be confusing. Wherever a pronounced spurt is possible at one time, it shows that heretofore the maximum of natural capacity had never been reached.

It is the aim of investigators to determine what the limit of capacity is in certain occupations and under certain conditions, so that there will be neither an overtaxing nor an undertaxing of the human capacity. Unless the maximum capacity is determined there must be waste of time and energy, or destruction of vitality, as the case may be. It was found in Great Britain that the attempt to increase output by increasing the hours of labor and by overspeeding did not in fact result in an increase. In a great many instances the total output was less. Within limits it is difficult to determine the allowable number of working hours. But excessive working hours can always be counted upon to produce greater fatigue with ultimate loss in efficiency. It was demonstrated by the American Committee for the Study of Industrial Fatigue that in the last few hours of extra work there was practically no output. The hours of labor must be adjusted according to the fatigue curve and fatigue limits of the various occupations. The adjustment must likewise be made in accordance with the individual tendencies of the workers. There is the important factor of neuromuscular rhythm which enters into the working capacity of the individual and a group rhythm in the workers as a body. Disturbing elements in this group rhythm reduce the efficiency of the work. It is found that if those having the same rhythm are put together, and those of other rhythms and speeds weeded out of a rhythm group work pro-

ceeds with less fatigue and greater efficiency. When those whose rate of speed is the same are put together it eliminates the tendency to over-speeding of those who have not the same rate of speed. In this way neither the work nor the worker suffers. (Public Health Reports, Jan. 11, 1918).

In keeping with these principles the great war contracts let out could be carried out with the principles of industrial physiology and industrial hygiene clearly in view and enforced to the extent that the knowledge of these subjects is well established. Because of the vastness of the work there is presented a wonderful opportunity to study this subject more in detail, with expectations of substantial improvements to remain with us after the conflict.

RURAL HEALTH NEEDS.

MANY of the notions concerning the superior physical condition, health, and longevity of the rural inhabitant are disappearing under the influence of intensive investigation of rural conditions. The morbidity and the mortality of rural communities are higher than those of urban life. Indeed, these factors are in inverse proportion to the size of a community. Death rate is lowest in the largest communities and highest in the smallest. Whatever benefit there is obtained in the country by the sick or poorly developed city inhabitant is due in large part to the change in mode of living and to the fact that he brings to the advantages of open-air life the sanitary and health notions of the city, the need for which is especially impressed upon him because of his condition. Unless he can live properly and protect himself against the disadvantages of country life he is likely to be harmed rather than benefited. It is found that the general physical condition of the rural inhabitant is far below that of the city (Public Health Reports, Reprint No. 366). This is particularly true of children. The facts that rural communities do not receive the benefits of adequate health supervision and cannot have the advantages of the expert medical care of the city are probably the most important elements in this problem. The rural school child represents about 60 per cent. of the total school population and yet receives a minimum amount of medical supervision. The school medical inspection is but poorly developed in most States. The physical condition and the vital resistance of the school child in rural communities is much lowered by the presence of such endemic diseases as malaria, hookworm, pellagra, etc. Adverse school conditions with respect to light, heat, ventilation, and other facilities increase the defect incidence of these children and still further lowers their resistance to infection.

Only in the larger cities does the school curriculum include systematic physical exercise, so necessary to physical development. Measurements

of rural school children have shown almost uniformly that the rural child falls below that of the city. Weight deficiencies in both sexes vary from 2 to 8 per cent. Despite the fact that the country is the source of the food supply, the rural inhabitants do not receive the benefit of the best. That goes to the market. Carbohydrates seem to be the main food element. The rural child gets very little protein. Many of the carbohydrates contain little vitamine, whereas such foods as milk, eggs, meat, etc., contain much of the food vitamins, but they are comparatively expensive. On the other hand, much of the bad food balancing is due to ignorance of food values rather than to deficiencies in the supply. In the winter months in the northern climates rural inhabitants get very little into the open, and their diet, aside from vitamine-deficient carbohydrates, consists of preserved foods. Of course, very little fresh food is consumed.

The presence of so large a number of physical defects among the rural population is due mainly to the lack of facilities for their correction. The correction of visual defects, hearing, teeth, orthopedic conditions are all sadly needed in these communities. Communicable diseases are common and uncontrolled in most rural communities. The New York State Department of Health is recognizing these needs and is establishing sanitary supervisory districts throughout the State. The school systems are receiving attention. And where children need treatment the same is indicated. Propaganda work along health lines—the care of the teeth, food, air, etc., is carried out in each district. The establishment of a system of rural district nursing on an adequate scale would not only give rural inhabitants the benefit of scientific nursing during sickness, but would be a potent means of controlling and of keeping track of communicable diseases.

THE TREATMENT OF INFECTED WOUNDS.

THE subject of infected wounds and the treatment thereof has been discussed frequently and at considerable length during the past three and a half years, and no absolute consensus of opinion has been arrived at with regard to the most effective manner of dealing with them. It is assuredly agreed by all surgeons who have had experience in the war that an infected wound should be freely drained, and, with this end in view, excised and incised in the most thorough and extensive way whenever necessary. Free drainage is now acknowledged to be the most important part of the procedure, without which all other measures will be futile. As for the use of antiseptics, opinions diverge somewhat widely. There are those who can recognize no value whatever in them, while others, who are in the majority, hold that they have a definite place in the treatment of septic wounds.

Major G. W. Crile, in *Surgery, Gynecology and Obstetrics*, for April, 1918, puts the matter in a

nutshell when he says that no chemical antiseptic can command good results with bad surgery; good surgery commands good results without chemical antiseptics, but the best results are the sum of good surgery and the proper use of good antiseptics. In short, under the conditions of modern warfare, the antiseptic treatment of contaminated wounds is frequently indicated. According to Crile, if antiseptics are required, the choice at present would be between the Carrel-Dakin solution, "bipp" (a paste of bismuth, iodoform, and paraffin), dichloramine-T, and flavine. Going more closely into details, an open, fairly superficial wound, without inaccessible areas, does admirably with physiological saline solution, which, by the way, is, of course, not an antiseptic, Carrel-Dakin solution, bipp, or the electric light, perhaps best of all by the last named. A wound with deep injured areas will do well if treated by the Carrel-Dakin method or bipp. In the period of acute infection, if conditions permit, the best single treatment undoubtedly is by hot packs; in time of stress, bipp; in deep wounds, dependent drainage; in quiet times, Carrel-Dakin. When the wounded come in waves, and surgeons and nurses are swamped, incision and bipp give the best results to the greatest number per surgeon. But the paste must be spread on thinly, not applied in masses, and the wound should not be sutured, but should be lightly packed.

In the *International Journal of Surgery* for February, 1918, Mr. Rutherford Morison contributed a paper on the treatment of infected suppurating war wounds, in which he describes the composition of bipp and the correct mode of using it. Attention is especially drawn to the point that while the whole wound should be filled with paste, all excess should be removed, leaving only a thin covering over the wounded surface. A certain amount of prejudice is felt against bipp on account of the danger of poisoning from bismuth and iodoform. Morison says his own experience has taught that in the early days, when the preparation was used for filling wounds, with no regard to the quantity retained, occasionally symptoms of serious absorption followed. When, however, care is taken to have the paste made properly, and to remove all excess after rubbing the paste well into the wound surfaces, there is little or no fear of serious absorption. He holds that in the treatment of infected, suppurating wounds, bipp takes high rank, and that it is equal to the Carrel-Dakin method in some cases, and perhaps superior in other cases. It possesses the inestimable advantage, so far as war surgery is concerned, of not requiring the somewhat elaborate and careful technique which is essential to the success of the Carrel method.

MORBIDITY STATISTICS OF WAR INDUSTRIES.

ACCURATE morbidity statistics are essential if disease is to be effectually prevented. It is impossible to prevent or control disease if it is not known

where and under what conditions cases of disease are occurring. Drs. B. S. Warren and Edgar Sydenstricker, U. S. Public Health Service, in Public Health Reports, February, 1, 1918, state that morbidity statistics, as an index to a population's health, are regarded without question as one of the most needed instruments and one of the most desired goals of preventive medicine. Moreover, the matter is of supreme importance at the present time. Although it is necessary that labor should put forth every ounce of strength, it is mistaken policy to overexert to the point of fatigue. It has been definitely shown in Great Britain that the adequate recording of sickness is fundamentally necessary to intelligent steps for the prevention of lessened efficiency in war industries. In Great Britain the spur of necessity has brought about reforms as to the collection and tabulation of morbidity statistics that in time of peace would have taken years to achieve. Warren and Sydenstricker therefore think that this country should take a lesson from England and proceed forthwith to set its house in order in this respect.

They tentatively make the following suggestions:

- (1) Exposure, in years or in months, of the workers who should be classifiable according to sex, age, and occupation.
- (2) Cases of sickness, at least those causing disability, including (a) sex, age, and occupation of persons affected and (b) cause of sickness with time of onset, length of disability, and nature of termination.

The above are the minimum requirements for a maximum volume of data and it is believed that their collection is practicable within certain bounds for the following reasons: (1) A large number of industrial and transporting establishments are already in the habit of recording disabling cases of sickness, and a considerable number of the larger establishments employ industrial physicians and provide medical service. The tendency is unmistakably toward an extension of sick benefit funds and of medical supervision and service. (2) There is a very evident willingness on the part of many employers as well as on the part of many organizations of labor and associations for sick benefits to cooperate in every way possible with the public health agencies. The willingness was clearly manifested before the outbreak of the war and has been undoubtedly increased since the war began. (3) There already exists, therefore, a basis for an important beginning in the recording of morbidity. It is believed practicable to utilize the facilities that already are available, provided (a) that the recording of exposure and incidence be extended to all the employees of each plant, (b) that uniformity be established in the form of the medical certificate and in the records of age, sex, and occupation of the persons exposed and affected, (c) that regularity of reporting be effected, and (d) that there be a responsible central supervising, assembling, and publishing agency for the statistics recorded.

The cooperation of large establishments is necessary to make such a scheme a complete success. If

only, however, a few large establishments would cooperate with this end in view, there is little doubt that many would follow and that ere long the systematic collection and analysis of morbidity statistics not only for the "war industries" but for other industries as well would rapidly develop.

TWO HEALTH COMMISSIONERS.

DR. AMSTER, in refusing to be the tool of Mayor Hylan in his attempted disruption of the Health Department of New York City, is to be congratulated. His resignation does him honor, and reflects credit upon the profession of which he is a member. His faith in the good intentions of the Mayor must have been very strong, for it stood a good many severe bumps before being shaken; but at last it went, and then Dr. Amster did what any honorable man would of necessity do, and thereby preserved his self-respect and earned the commendation of his colleagues. The acceptance of the commissionership by Dr. Copeland is most puzzling. The new commissioner was literally—according to his own account—picked up in the street and plumped into the health officer's vacant chair. What is one to think of the Mayor who would take the first physician that crossed his path after Dr. Amster had resigned and put him in charge of the health of the city? Dr. Copeland happens to be a man of education and intelligence, who stands high in the community and in his profession, but suppose Mr. Hylan had met a man of the Old Doctor Grindle type! Dr. Copeland announces that the Mayor has promised him a free hand, and that if interfered with he will resign at once. Unless the Mayor is more alarmed than he affected to be when he told Dr. Amster he didn't "give a darn for those federal government letters," or unless Dr. Copeland likes his new job so well that he is willing to sacrifice something to keep it, we shall look for his resignation before the week is ended. We believe the Governor of the State has the power and the duty to remove a Mayor guilty of malfeasance, and we wonder if he will ever have occasion to do so.

ALOE AS A VULNERARY AND IN POISONED WOUNDS.

KNOWLEDGE of the therapeutic powers of humble remedies is always abandoned as soon as better and more available substitutes appear. Pugno of Geneva illustrates the universality of this law in a short contribution to the *Journal de médecine et de chirurgie pratiques* for March 25, in which he outlines some old and new local uses of powdered aloes. Galen acclaimed the drug as a vulnerary, and stated that it could close fistulae and was of especial value in ulceration about the genitals and anus. In the Middle Ages it had a reputation as a desiccant and stimulant of granulations, and it is so used even to-day in veterinary practice and among primitive peoples. In his visit to the Antilles, Laney saw the fresh juice used as a vulnerary. In seeking to verify these claims the author first tested the drug in the stings of wasps and mosquitos. On account of the great prevalence of the latter in the French Oriental army, a saturated solution of aloes in alcohol was tested with

extremely satisfactory results. The simple tincture naturally also proved of value. It was necessary, however, to rub these preparations into the skin as soon as the bite was received. Severe stings by bees, wasps, and hornets responded so promptly to this treatment that tincture of aloes should be kept on hand for such accidents. A further research into literature shows that the medieval "Baume du Commandeur," which contained aloes, was warmly recommended as a dressing for ulcers of all kinds, even chancres and cancers, and for venomous wounds, even those made by the mad dog. Thus far the author is unable to suggest any theory for such activities. He suggests a trial of aloes in snake bites.

DOUBLE SIMULTANEOUS EXTRAUTERINE PREGNANCY.

BILATERAL synchronous ectopic gestation is very rare. A dozen years ago not over seven cases were known in literature, and it is unlikely that this number has been much augmented. Gómez de Rosas of Havana has recently reported a personal case in the *Revista Medica Cubana* for February. The woman was a white multipara, age 34; previous pregnancies normal, not pregnant for 5 years, menses irregular during this interval. Some periods lasted 8 or 9 days, with much blood loss. In September last she missed a period, and had pain in the lower abdomen, with nausea. The medical attendant made a diagnosis of ruptured tubal pregnancy or pelvic hemocele. The author, called in consultation, verified the diagnosis, and the patient was laparotomized in a hospital. The abdomen contained much blood, which came from a rupture in the left tube. The latter contained the remains of a tubal abortion. The right tube, upon examination, was found the seat of a swelling, with thin wall, and was adherent to the ovary. Opened, it was found to contain blood and circumscribed villi. The embryos were not over two weeks old, and appeared to be of the same age. Both adnexæ were extirpated, drainage being through the wound. Bilateral tubal pregnancy is by no means rare, but perfectly synchronous cases are so infrequent that the most careful documentation is required to establish their genuineness. It is to be hoped that this case will be republished in greater detail and with illustrations, including microscopic sections; else, despite its apparent genuineness, it will probably be placed among questionable examples.

News of the Week.

The Assault on the New York City Health Department.—Public hearings have been held during the past week on the advisability of abolishing the Bureau of Public Health Education of the Department of Health. Many physicians prominent in public health work in the United States and Canada have written letters to Mayor Hylan protesting against this course and expressing the opinion that the work done by the bureau is an absolutely indispensable part of public health work. Among those who have protested against the disintegration of the present Health Department are Drs. William H.

Welch, President of the State Department of Health of Maryland; W. A. Evans, former Health Commissioner of Chicago; Charles J. Hastings of Toronto, Canada, President of the American Public Health Association; Peter H. Bryce, Chief Medical Officer, Department of the Interior, Ottawa, Canada; C.-E. A. Winslow, Professor of Public Health at the Yale University Medical School, and Charles V. Chapin, Superintendent of Health of Providence, R. I. Surgeon-General Gorgas in a letter to Mayor Hylan says: "The general tendency in large municipalities is to have men specially trained in sanitation and public health matters. The day has passed when inferior men can do the work and men skilled in sanitation and public health are necessary." Surgeon-General Rupert Blue telegraphed him that "In the larger centers and industrial communities health problems in their relation to industries have never constituted a more important consideration than in these days when increased production along many lines is absolutely essential. The conservation of health, not only among the fighting forces, but in the entire civil population as well, is a wartime problem of the greatest moment." In reply to these protests the mayor is reported as saying: "I don't give a darn for those Federal government letters, or from other people interested in public health education. As long as I am Mayor of the city of New York the Health Department will be run as I see fit." James E. McBride, President of the Municipal Civil Service Commission, has made public recommendations alleged to have been submitted by Dr. S. Josephine Baker which would reduce the cost of administration of the Bureau of Child Hygiene by \$105,000 a year. Dr. Baker published a statement subsequently declaring that a portion of her report had been suppressed and that she did not propose a plan whereby the work of the Bureau of Child Hygiene could be curtailed. Instead of recommending cuts, Dr. Baker said: "As far as I am personally or officially concerned I cannot consistently recommend that any lines of effort now carried on by the Bureau of Child Hygiene be abandoned. I feel that the present condition of the world and the insistence of the Government of this and other countries that child life must be conserved is a matter second in importance only to the actual fighting; this places us in a position where retrenchments which would tend to break down the standards safeguarding children would not be an economy, but a serious detriment to the welfare of the country." The Merchants' Association has written to Mayor Hylan asking him to refrain from making wholesale changes in the Health Department because it would disorganize machinery intimately affecting the health of the entire city. Dr. Amster has resigned as Commissioner, giving as his reason the intolerable interference of the Mayor with his work. Among other things the Mayor demanded the dismissal of Dr. Jacobi from the advisory council because his son-in-law did not support Mr. Hylan, and that of Dr. Goldwater on the ground that he was a "high-brow." Soon after Dr. Amster resigned the Mayor met Dr. R. S. Copeland, a homeopathic physician, on the street

and at once appointed him Health Commissioner of the city.

Hospital Closed.—Following a special conference of the State Board of Charities a recommendation was made that the Williamsburg Hospital, at Bedford and Third Streets, Williamsburg, be closed. This recommendation was prompted by the alleged dangerous condition of the antiquated hospital building. There were sixty-five patients in the institution which were transferred to other hospitals, most of them being taken to the Eastern District Hospital, with which the Williamsburg hospital was consolidated about a year ago.

Health Poster Competition for High School Students.—The Tuberculosis Committee of the Charity Organization Society of New York City, through the cooperation of the Art Department of the high schools and the Department of Health has asked each high school in the city to hold a poster competition, the object of which is to teach the public the most effective way of preventing the spread of pneumonia, tuberculosis, and other respiratory diseases. The best poster is to receive a prize of \$5 in gold. Other prize posters will receive recognition in the shape of medals.

National Association Changes Name.—The National Tuberculosis Association is to be the newly incorporated successor of the National Association for the Study and Prevention of Tuberculosis. Beginning with May 1 the new address of the Association will be 381 Fourth Avenue, New York City. The Fourteenth Annual Meeting of the National Tuberculosis Association will be held in Boston, Mass., on June 6, 7, and 8, 1918, under the presidency of Dr. Charles L. Minor of Asheville, N. C.

The American Association for Promoting Hygiene and Public Baths, of which Dr. Simon Baruch of New York is president, will hold its annual meeting at the City Hall, Newark, N. J., on May 14 and 15. The president's address will be delivered at the Treat Hotel, where a reception will be given by the City of Newark to the members of the Association.

American Proctologic Society.—Dr. Collier F. Martin, secretary, writes that, owing to conditions brought about by the present war, the American Proctologic Society has decided not to hold its meeting in Chicago on June 10 and 11. The society will probably not meet again until after the war is over.

Medical Society Elections.—THE LOUISIANA STATE MEDICAL ASSOCIATION, which met in New Orleans on April 16 and 17, elected the following officers for the ensuing year: *President*, Dr. W. H. Knolle of New Orleans; *First Vice-President*, Dr. G. M. C. Stafford of Alexandria; *Second Vice-President*, Dr. Amedee Granger of New Orleans; *Third Vice-President*, Dr. A. E. Fossier of New Orleans; *Secretary and Treasurer*, Dr. Paul G. Talbot of New Orleans.

THE TOLLAND COUNTY, CONN., MEDICAL ASSOCIATION, at its annual meeting in Rockville, on April 16, elected the following officers: *President*, Dr. William L. Higgins of Coventry; *Vice-President*, Dr. A. L. Hurd of Somers; *Secretary and Treasurer*, Dr. F. W. Walsh of Rockville; *Councilor*, Dr. Thomas F. Rockwell of Rockville.

The Tuberculosis Death Rate in American

Cities.—Chicago stands second in the list of the ten principal cities of the United States having the lowest number of deaths from tuberculosis in 1917, according to a bulletin recently issued by the Health Department of that city. The first in the list is Pittsburgh, with 147.05 per 100,000 population, as compared to Chicago's 148.67 per 100,000. Other cities in the list are: Detroit, 160.06; Boston, 170.87; Cleveland, 174.7; New York, 176.75; Philadelphia, 194.81; Los Angeles, 199.42; St. Louis, 202.95, and Baltimore, 236.61.

Opposition to the Narcotic Bill.—At a hearing last week on the new narcotic bill a number of physicians were present and voiced their objections to the measure. The bill has a number of bad features and it is most desirable that it should not be allowed by the Governor to become a law.

Dispensary Physicians Wanted.—The Public Health Committee of the New York Academy of Medicine reports that the withdrawal of physicians from civil life into military service has created a shortage of men in the dispensaries of this city, resulting in a curtailment of the services of these institutions. When subsequent calls are made upon the medical profession the dispensary service will be still further decreased unless steps are taken to provide for substitutes in this important branch of organized medicine. The committee suggests that an appeal be issued to the physicians who have had dispensary experience but who, at present, have no hospital or dispensary affiliations and who, because of age or for other reasons, are not available for military service, to volunteer for dispensary duties as their contribution to the war.

Annual Report of Beth Israel Hospital.—The twenty-eighth annual meeting of the Beth Israel Hospital Association was held on April 22, when it was announced that a part of the hospital facilities are being used by the Government. More than 116,000 patients were treated last year in the hospital and dispensary. The building fund for the proposed new hospital for which a site has been purchased on Livingston Place has reached \$207,976. A number of the Beth Israel Hospital physicians are in the Government service. Dr. S. J. Kopezky, Dr. Charles Goodman, and Dr. L. B. Meyer are now serving in France.

Plan to Enlarge Volunteer Hospital.—The unusual demands made on the Volunteer Hospital, New York, because the Hudson Street Hospital in the same part of Manhattan has withdrawn its ambulance service and is caring for soldiers and sailors, has decided the trustees of the Volunteer Hospital to add three stories and a solarium to the hospital building. Work will be begun this summer despite the fact that funds have not yet been collected.

Obituary Notes.—Dr. WILLIAM ALEXANDER EWING died suddenly at his home in New York, on April 20, aged 75 years. He was born in Michigan Aug. 20, 1842, and was a graduate of Bellevue Hospital Medical College in 1869. He was a member of the Medical Societies of the State and County of New York, the American Medical Association, and the New York Academy of Medicine. Dr. Ewing was Sanitary Superintendent of the New York City Health Department from 1887 to 1893.

Dr. EDWIN P. RUCKER of Richmond, Va., died of complications following a fracture of his hip several months ago, on April 9, aged 65 years. He was graduated from the Louisville Medical College, Louisville, Ky., in 1877. He was city physician of South Richmond for a number of years and prior to his injury served as medical examiner on a local board.

Dr. AUGUSTUS C. WALKER, formerly of Greenfield, Mass., died at the home of his son in Cambridge, on April 5, aged 84 years. He was a graduate of Dartmouth Medical College, in 1862, served as a surgeon in the Civil War, as Vice-president of the Massachusetts Medical Society, and was for thirty years jail physician of Franklin County.

Dr. CHARLES BOWMAN STURTEVANT of Manchester, N. H., a graduate of Dartmouth Medical College, in 1874, died of arteriosclerosis, on April 12, aged 68 years. He was a collector of rare books and had assembled one of the finest libraries in the State of New Hampshire.

Dr. JAMES THURSTON MARTIN, a graduate of the University of Michigan, in 1883, died at his home in Sacramento, Cal., on March 30, aged 69 years.

Dr. VANDYCK M'KELVEY, a City Police Surgeon of Denver, Col., died of pneumonia, on April 4, aged 31 years. He was a graduate of the Denver University Medical School, in 1910.

Dr. ISADOR SAMUEL LEOPOLD BERMAN died of angina pectoris at his home in Washington, D. C., on April 5, aged 73 years. He was a graduate of the University of Wurzburg, in 1878. He enlisted in the American Army in 1865 and served for three years in the Twelfth Infantry in the Indian campaigns.

Dr. EZRA PRAY, a practitioner of Rochester, N. H., for fifty years, died on April 4, aged 86 years. He served as a surgeon in the Navy during the Civil War.

Dr. T. J. DEEM, a graduate of the Columbus Medical College, Columbus, Ohio, died suddenly of heart disease, on April 3, aged 50 years.

Dr. WILLIAM ARTHUR MOORE died at his home in Binghamton, N. Y., on April 26, aged 50 years. He was graduated from the College of Physicians and Surgeons, New York, in 1885. In 1887 he was appointed surgeon of the Moore-Overton Hospital at Binghamton. He was surgeon for the Delaware, Lackawanna & Western Railroad, the Binghamton Traction Company, and the Delaware & Hudson Railroad. He was a Fellow of the American College of Surgeons and of the American Medical Association and a member of the American Academy of Medicine.

Dr. DANIEL U. WADSWORTH of Tulsa, Okla., died of Bright's disease at his home, on April 13, aged 44 years. He was a graduate of the University of the South Medical Department, Sewanee, Tenn., in 1898, and for some years chief health officer of Tulsa.

Dr. JULIUS A. WINTER, a graduate of the Long Island College Hospital, in 1888, and a physician of the Panama Steamship Company, died at his home in Brooklyn, N. Y., on April 23.

Dr. WILLARD A. LONG, a graduate of Cooper Medical College, San Francisco, in 1882, died at his home in Lewistown, Mont., on April 11, aged 68 years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

CONVALESCENT HOMES FOR NEURASTHENIC CASES—
THE CENTRAL MIDWIVES' BOARD—SMALLPOX IN
LONDON—INCREASE OF JUVENILE CRIME—DRIED
MILK.

LONDON, April 4, 1918.

THE Minister of Pensions, Mr. John Hodge, is finding himself in considerable opposition to the best medical opinions in the attitude which he has taken up with regard to the Homes of Recovery which are being instituted for neurasthenic and shell shock cases. Mr. Hodge has official medical opinion to rely upon, but either this opinion is not as well informed as it should be or he is preferring to listen to the popular view. The popular view is that the neurasthenic patient requires cheering up by intermixture with other patients, and also that as his condition can often be attributed to what is vaguely labeled "shellshock," it is particularly important that the institution into which he is received should be outside the area of possible or probable air raids. Of course, no patients ought to be placed within a danger zone if it is possible to accommodate them outside. But there has obviously been great exaggeration of the ill effects displayed by the shell-shocked patients after subjection to an air raid. So far from being more agitated than any other members of the population, when judiciously handled they bear the ordeal with perfect calm. A limited number of neurasthenic cases may improve when mixed up with a general hospital population. Some also may only require ordinary treatment in a convalescent home, or can be boarded out as country visitors, or may be added to the population of village centers, but as a rule those suffering from functional nervous disorders require special treatment which can only be given in special institutions. The scattering of neurasthenic patients in various directions on the chance that a proportion of them may get better is a policy directly opposed to that intensive treatment of disease which has proved in every department of surgery and medicine to be the really efficient way of dealing with the pathological results of the war. The War Office has taken a better line than Mr. Hodge, in the opinion of real neurologists, when the military authorities issued a recommendation that all soldiers suffering from a functional nervous disorder should be segregated for treatment into special hospitals immediately on their home arrival, and that such hospitals should be staffed by medical officers interested in, and specially trained for, the work. There is a strong feeling in medical circles that the Ministry of Pensions should be provided with some sort of advisory medical council so that the minister might be kept in better touch with scientific medicine. Undoubtedly it is a popular belief that it does the neurasthenic patient good to be cheered up by the merry convalescents from minor surgical injuries, but official support of this belief may produce feelings of considerable anxiety among the relatives of neurasthenic patients who are receiving the proper treatment of intelligent segregation and individual scientific attention.

This board stands in similar relation to quali-

fied midwives to that of the General Medical Council in relation to qualified medical men, that is to say, it standardizes the education of midwives who practise on a legal register under the Midwives Act, and it supervises their professional conduct, removing from that register those who infringe the instructions of the Act, or whose conduct in other ways is dangerous to the public or degrading to their class. The chairman of the board is Sir Francis Champneys, formerly obstetric physician to St. George's Hospital and St. Bartholomew's Hospital, and now consulting obstetrician to the latter institution; and the work of the board is far from light. When the Midwives' Act came into being a certain number of the old unlicensed midwives were placed upon the statutory roll in recognition of past practice, their vested interests being supported by testimonials from medical men who had worked with them over a period of years. Many of these women, and some of the midwives who have been placed on the roll after due examination, are constantly proving themselves untrustworthy and being struck off the register, a position which is rendered awkward by the fact that the salaries attached to midwifery practice for a midwife under the Act are not tempting. A shortage of midwives is therefore expected.

A rather widespread epidemic of smallpox invaded six of the metropolitan divisions of London during February and March, not being recognized until the latter month. Owing to the long period before the presence of the disease was detected in the community it seems fortunate that the number of cases, at any rate up till the early part of April, should have been so small. The six metropolitan boroughs invaded, namely, East Ham, Stepney, Hackney, Bethnal Green, Poplar, Deptford, and Lambeth, are five of them contiguous, but Deptford and Lambeth are on the south side of the River Thames, and Lambeth, though in commercial communication with Deptford, does not actually touch it. The population in all these boroughs, which lie along the shores of the Thames and its tributary, the River Lea, is industrial, and especially where the boroughs border on the docks are the chosen homes of the alien population. The sanitary condition of many of these aliens is necessarily very rudimentary. They arrived from anywhere, knowing nothing, and as far as possible lead a nomad life in their new environment. The history of the outbreak is somewhat interesting, while the origin remains unknown. The epidemic first appeared in Stepney, where on February 13 a child died of pneumonia, whose body, it was later learned, presented the appearance of an attack of smallpox. By the beginning of March several cases were notified and by the beginning of April the distribution of the disease in London was, Stepney, twenty-two cases; Hackney, three cases; one each in Poplar, Deptford, and Lambeth, and three in East Ham. The particular attention of the authorities has been directed to the conditions of the shelters provided for the congregation of populations during air-raids. The densely crowded situations of the docks have on the whole been attacked from the air more frequently than other parts of London, and their populations, the aliens in particular, are ready to seek shelter on the

slightest provocation. The authorities therefore, besides taking all the necessary steps to ascertain the sources of infection and to vaccinate the contacts, are paying particular attention to the sanitary conditions of air-raid shelters. There has been no epidemic of smallpox in London of anything like a serious nature for fifteen or sixteen years, although some seven years ago there was a small outbreak in the west of London. The unvaccinated condition of a large proportion of the child population is necessarily causing anxiety.

Terrific figures pointing to the increase of juvenile crime have reached this country from Germany. The Hessian Minister of Justice has confessed in the Diet of Darmstadt that the effect upon German morality of the war is increased by the outburst of crime among the quite young. Sentences have been passed in Hesse upon young criminals in the following comparative numbers: 285 in 1915; 347 in 1916, and 468 in 1917, the total population of Darmstadt being under 90,000. The total convictions of children for minor offences was 1,145 in 1915; 2,895 in 1916, and 4,012 in 1917. Unfortunately England cannot say Pharasaiically, "Thank God, we are not as the Germans," for with the outbreak of war there was a distinct increase of juvenile ruffianism, owing to the absence of male parents at the war, the occupation of many female parents in auxiliary war work, the relaxation of school discipline through shortage of teachers, and the opportunity for mischief given by the darkened streets. Gloomy psychologists, nearly always medical men, have prophesied a serious sequel to this condition of things, but the ready return to the normal which has followed everywhere upon intelligent punishment puts their forebodings to rout.

From a medical point of view milk has become a very valuable commodity to our population. I have referred recently to the careful manner in which it has been rationed with a special eye to the needs of pregnant women, nursing mothers and infants, and owing to these timely measures and the possibility of obtaining by medical certificates extra milk for certain categories of invalids, no grave hardships have been endured by the weaker sections of the community; but the man power of the country is so closely engaged in the conduct of the war that the transport of milk in its natural form and the storage and distribution as a fluid present real difficulty. In recognition of this fact the local Government Board have issued a report made to them by one of their most experienced officers, Dr. F. J. H. Coutts, on the use of dried milk, with especial reference to infant feeding. Dr. Coutts divides dried milk, as put on sale in England and Wales, into four classes in the following category: (1) Full cream; (2) Three-quarter cream; (3) Half cream; and (4) skim milk, adding that it is most important, despite these varieties of choice, that infants should, whenever possible, be fed solely on their mother's milk. When, however, this is impossible, says the report, there is good evidence that cow's milk in dried form will prove a satisfactory substitute, while if properly done the cream can be thus retained. Dried milk has already been largely employed in connection with infant welfare centers in England, particularly in Leicester and Sheffield, and experi-

ence in these towns, and in other centers, shows that a large proportion of babies can take dried milk very well, and that on this food they thrive and develop in a very satisfactory manner, digesting the "reconstituted" fluid well, and even vomiting less under its use than when fed on ordinary cow's milk. The convenience of using dried milk, when its position as a good food is safely established, is obvious. When carefully prepared from good fresh milk it will keep in a dry place for months. On mixing with warm water in the proportion of one part by weight of the dry powder to seven parts by weight of water a liquid is obtained corresponding in composition to ordinary milk in every physiological way, as far as tests can show, and then whether the powder is obtained by spraying fresh milk, after partial condensation, into heated air, or by the older process of passing the liquid over cylinders heated internally by steam. The former is the preferable technique. The difficulties surmounted by the use of dried milk are enormous, for seven-eighths of the weight for carriage is abolished, which, the perishable fluid being removed, storage, within reasonable limits, becomes easy. Dr. Coutts' report will lead to a great use of dried milk in infant welfare centers and elsewhere.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

OUR SACRED DEAD—NEW ALLIED MEDICAL LIBRARY—RESEARCH WORK.

PARIS, March 11, 1918

DAWN lifted on No Man's Land somewhere in France. From the observation post in a front-line trench it was reported that the bodies of two American soldiers were lying between the German and the British lines. A detachment of engineers had been in action for the first time a few days previous. For days they lay there. English soldiers and Germans lay on the same field. It was impossible to reach them. The Hun's shells were still ploughing up great furrows of earth and the bullets from his small guns made it unwise to attempt to recover the bodies. Each morning as the light of day came the observers reported that the bodies were still there.

Then one night in the darkness a party of Tommies left the trenches. They carried spades instead of guns. It was a burial party and was in charge of a chaplain. When the following morning came the bodies of the two Americans were gone. A nearby shell hole had been filled up, and on the top of it two white crosses marked the graves of the first Americans who had been buried in No Man's Land, where they had fallen fighting shoulder to shoulder with their British cousins, for their convictions and their country's honor.

The military medical and surgical division of the American Red Cross has taken over the Rheinhardt Galleries, 12 place Vendôme, and has converted them into a library, study-rooms, and reception hall for physicians and surgeons of all the Allied Armies. These new quarters were donated to the American Red Cross by Mr. Rheinhardt. One of the principal features will be a register which will enable all of those visiting to get in touch with

others of their profession whom they are desirous of meeting. The library will be equipped with some 1500 medical volumes, and all the magazines devoted to matters of interest to the medical profession will be on file.

Beginning on Friday, February 15, the Research Society of the American Red Cross will begin its monthly meetings in the new quarters. At these meetings some phase of war conditions is debated. The subject of the next discussion will be meningitis.

Major Alexander Lambert, M.O.R.C., U. S. A., director of the military medical and surgical division of the American Red Cross and chairman of the medical advisory committee of the department of military affairs, together with his staff, has made arrangements for the occupation of the apartment, which now is completely furnished. The medical division will have charge of the rooms.

A prominent medical official of the American Red Cross stated that the Allied medical profession has generously put at the disposal of the American Army the results of its three years' study of the war conditions and surgery. The treatment of wounds and surgery in general have very much altered during the last two years.

Research work is being conducted by American doctors in conjunction with British colleagues on the English front, where they are studying the cause and effects of trench fever, which affects from eight to ten per cent. of the Army. Although this sickness is not fatal, it renders the men useless from a military point of view, and if an antidote can be found to prevent it there will be a very great saving of man power.

It is hoped that the new apartments taken over by the American Red Cross will be a center for the medical profession of all the Allied armies, and that it will give its guests an opportunity to exchange views and discuss medical questions with one another.

146, AVENUE DES CHAMPS-ÉLYSÉES

Progress of Medical Science.

New York Medical Journal.

April 13, 1918.

1. Hemorrhage of the Nonpregnant Uterus. Frank C. Hammond.
2. Infection and Resistance. J. Wheeler Smith.
3. Ether Oil Colonic Anesthesia. Walter Lathrop.
4. Paraffin in the Ear and Nose. Alfred Kahn.
5. Surgical Prognosis in Gallbladder Disease. E. McD. Stanton.
6. The Tonsil Problem in Adults and Children. Joseph Friedman.
7. Sex in Life. Joseph H. Toomey.

5. **Surgical Prognosis in Gallbladder Disease.**—E. McD. Stanton has made a special study of the end results in 100 consecutive operations performed because of symptoms referable to the biliary tract. In the series the average time that has elapsed since the operation is three years and eleven months. At the time of operation, gallstones were present in seventy-two patients. Of the remaining twenty-eight, three had cancer involving the biliary tract; one had a benign obstruction of the common duct, and twenty-three were cases of cholecystitis. Three deaths occurred in the series. In regard to the operative mortality in gallbladder surgery, Stanton points out that though Mayo reports an average mortality of 2.75 in 4000 operations, 1051 operations in thirty representative American hospitals during 1908-09 resulted in eighty-seven deaths, or 8.2 per cent.; and the mortality in 131 operations

performed in the Ellis Hospital previous to Jan. 1, 1916, was 8.4 per cent. Mortality rates of 8 per cent. he considers too high, and states that they are due either to poor technique or to bad judgment on the part of the surgeon. The results obtained in this series of cases, together with those published from other sources, have led Stanton to conclude: (1) Provided a low operative mortality can be assumed, the operative treatment of gallstone disease is one of the most satisfactory branches of surgery. (2) There is a decided difference between the results obtained in gallstone cases and in cases of simple cholecystitis without stones, so that the results for the two classes of cases should always be tabulated separately. (3) In gallstone cases if, as a result of the operation, all obstructions within the biliary tract are removed, cure is almost certain to result. Overlooked stones are probably the most important single cause of uncured patients. (4) Cholecystectomy may have certain advantages over cholecystostomy, but cholecystectomy of itself does not protect against the development of common duct stones or obstructions, and in the series here reported a recurrence of typical biliary colics beginning a year or more after the operation has been more frequent after cholecystectomy than after cholecystostomy. (5) In gallstone cases the difference in the end results between cholecystostomy and cholecystectomy is never great enough to warrant attempting a dangerous cholecystectomy if a safe cholecystostomy can be performed. (6) In cholecystitis without stones simple drainage of the gallbladder does not give better results than could probably be secured by medical means. (7) A certain proportion of patients presenting gallbladder symptoms without the presence of stones are cured by cholecystectomy, but disappointments in this field of gallbladder surgery can only be avoided by a very careful selection of cases based on a thorough knowledge of the relation of symptoms and pathology in gallbladder disease.

Journal of American Medical Association.

April 20, 1918.

1. A Blood Sugar Tolerance Test. N. W. Janney and V. I. Isaacson.
2. The Transplantation of Bone. W. E. Gallie and D. E. Robertson.
3. An Occasional Type of Loud Systolic Murmur in Cardio-sclerosis. Selian Neuhoof.
4. Vaccination Against Experimental Poliomyelitis: Preliminary Note. H. L. Abramson.
5. The Value of Roentgen Rays and Benzene in the Treatment of Polycythemia Vera. Samuel H. Hurwitz and Ernest H. Falconer.
6. Pneumonia at a Base Hospital. Rufus Cole and W. G. MacCallum.
7. A Method of Facilitating the Serum Diagnosis of Syphilis Under War Conditions. Hideyo Noguchi.

5. **The Value of Roentgen Rays and Benzene in the Treatment of Polycythemia Vera.**—Samuel H. Hurwitz and Ernest H. Falconer point out that the treatment of polycythemia associated with splenomegaly has not been entirely successful. They review the various methods employed and show that the results obtained by the use of the roentgen rays alone have been contradictory. They have found, however, that the combined use of benzene and roentgen rays has been of benefit, and they give the report of a case which presented the classical signs and symptoms of polycythemia vera, stating that although more than a year has elapsed since any form of treatment was given, the patient's blood still shows a normal number of red corpuscles and a normal hemoglobin percentage, and that her health continues excellent. This patient only received 44 grams of benzene within a period of a month, after which the administration of the drug was discontinued on account of nausea, gastric discomfort, and headaches. The roentgen ray treatments were continued for about two months longer. Considerable reduction in the red count followed the use of the benzene alone, but it was only after the seventh roentgen ray treatment that the erythrocytes began to approach the normal level. Commenting upon the results obtained in this case, these authors refer to the fact that it has been shown by experimental and clinical observations that various drugs and radioactive substances exert a selective action on the tissues which give origin to the formed elements of the blood, and that the leucopoietic

tissues are less resistant to their destructive action than are tissues concerned with the formation of erythrocytes. Roentgen rays exert a selective action on the lymphocytes, whereas benzene acts destructively on the white cells and more especially on the nongranular elements, and later causes a diminution in the number of erythrocytes. This drug, however, in order to effect any striking anemia, must be given in large doses and over a long period. It is because of this essential lymphotoxic action that the roentgen rays alone have not proved to be of great value in the treatment of polycythemia. Benzene, on the other hand, has yielded some brilliant results, but it must be remembered that the prolonged ingestion of large doses of the drug may be followed by severe gastrointestinal disturbance and a marked destruction of the circulatory leucocytes. The treatment given in the case reported was instituted in the hope of testing the value of smaller amounts of benzene combined with the roentgen rays, and the good effects of the treatment may be attributed either to the joint action of both measures or to the cumulative action of the benzene itself. It is significant, however, that previous observers did not succeed in appreciably reducing the red count with the same amount of benzene. The authors, therefore, attributed the success in the case reported to the combined action of these agents, but state that the manner in which the roentgen rays may have served as an adjuvant to benzene therapy is not clear. They suggest that these rays may act in a more destructive manner on erythropoietic tissues, which have been rendered less resistant beforehand by the toxic action of benzene.

The Lancet.

March 30, 1918.

1. Hunterian Lecture (Abstract of) on Non-Union of War Fractures of the Mandible. Delivered before the Royal College of Surgeons of England on Feb. 8, 1918. Percival P. Cole.
2. On Bone Grafting in Gunshot Injuries of the Mandible. Captain Harry Platt, George G. Campion, and Barron J. Rodway.
3. Unilateral Hypertrophy of Mandible. Captain William Edmond.
4. Electro-Cardiographic Depression Produced by Digitalis. I. Harris.
5. A Preliminary Note on the Trophic Disturbances in Gunshot Injuries of Peripheral Nerves. John S. B. Stopford.
6. A Plea for Universal Service. Edred M. Carner.

5. A Preliminary Note on the Trophic Disturbances in Gunshot Injuries of Peripheral Nerves.—John S. B. Stopford, in a report to the Medical Research Committee, points out that the vasomotor, secretory, and trophic disturbances encountered in the study of injuries of the peripheral nerves are very diverse and extremely difficult to understand and that much confusion and delay has been caused by attributing their origin to concomitant vascular implication. He has recently paid particular attention to the condition of the blood vessels and associated state of the skin, muscles, joints, and bones in the field of distribution of all nerve injuries, the points of special interest being the rosy red color of the skin, increased surface temperature, tumefaction, and fairly frequent hyperhidrosis; and, later, glossy skin, trophic sores, and decalcification of the phalanges and metacarpal or metatarsal bones. Deformities in most cases are produced by fibrous retraction and consequent shortening of the muscles, and sometimes by arthritic changes which resemble rheumatoid arthritis, in which nervous factors are of the greatest importance. In a few very late cases Stopford has found gangrenous patches on the sole of the foot or affecting the toes; and although this strongly suggested arterial obstruction, there was no evidence of an arterial lesion at the site of the wound. In all cases there was marked contracture of some or all the muscles supplied by the injured nerve with extreme limitation of passive movement. Examination of a leg amputated from a young man of twenty-three, who had sustained a gunshot wound of the left thigh eighteen months previously, produced evidence of endarteritis localized to the distal part of the limb and increasing in severity toward the periphery. In the absence of syphilitic (the Wassermann test was negative) or other infection, or indication of any local source of inflammatory implication, or direct involvement of the blood vessels, the author

assumes that the vascular changes were secondary to the peripheral nerve lesion, as was suggested by cases which had previously come under his notice. He points out also that the anatomical researches of Todd have shown that the vessels of the limbs are supplied directly from the various nerve trunks and that the nerve supplying any muscular or skin area also supplies the blood vessels of that area. Furthermore, endarteritis has been found in peripheral neuritis and has been experimentally produced by operation upon peripheral nerves in rabbits and dogs. The appearance of gangrene and other features in the late stages of some of Stopford's patients strongly suggested arterial obstruction and the constant fibrous contracture of muscles showed a more serious condition than was to be expected from a simple nerve injury. He emphasizes the point, however, that this contracture was only found to occur in the muscles whose nerve supply had been affected, as was indicated in the case of a patient who received a gunshot wound of the left forearm about the level of the lower limit of antecubital fossa, the only muscle showing contracture being the flexor sublimis digitorum, which was paralyzed. There seems little doubt, therefore, that the muscular contracture is due to ischemia, which is secondary to vascular changes caused by the nerve injury. It is probable also that decalcification of bone may arise from the same cause. Stopford concludes that there is strong reason to suppose that irritative nerve lesions can produce changes in the walls of the arteries supplied by the affected nerves, which changes seriously reduce the caliber of the vessel and diminish the blood supply to the muscles, bones, joints, and skin. He adds: "The practical point of great importance at the present moment is the early relief of the irritation. In this way the arterial changes which produce such serious complications may be prevented."

British Medical Journal.

March 30, 1918.

1. Harveian Lecture on the Functional Anatomy of the Heart. Arthur Keith.
2. The Tolerance of Physical Exertion as Shown by Soldiers Suffering from So-called "Irritable Heart." Thomas Lewis.
3. Notes on Rheumatoid Arthritis. Ernest A. Dent.
4. An Essential Principle in the Treatment of Gas Gangrene. Colonel H. M. W. Gray.
5. A Case of Pyemia Treated with Intravenous Injections of Eusol. Robert Aitken.
6. Treatment of Psoriasis in the Army. Captain H. W. Barber.
7. Electrical Treatment of Muscles in "Trench Feet." Fleet Surgeon G. Murray Leveik.

2. The Tolerance of Physical Exertion as Shown by Soldiers Suffering from So-called "Irritable Heart."—Thomas Lewis contends that the surest means of gauging capacity for physical endurance is to test the men upon drill, the highest grades of which should approach in their severity the tasks which will be set to these men when they return to their depots. He says the test of capacity for work should be the observed reaction to work. This system has been adopted in a large number of military hospitals both in England and abroad. The drills are termed B 15, C 15, BC30, C 30, and D 30, the letter indicating the stiffness of the exercises and the number the duration of the drill in minutes. D 30, for instance, includes many of the stiffest exercises or the army exercise book, and entails thirty minutes' hard work. These exercises are supplemented by marches and outdoor games. Patients on fifteen-minute drills are considered unfit to leave the hospital except under escort, whereas afternoon passes are given freely to men on thirty-minute drill, a rule which stimulates the men to accomplish the thirty-minute drills. Each man is examined once or twice weekly immediately after exercise. The chief complaints of the men as they come from drill are breathlessness, precordial pain, palpitation, giddiness, and fatigue. Objective evidence of symptoms is insisted upon. A changing symptomatology is to be distrusted. The tolerance of exercise must be judged by physical signs and not by symptoms, and the medical officer must always be on guard to detect efforts to exaggerate the signs of distress; on the other hand he must use discrimination in the case of the man who refuses to

complain. He is also warned not to place particular emphasis on any one symptom, as this has been known to lead to an epidemic of that symptom in the service. It has been found that the men work better and more uniformly when left to the drill instructor, and the constant supervision of drill by medical officers has been abandoned. In judging the toleration of prescribed exercise, the *facial expression* must be carefully observed; rapid breathing by itself is scarcely sufficient evidence. In such cases the accessory muscles are called into play, the *alae nasi* are expanded or active, the mouth slightly open, the eyebrows drawn together, and the breathing audible; a slight but distinct duski-ness may develop under or around the eyes, and pallor of the whole face is not unusual. In some cases this altered facial expression is maintained while at rest. When *precordial pain* is complained of after exercise, the chest should be stripped and the hands of the examiner placed outspread symmetrically on the axillary and submammary regions and pressure exerted as though to steady the chest or to bring the patient to a more convenient position. This simple action may be sufficient to disclose hypersensitiveness; in some patients, indeed, the slightest pressure on the left precordial region and a wide surrounding area is resented. In others it was necessary to slip the hands higher, bringing the thumbs over the borders of the pectoral muscles and pressing again, or to proceed further and while *interrogating the patient*, to grasp the pectoral folds with increasing firmness between thumbs or fingers. Where the muscles are sensitive on the left side the patient winces, the left shoulder is depressed, the facial expression alters, or the reply is momentarily interrupted or actually broken off by a movement or expression of protest. When no hypersensitiveness of the left chest wall is detectable after exercise, the plaint of pain may usually be neglected. In extreme cases hyperaesthesia is found beyond the chest area and exists in the skin of the upper arm; not infrequently it also involves the tendons of the sterno-mas-toid muscles. Tenderness of the anterior border of the trapezius muscle suggests a closer examination for signs of early tuberculosis. Patients should not be asked, Is this or that region sensitive? A complaint of palpitation is to be neglected as such, but is serviceable as a guide to persistent or excessive tachycardia. The usual rate of the heart's action while a patient is up and about, and especially after set test exercises, is of much importance. *Giddiness* is a common complaint, but as a prognostic sign has little value. *Fainting* may occur infrequently. The chief form of attack, and one which may always be regarded as genuine, is that accompanied by a feeble and slow heart action (30-50). It may be preceded by a short interval of giddiness, by a sense of weakness or unsteadiness. Consciousness is lost, and the fall is sudden, but rarely heavy. Pallor and sweating are present. Involuntary movements are slight, and usually confined to the face and arms; a general rigidity may be developed; the tongue is not bitten, neither is the urine passed. Nausea or vomiting may be present. The attack lasts from a few seconds to a few minutes, and is followed by lassitude and headache. A history of earlier attacks is common; these are associated usually with emotion (sight of blood, etc.), long standing at attention or the cessation of sudden effort; they do not occur in recumbency. Recovery is always complete, and an attack should not break the routine of drill for more than forty-eight hours. Attacks which are inconsistent with this picture are to be viewed with suspicion unless they may be ascribed to epilepsy. A complaint of *fatigue* or *exhaustion* is rarely unaccompanied by other complaints, and may be disregarded unless often repeated and accompanied by signs, such as pallor, or by uncontrollable tremor of lips or limbs, or by signs of breathlessness, as the grade of exercise is raised. Stiffness of the limbs or trunk muscles, accompanied by tenderness, is experienced by some unpromising cases to an unusual degree as an after-effect of short exercise. Pain in the axillary region, back, or limbs is usually related to a particular action during drill, and as a general rule does not endure.

4. An Essential Principle in the Treatment of Gas Gangrene.—Colonel H. M. W. Gray urges the recognition and application of the principle, which he believes

is essential for the successful prevention and eradication of gas gangrene in war wounds, that whether one undertakes preventive, pre-inflammatory operation, or curative operation after the gangrene has developed, success and safety are assured only when the wounded parts are excised until *definite* bleeding of the cut surface is seen. The bleeding must be definite; it need not be free. He points out that the causative bacilli of gas gangrene will not develop in tissues which are provided with a vigorous circulation and that they thrive best when the circulation is entirely stopped. He states: In pre-inflammatory operations the use of a tourniquet during operation may be permissible; it is not advisable unless the patient is exsanguinate. In cases where gangrene is already well marked it should not be used. Care must be taken that in excising parts at the later stages of the operation the blood supply of tissues left behind at an earlier part of the operation is not interfered with; therefore, as a rule, proximal parts should be excised before distal parts. It is usually easy to decide, when this principle is kept in view, how much should be excised—whether only part of a muscle, the whole muscle, a group of muscles, or the limb.

Berliner klinische Wochenschrift.

February 4, 1918.

Plastic Survey of the Face in Wounds of Warfare.—F. Karewski contributes a paper with illustrations and detailed case-reports on this interesting subject. Besides the personal initiative which should be adapted to each particular case, Karewski offers some general principles, namely, not to hesitate to wait for the end of the infectious or necrotic process to take place before undertaking a plastic operation. He points out rightly that it is better to "lose time" than to assume the risks of a complete failure, which would only make matters worse. The plan of the operation can only be made after excision of the cicatrices and mobilization of the wound edges, because it is only then that one can judge of the opportunity of transplantation and its requisite extent. The forehead, temples and cheeks lend themselves to union with covering over of the defects, with suture of the parts. Palpebral and nasal plastics, when they need no bony underlayer for support, should be made with skin flaps taken in these areas. The use of skin flaps with transplantation of pieces of cartilage is an excellent procedure, but must not, however, cause one to neglect preserving the remaining autochthonous cartilage as much as possible in reconstruction of the nose and eyelids. Generally speaking, it is better to multiply the number of operations by employing little by little the remaining tissues rather than to perform a total plastic operation at the onset of treatment. Very extensive wounds of the cheek will admirably adapt themselves to Israel's technique. This consists in taking a large pedunculated flap from the side of the neck and the raw surface resulting can be easily covered and closed with sutures on account of the great mobility and laxity of the integuments covering the neck.

Münchener medizinische Wochenschrift.

February 5, 1918.

The Reversion of Sexual Inversion by an Exchange of the Sexual Glands.—E. Steinach and R. Lichtenstein offer a study on sexual inversion, a question dear to the Hun medical profession, perhaps because the condition is more prevalent in the Teuton race than in any other people excepting Orientals. The writers recall, in the first place, the rôle of the sexual glands from the endocrine standpoint, such as stimulation of the homologous sexual characters and inhibition of heterologous characters. Their action is directed more particularly to the psychic characteristics, as well as on the somatic ones. It is quite possible to cultivate the sexual glands of both sexes in the same subject, in which case the manifestations of both somatic and psychic hermaphroditism will develop. It therefore happens that human hermaphroditism can be attributed to a mixed internal secretion, although the external secretion is unisexual in character, and such organisms contain "hermaphro-

dite glands." The distinction between true hermaphroditism and the pseudo type consequently is false. These experimental data can be applied clinically to man. Lichtenstein operated on a soldier who had lost his testicles by an exploding shell by implantation of a cryptochide testicle, the result being a return of the sexual characters and result has been maintained for two years and a half. A distinctly sexually inverted subject was grafted in the inguinal canal with a bit of testicle taken from a subject having an ectopic testicle which was removed because of symptoms of violent strangulation. Twelve days after the graft the man showed signs of a change to masculine sexuality. Suggestion was not alone the cause of the change, because the somatic characters of a sexual inversion were replaced by distinctly masculine characteristics. The writers therefore propose an operative treatment for homosexuality.

Gunshot Wounds of the Knee-Joint.—Kreglinger offers the following rules: (1) Conservative treatment in perforating wounds of the knee with carbolyzed camphor. (2) The presence of the missile requires immediate operation for its removal and the use of carbol-camphor if sepsis occurs. (3) Wounds from shrapnel or exploding shell should be opened up and irrigated with carbol-camphor, a 2 per cent. carbolic solution or a physiologic salt solution until the temperature returns to the normal. Immobilization and ultimate treatment is carried out by splints with the limb in semi-flexion; later on a plaster cast is applied.

Deutsche medizinische Wochenschrift.

February 7, 1918.

Modern Theories on Muscular Tonus.—E. T. von Brücke in his article (continued from the previous issue) next considers the part played by the sympathetic nerve in maintaining the tonus of striated muscle. He refers to the contradictory results obtained by different workers by varied methods, and concludes that the rôle of the sympathetic is not proven to a certainty. However, by denervation of the sympathetic the innervation of the muscles is disturbed and atony results, a fact which favors the idea that this nerve plays some part. Brücke concludes with the notion of two different and distinct tonuses, namely, the tonus of rest and a tetaniform tonus, the latter, perhaps, being connected with different anatomical substrata (sarcolemma and fibrils).

Observations on Tissue Regeneration in Man.—A. Bier sums up the data contained in nine former articles published in the *Deutsche medizinische Wochenschrift*. Transplantation may give very successful results, although it has been much decried. Bone transplantation is the most successful of all, and although that of the epidermis succeeds it does not prevent cicatricial formation. Skin transplantation gives more favorable results. Nerve and muscle do not take kindly to transplantation, while blood vessels do fairly well. Connective tissue (aponeurosis, fat) generally gives rise to trouble when transplanted. These differences can be explained by two tendencies unequally present in the different tissues, namely, a regenerative tendency and a toxic, cicatrizing tendency. Bier discusses the tissue culture media and finds that the artificial ones have given poor surgical results. Blood as a medium is good for bone and connective tissue only, while for other tissues sero-lymphatic fluids are to be preferred. But the physiological lymph medium cannot be replaced by any kind of seric product, such, for example, as hydrocele fluid. The introduction of foreign bodies into wounds can only favor cicatrization and in no circumstances can it give rise to true tissue regeneration (Glück's method).

Wiener medizinische Wochenschrift.

February 23, 1918.

New Knowledge on the Cutaneous Lymphatic Reaction. The Pathogenesis of the Bullae of Pemphigus.—F. Samberger attributes a mechanical origin to pemphigus and not one of degeneration. The title is one that raises expectations and we will closely follow the writer, who tells us that a bulla is an accumulation of lymph in the papillae and epidermis. Its pathologic sig-

nification is quite the same as that of urticaria, excepting that the latter process localizes the lymphatic exudate in the chorion of the skin. Urticaria appears as a reaction resulting from vasoconstriction in tissues arid of oxygen. The writer next considers the signification of the bulla of pemphigus. He has met with bullae in a patient presenting a distinct clinical picture of vagotomy. By aid of some rather subtle theoretical considerations founded on modern physiology of the sympathetic and autonomous systems, he comes to look upon the bulla of pemphigus as an exudate destined to supply the oxygen desired by the tissues. This reaction is a response to the vasoconstriction and is identical to the reaction of urticaria excepting as regards its histologic localization. The localization in the papillae and epidermis likewise explains the long duration of the bullae as compared with the efflorescence of urticaria. In point of fact the bulla of pemphigus has not the many lymphatic tracts at its disposal which in the case of urticaria drain away the exudate. As to the vasoconstriction, the principal factor of the lesion, it is due in vagotonic pemphigus to a temporary irritation of the sympathetic from the substance destined to paralyze it. To the excitation of the vessels by the chorion the organism responds by a urticaria, while the pemphigous bulla represents the same reaction in the case of vasoconstriction of the vessels of the papillae.

The Open Treatment of Wounds of Warfare Combined with Solar Rays.—O. E. Schulz, by this literary offering, produces in print a typical example of German plagiarism, the subject matter merely containing the theoretical views of, and the practice employed by, the French surgeons for the past two or three years. Further comment is unnecessary.

Finska Läkarellskapets Handlingar.

November, 1917.

Therapy of Ulcer Peritonitis.—Wetterstrand, who wrote his graduation thesis on this subject in 1912, has continued his interest in the same and now reports a series of forty-seven cases of gastric and duodenal ulcer perforations operated on during 1909-1917 in the Surgical Clinic at Helsingfors. Remarkable to state, there were far more cases of stomach perforation in males (forty men and two women), which quite inverts the percentages of other countries. Of diagnostic value is diminished area of liver dullness, present in 80 per cent. of perforations. The patients as a rule reached the hospital in the earlier hours after rupture—over a half within six hours and 80 per cent. within twelve hours—a fact of great prognostic significance. Over three-fourths of all the victims were saved (76.6 per cent). This good result is attributable in part to the relatively recent employment of primary gastroenterostomy (eighteen cases) and exact closure of the abdominal cavity (eight cases). Convalescence was remarkably rapid. The technique should be as follows: Exact suture of the perforation with following omentoplasty. In cases seen within six or eight hours and where prolonged intervention is not contraindicated a radical gastroenterostomy should be performed, followed by enteroanastomosis. The peritoneal cavity should then be accurately and methodically flushed and accurately closed. In neglected cases gastroenterostomy cannot be undertaken as a rule. After flushing, drains must be used, although the epigastrium can be closed.

Prosthesis in Lower Jaw Resection.—Avellan's material is from both civil and military sources, he having made a tour through German military hospitals during the present war. Many forms of prosthesis of the jaw and teeth are now in use, of which the Sauer-Hahl procedure seems to be the simplest of execution, while at the same time permitting the best cleanliness and in general yielding the best functional results. In one case which was at first unsuccessful a reduction of 1 mm. in the height of the oblique surface gave a good result. It is this capacity for molding which aids in making the method superior; it can be adapted, for example, to the changes due to progressive cicatricial contraction. The patient can chew hard food, the tooth surfaces articulate well, the stump of the jaw bone gives no trouble, swallowing is easy, and phonation clear. A soldier lost all of his lower jaw save the right ramus and a small portion of the body. Many vain

attempts had been made at different clinics to replace the defect. As a result of scar deformity the mouth had become constricted and patient had a "bird face." In this case the Zimmer-Schroeder ball joint prosthesis was successfully used. The golden joint capsule was fastened to the two hindmost teeth of the upper jaw which had gold crowns. As a ball a bearing the size of a pea used for bicycles was used. The functional result was relatively good, but the chewing force was below normal and the voice was not distinct. Further treatment was refused. The method seems the best for such extensive loss of bone, as the Sauer-Hahl method is best in the less severe case.

Lo Sperimentale.

February 12, 1918.

Conservation and Utilizability of Vaccines.—Rondoni states that under the most favorable circumstances the antityphoid-paratyphoid vaccine loses much of its antigenic power in a few months, and should not be employed after the first four months. The agglutinability and precipitability in vitro may be conserved for eight months. Serum obtained from fresh vaccine protects the guinea pig from a dose many times fatal of the culture in doses up to 0.002. If a vaccine eight months old is used the corresponding figure is 0.05. Anticholeric vaccine aged four months has lost much antigenic power in rabbits, as much as the antityphoid-paratyphoid *B.* loses in five months or more. Hence it should only be used for the first three months.

Diabetes Insipidus from Hemorrhage in the Neurohypophysis and Its Peduncle.—Luzzatto concludes that in man the syndrome of insipid diabetes may be due to destructive lesions of the neurohypophysis and its peduncle, with the other formations in the infundibular region intact. These lesions may be accompanied by a state of grave cachexia similar to that seen in animals after total hypophysectomy or section of the peduncle. Spontaneous hemorrhages may occur in the hypophysis which correspond histologically to those seen in the nervous centers.

Experimental Researches in Phagocytosis.—Amato concludes that the phenomena through which substances with opsonic power are bound to the bodies of bacteria are regulated quantitatively by the same laws through which bacteriolytic sensibilization is bound with the bacterial protoplasm, the hemolytic sensibilization with the erythrocytes, and the agglutinins with the corresponding bacteria. In such reactions antibodies and antigens are not bound in constant quantitative proportions, but the quantity of antibody which is bound to a given quantity of antigen diminishes with the increase of the quantity of added antigen. The ratio between the quantity of bound antibody and that in the serum tested increases with the quantity of antigen added to a fixed quantity of serum.

Etiologic Studies of Certain Cases of Intestinal Infection of Diarrheal Type.—Zirone and Capone refer to certain epidemics of diarrhea in a military zone which present common characteristics, and may be grouped according to causation. In one group of cases the latter was apparently an infection with a protozoon. Here belong amebæ, which the authors have not personally studied, but which have been described in the laboratories of the zones in question. In the second group of cases various bacilli of dysentery were found, including the Shiga-Kruse and Flexner types. Finally, there is a third group which may ultimately be shown to be due to bacilli analogous to the paratyphus.

La Presse Médicale.

February 28, 1918.

Lumbarthria (Chronic Lumbar Rheumatism).—Leri does not refer to a lumbalzia or lumbago in the ordinary sense, but an affection of the lumbar vertebræ which formerly occurred in those above forty years of age. It has never been seen in a purely spinal localization, for various joints and members are also attacked. It goes from bad to worse, leading to muscle atrophy and bony ankylosis. In some cases the dorsal vertebræ are involved. Although before the war there were no reports of cases in the first half of life, the author has

seen examples in the third and fourth decades in soldiers in whom the symptoms showed wide departures from text book descriptions. The soldier is admitted for lumbago or sciatica, for like the latter it is chiefly unilateral (lumbago, however, should be bilateral). Upon examination the lumbar spines seem prominent, or, in other words, physiological cardosis seems effaced. If the patient lean forward this lumbar prominence is more marked and may be regular like the arc of a circle or uneven and wavy. In any lesion of the spine the muscles tend to immobilize the latter through contracture. The author, however, is able to exclude the latter element, the immobilization being due to ordinary active contraction in which muscular functional integrity is conserved. Passive mobility is strikingly well preserved. With the weight off the patient the spine seems to retain its suppleness, as shown in various tests, such as raising the patient by his thighs. At first sight this mobility seems to exclude the possibility of inflammation of the bones, but radiographs tell the story, as do also certain old museum specimens, for there is a production of osteophytes in association with osteoporosis. Seen in relatively young subjects apparently for the first time, one must see a new development and seek a cause nexus for it. It cannot be due wholly to active military life, for cases date back before mobilization. Syphilis can be excluded as an important factor. Nevertheless, as a whole it may be regarded as an affection revealed by radiography in soldiers. The elements in the cause nexus must be found in military conditions, as sleeping on the damp earth or straw, trench life, overwork, packing heavy loads. Dampness and fatigue are two factors which assert themselves in the spine. We should have a "pathology of the spine" in which all such factors receive due attention. Other spinal affections of the present war comprise campptocormy or bent trunk, which is functionally motivated and occurs especially after shell shock, etc.

Cancer and the War.—Sallmann cites Kirchner to the effect that cancer in Prussia during 1915 has shown a falling off, notably cancer in the digestive organs, which is to be attributed to the changed food conditions. The author made a local investigation for Breslau as based on hospital admissions and also found a falling off up to April, 1915; but since that period the disease has shown a notable increase especially in those under 50. These fluctuations cannot be brought into association with food problems. A favorable influence certainly cannot be imputed to dietetic restrictions.—*Nederlandsch Tijdschrift voor Geneeskunde.*

Functional Paralysis from Disuse.—Hartenberg, as a result of two years of experience in war neurology, has come to regard this type of paralysis as very common. Otherwise stated inaction is the most frequent causal factor in functional paralysis. In the various post-traumatic paralysees, certain mechanisms are imagined—psychogenic, reflex, myopathic, etc.; while mere inaction is not borne in mind. After injuries to extremities the joints become stiffened and movements are difficult and painful. It is usually the patient with courage who recovers the use of his limbs while the hypobolic subject notably fails. A neuropath obsessed with a conviction of his insufficiency or a merely contrary subject, will not make the necessary effort. There are, of course, other factors present than inactivity, for in paralysis from disuse organic changes develop in time and involve all the tissues—nervous, muscular, articular, osseous, vascular, nervous, and cutaneous. These changes may of course be associated with other phenomena such as vicious attitudes as a result of immobilization due to dissociation of activity of flexor and extensor muscles. There is also a dissociation of sensation and motility. A psychic component may exist of the nature of inhibition on the one hand and of ties, spasms and tremor on the other. In such cases a predisposition doubtless exists. It is evident that in these instances there is a critical moment at which combined treatment meets with a satisfactory response. If this period is passed the prognosis becomes unfavorable. After a certain number of months, recovery is rare, and we may understand that when the stage of cortical inhibition is reached recovery is unlikely.

Book Reviews.

MILITARY SURGERY. By DUNLAP PEARCE PENHALLOW, S.B., M.D. (Harv.); Major Medical Reserve Corps, United States Army; Chief Surgeon American Women's War Hospital, Paignton, England; formerly Director of Unit American Red Cross European Relief Expedition. With Introduction by Sir ALFRED KEOGH, K.C.B., Director General Army Medical Service. Original drawings by the author. Second edition. New York: Oxford University Press, 1918.

THE first edition of this work was published in August, 1916, after the war had been in progress two years, so that it says much for the excellence of the material contained therein and the manner in which Dr. Penhallow has set it forth that another edition should have been called for in less than two years' time. The first edition was up to date but owing to the rapidity with which views as to treatment of wounds change, it has been found necessary to revise thoroughly the chapter on treatment and bring it in accordance with the latest methods. The author considers that the Carrel-Dakin method is highly satisfactory, better by far, according to his experience and that of his coworkers, than the use of the saline solutions. A feature of the book is that its illustrations are from original drawings by Dr. Penhallow and are uniformly excellent.

THE PRACTICAL MEDICINE SERIES. VOL. VII. OBSTETRICS. Edited by JOSEPH B. DE LEE, A.M., M.D., Professor of Obstetrics, Northwestern University Medical School, with the Collaboration of EUGENE CARY, B.S., M.D., Assistant Gynecologist, St. Luke's Hospital; Instructor in Gynecology, Northwestern University Medical School. Price, \$1.35. Chicago: Year Book Publishing Company, 1917.

THE remarkable feature about this annual is the degree of responsibility assumed by the editor who in this capacity is too often a mere figurehead. In this volume the abstracts, which appear to be chosen with great care, are carefully made, but in nearly every instance the editor exercises a sort of critical censorship which should possess great teaching values, and make the book of use to the undergraduate, for whom such works are not usually adapted. These comments illustrate fully the danger of accepting as progress many efforts which pose as such. However, when reinforced by wise commentaries, the general result is the desirable one of commingled progress and conservatism.

THYROID AND THYMUS. By ANDRÉ CROTTI, M.D., F.A.C.S., LL.D. Formerly Professor of Clinical Surgery and Associate Professor of Anatomy at Ohio State University College of Medicine; Member of the American Medical Association, Ohio State Medical Association, Columbus Academy of Medicine, American Association of Obstetricians and Gynecologists. Society for the Study of Internal Secretions, Honorary member of the West Virginia State Medical Society, Surgeon to Grant and Children's Hospital, Columbus, Ohio. With 96 illustrations and 33 plates in color. Price, \$10.00. Philadelphia and New York: Lea & Febiger, 1918.

THIS is really a complete book on the thyroid and thymus glands. The writer gained his experience partly in Switzerland, where certain forms of goiter are more prevalent than anywhere in the world, and partly in this country. When in Switzerland Dr. Crotti worked under such authorities as Kocher and Henry Stilling, so that he can claim to have had clinically a very wide experience, while theoretically he learned from the best masters. Upon this foundation he has added a great deal of material drawn from his personal experience, besides gathering all that he considered of value from the vast mass of French, Italian, German, and English literature on the subject.

With regard to iodine in its relation to Graves' disease, Crotti says that we have the right to infer that glandular hyperplasia in this disease is due to a "more or less marked lack of iodine," that the severity of the disease is in direct proportion to the diminution or absence of iodine in the gland, and consequently that iodine treatment is the only logical treatment of the condition. On the other hand, nothing has been better demonstrated than that iodine is not the specific treat-

ment of exophthalmic goiter. The reason for such inconsistency, according to Crotti, is very likely simply because glandular hyperplasia in Graves' disease and glandular hyperplasia found as a compensatory process after partial extirpation of the gland are due to two absolutely different conditions corresponding to two absolutely different processes. Similar does not mean identical, and because glandular hyperplasia in both conditions has a histological resemblance, nothing proves that their chemiopathological functions are the same.

Concerning the differential diagnosis of goiter the author is explicit, but points out that differential diagnosis between strumitis and malignant goiter, although, as a rule, without difficulty, is sometimes not easy. Crotti deprecates the administration of iodine during too long a period or in too large doses, but for simple goiter has devised a tablet composed of sodium arsenate, potassium iodide, sodium phosphate, thyroprotein, and salol. For exophthalmic goiter he uses tablets containing sodium arsenate, sodium phosphate, salol, sodium bromide, sodium bicarbonate, and calcium oxalate, and tablets containing pituitary gland, suprarenal gland, pancreas, corpora lutea. These tablets are prescribed simultaneously.

He also sketches a course of treatment for each given case. The various operations for the relief or cure of the condition are described in detail.

The work is profusely and artistically illustrated in colors and black and white, and in addition to being an exhaustive text-book from the practical and theoretical standpoints on all that concerns the thyroid and the thymus, is a beautiful specimen of the printer's craft.

MILITARY ORTHOPEDIC SURGERY. Medical War Manual, No. 4. Prepared by the Orthopedic Council. Price, \$1.50. Philadelphia and New York: Lea & Febiger, 1918.

FOR so small a manual (it measures 6 inches by 4½ inches) the number of illustrations as well as their quality is remarkable, nor could anyone believe that so thin a volume could contain over 250 pages. There is also room for a good index and a supplement with a number of blank pages for notes. The subject matter is novel throughout and there is no room for the subjects of re-education of the incapacitated, which is not called for in a pocket manual. The subjects on soldier's foot, military orthopedics (after gunshot injuries), ischemic paralysis, bonegrafts and nerve injuries all receive consideration in special chapters.

PHYSICAL DIAGNOSIS. By W. D. ROSE, M.D., Lecturer on Physical Diagnosis and Associate Professor of Medicine in the Medical Department of the University of Arkansas. Price, \$4.00. St. Louis: C. V. Mosby, 1917.

IT is a difficult task to add anything really new to the subject of physical diagnosis. The field is so well covered by a number of admirable books brought up to date by successive editions, that the writer who ventures into this special branch of medical literature must of necessity draw largely from known sources. Such is the case with the present work. This criticism, however, in no wise detracts from the value of the book, for the author has succeeded in making a judicious selection of facts, which have been systematically assembled in clear and direct style. The volume contains 473 pages with numerous illustrations on plates and in the text, the majority of which are taken from standard works. The scheme of utilizing pathological data to assist in explaining physical findings is to be commended, as it enables the reader to visualize what is actually taking place in the body. The book is divided into four parts, viz.: Part I, thorax; Part II, abdomen; Part III, head, neck, and extremities; Part IV, nervous system. Certain points in the examination of the mouth, nose, and throat are not sufficiently emphasized, as, for instance, the importance of searching for evidence of infection about the teeth, tonsils, etc., and employing the x-ray to detect such foci when they are not readily recognized by ordinary means of examination. Under the nervous system the Barany tests are given, and tables are appended showing the clinical facts upon which equilibrium tests are based. This is a worth-while feature. The book is primarily designed for medical students and the busy practitioner to whom it should particularly appeal.

Society Reports.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held March 25, 1918.

THE PRESIDENT, DR. HOWARD C. TAYLOR, IN THE CHAIR.

Resolutions on Narcotic Drug Investigation.—The Committee on Narcotic Drug Investigation, consisting of Dr. Frank Van Fleet, Dr. Jacob Diner, and Dr. Gustav G. Fisch, made the following report: (1) After carefully considering the matter of drug addiction we have come to the conclusion that the addict is entitled to the same medical care vouchsafed any other diseased or afflicted person, and that therefore any addict, when arrested, should be referred to an institution for proper treatment. (2) We recommend that a certain number of beds or a definite Ward be set aside in every public hospital for the treatment of drug addicts. (3) We further recommend that the Narcotic act known as the Whitney bill be so amended as to prohibit ambulatory treatment of drug addicts. (4) We again recommend that all private institutions for the treatment of drug addicts be placed under State supervision, and (5) We recommend the repeal of Section 248 with reference to the compulsory record of an occasional administration of narcotics to a patient not an addict.

These recommendations were discussed and voted on seriatim. After discussion it was voted to omit the latter clause of No. 1, beginning "and that therefore any addict, etc." It was voted to omit No. 3 entirely. The other recommendations were adopted as read.

Resolutions Supporting the Owen Bill.—A set of resolutions describing the provisions of the Owen-Dyer bill, showing its importance to the medical profession, and asking the active support of the members of the Society, were adopted. A copy of these resolutions was sent to Congress, and the individual members of the Society were requested to write to their representatives urging them to support this bill.

Resolutions Asking Amendment to Traffic Regulations.—The following resolutions were adopted: "Whereas unintentional minor infractions of the law work hardship upon those physicians who from necessity or choice do not employ the services of chauffeurs. Therefore, *Resolved*, That the Medical Society of the County of New York favors an amendment to the city ordinance, or Traffic Regulations of the Police Department, excepting physicians from the operations of the rule now in force forbidding an automobile to stand unattended more than twenty minutes. *Resolved*, That a copy of these resolutions be forwarded to His Honor, the Mayor of the City of New York, to the President of the Board of Aldermen, and to the Police Commissioner, and that said resolutions be given wide publicity.

The Narcotic Drug Addict.—Dr. ERNEST S. BISHOP read this paper. (See page 752.)

The Problem of Narcotic Drug Addiction of To-day.—Dr. CHARLES F. STOKES presented this paper. (See page 755.)

Dr. JOHN H. BRUSH expressed the opinion that there was no occasion for becoming hysterical over the drug addict so long as we had with us the victims of alcohol. The liquor sot was many degrees lower in every way, mentally, morally, and physically, than the drug addict. It was a disgraceful reflection on the profession of medicine to recommend that the drug addict should be treated only in an institution. The medical profession had among its members those who were responsible for the creation of this habit, and for its own protection it should rid itself of this class of men. The first thing to be done toward solving the drug addiction problem was to purify the medical profession. Dr. Brandeth suggested that for the use of physicians morphine be put up in containers holding one ounce having a paster on the outside on which to write the number of grains taken out and the date on which they were taken; in this way it would be easy to keep track of the amount of the drug a physician was using.

Dr. DOWNER said that mention had been made of the fact that after the Civil War many drug addicts were turned loose on the community and that after this war there would also be thousands of drug addicts. Dr.

Downer said that in 1913 he was in Serbia and later in Russia so that his data were obtained at first hand. He personally had made thousands of drug addicts. The missiles of modern warfare were very different from those used in former wars and inflicted much more severe wounds. The modern bullet traveled with such increased velocity that when it struck a compact tissue as the bone of the femur, for instance, the destruction it occasioned was something terrific. When he went to Serbia he was stationed at a hospital where they had 1300 patients and only 300 beds. The patients they had were not ordinary patients such as one saw in a New York Hospital. These men came from the trenches with casts that had been on as long as six weeks and the casts were without windows for drainage. Such wounds were of course in extremely bad condition. These patients were put two in a bed and they continued to arrive at the rate of 300 per day. They had to be placed on the floor and no one thought of the danger of drug addiction, but only of relieving the suffering. It was necessary to go around each day and pick out those who had frozen to death. When a man was wounded in the trenches he was given one-half grain of morphine, at the first dressing station he was given another one-half grain, and then he was taken to the base hospital where he was operated upon and received more morphine. He remained in the hospital from one month to one and one-half years, and during the first two months of that time he was receiving morphine. The cases in which the bone was infected were very painful indeed. In some instances water had not been available and they had used morphine. Germany, in bombarding the city, cut off the water supply and there were 4000 wounded men in the hospital and the suffering was terrific so each man received a hypodermic of morphine. Most of these men starved to death, but at least two-thirds of those that escaped were drug addicts. It was a common sight to see men using morphine. They passed the hypodermic around there as the whiskey bottle was passed in this country. Our own boys were over there fighting and were no more immune than the others and when they returned to this country the question was were they to be regarded as criminals or as sick men.

Dr. CHARLES F. STOKES in closing the discussion said he wished to add that the Medical Department of the Army was keenly alive to the problem of narcotic addiction in its relation to the wounded. It must be realized that the wounded accumulate in appalling numbers after some engagements and they had to wait their turn for treatment. It was obvious that for humane reasons relief from pain was indicated and morphine administered. It would seem that the danger of acquiring addiction was small, as the patients and the narcotics were under the control of competent medical officers. He said further that the Surgeon Generals' Office was actively engaged in combating contamination of the military forces through addiction introduced as an evil by unscrupulous sellers.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held January 15, 1917.

DR. SAMUEL A. BROWN IN THE CHAIR.

THE program of the evening was contributed by the Third Medical Division of Bellevue Hospital.

A Case of Disturbance of Internal Secretions.—Dr. MILLS STURTEVANT reported this case, which he said was presented because it seemed to raise the question as to the pathology of the development of secondary male sex characteristics in the adult female. The patient, a Russian Jewess, married, was admitted to the Third Medical Division of Bellevue Hospital, in October, 1915. She was then 42 years of age, and had been in this country for twelve years. She had been a pushcart peddler. Her family history had no bearing on the case. Her personal history was also negative, except for measles when she was 15 years of age, and a mastoiditis which was operated on when she was 24 years of age. She was the mother of three children, two living and one that died of enteritis at

the age of 4½ months. There was no history of venereal disease, and the Wassermann was negative. Her menstrual history had been normal until about nine years ago, when the time between periods began to lengthen and the flow to become scanty. After seventeen months of this irregularity the flow ceased altogether for a period of seven months. At the end of this period she began to have a scanty serous menstruation again. Since that time menstruation had been regular at times and at other times irregular. Prior to nine years ago she had a luxuriant growth of fine black hair on her head, reaching nearly to her waist. Nine years ago, when she began to have the scanty menstruation and the amenorrhea, she noticed a growth of black hair making its appearance on her chin, upper lips, and cheeks, masculine in distribution and appearance. During this time the hair on her head began to fall out and was replaced by a sparse growth of much shorter hair. She had been a strong, active woman, carrying, when her business demanded it, weights of 50 or 60 pounds. Seven years before her admission to the hospital she began to lose weight and strength, developed an insatiable thirst and appetite, marked polyuria, itching about the genitals, was unable to attend to her work, and finally was confined to bed. Her weight dropped from 169 to 125 pounds. She estimated her urine at five quarts daily. She was told at a dispensary that her urine contained sugar, and that she had diabetes. During the next seven years she was under treatment in several hospitals, though never for any length of time, being apparently a difficult case to manage. When she entered Bellevue she had been untreated for the previous eight weeks. She weighed 110 pounds. Her skin was dry and inelastic, hair sparse and short, and her cheeks, chin, and upper lip, unshaven for a week, showed a black beard and mustache of masculine appearance. The forearms, arms, chest, back, and shoulders were covered with a heavy growth of black hair. The speaker stated that Dr. Ernest E. Glynn, writing on the "Adrenal Cortex, Its Rests and Tumors, Its Relations to Other Glands, and Especially to Sex" (*Quarterly Journal of Medicine*, January, 1912), cited six examples of adrenal hypernephroma in young women associated with changes in sex characteristics. The author analyzed Dr. Glynn's series of cases and stated that the examination of this patient showed nothing demonstrably wrong with the uterus or adnexa. The sella turcica was apparently normal on x-ray examination. The kidneys were not enlarged, and there was no evidence of tumor connected with the kidney shadow. The diabetes was a moderately severe one. This was a case of development of secondary male sex characteristics in a woman going on over a period of twelve years without other evidence of hypernephroma of the adrenal cortex. The case was offered for the evidence it carried that hypernephroma of the renal cortex was not the whole pathology of this unusual condition.

Dr. FENTON B. TURCK asked whether in this case any clinical tests had been made with the various internal glandular extracts, whether he had tried suprarenal and pituitary extracts in gradually increasing doses, and if he had what such tests had shown.

Dr. STURTEVANT replied that some tests were made. They had injected adrenalin and made blood pressure observations at various intervals; these observations were made when the patient was sugar free, but they never gave any definite lead.

Obscure Gastrointestinal Hemorrhage with Report of a Case.—Dr. LUTHER B. MACKENZIE presented this paper. He briefly reviewed the literature to show that many gastroenterologists, in writing of hematemesis, made the statement that the vomiting of any considerable amount of blood was sufficient warrant for the diagnosis of gastric or duodenal ulcer. This was rather an overstatement of the facts; hematemesis did not always presage an ulcer, or, for that matter, any discoverable organic defect. In the systematic consideration of hematemesis attention should be directed to the determination of the origin of the blood. Extragastric hemorrhage might arise in (a) pulmonary tuberculosis; (b) epistaxis, and (c) esophageal varices. It was occasionally difficult to tell whether one was dealing with hemoptysis or hematemesis. The author briefly enumerated the evident causes of gastric hemor-

rhage without going into detail. These were: (1) Local disease (a) gastric or duodenal ulcer; (b) cancer, (c) varicose veins or miliary aneurysm, (d) acute congestion, (e) following abdominal operations, wounds of the omentum, and also operations on the appendix. (2) Passive congestion due to portal obstruction. This was seen in (a) cirrhosis of the liver, (b) portal thrombosis, (c) pressure by tumor or portal vein, and (d) secondary to chronic disease of the heart and lungs. (3) Toxic cases, including the infectious fevers, acute yellow atrophy, and the purpura. (4) Cases with an obvious focus of infection, the appendix, and gall bladder most frequently being the sites. (5) Splenic anemia or Banti's disease—hematemesis here was, in the majority of cases, from an esophageal varix. Balfour of the Mayo clinic had recently tried to implicate the spleen as a causative factor in the obscure cases of hematemesis. His plea the writer found not entirely convincing. Finally there was an obscure bleeding described by W. Hale White and called by Sir Cooper Perry gastrostaxis. W. Hale White had collected 29 cases, of which 27 were in females. He called attention to the fact that this gastrorrhagia was very rarely seen after forty years of age. It was assumed that it was a vicarious hemorrhage and so described. Later, as the surgical treatment of gastric and duodenal ulcer developed, numbers of these cases came to operation, and instead of ulcer was found an oozing of blood from the gastric mucosa. Hale White did not think the condition was a vicarious menstruation, but suggested an analogy between the two conditions, oozing in both, the mechanism being illy understood. Many of these patients suffered from indigestion and epigastric pain in addition to hematemesis and melena. The amount of hemorrhage varied, and recovery was the usual outcome. The history of such a case might be very similar to that of ulcer, as the following case served to show. This patient was a young man, 21 years of age, admitted to the hospital on November 5, 1917. His family history was negative except that his father and brother died of tuberculosis, twenty and four years ago, respectively. His personal history was also negative. He had had measles and pneumonia, with a good recovery. On November 4 he was suddenly seized with nausea and vomiting, and noticed blood in the vomited material. The following day he was seized with dizziness and fainted. Later he vomited a large amount of dark brown material. He was then sent to the hospital. He gave a history of attacks of indigestion for a period of eight years. He described the pain as dull in character, being felt in the epigastric region in the median line. It sometimes awakened him at 1 A. M., and at other times occurred three to three and one-half hours after eating. Tightening the belt seemed to aggravate the pain, while drinking hot water relieved it. Small quantities of food had no perceptible effect. Careful clinical, laboratory, and x-ray examinations were made. The x-ray of the chest showed hypervascularization of the right lung, but the pulmonic markings did not fuse. A diagnosis of tuberculosis could not be made on the results of the x-ray examination. The x-ray examination of the stomach and duodenum seemed to warrant the diagnosis of duodenal ulcer. The patient refused operation. Ten days after his admission to the hospital his condition grew much worse, so that operation was not considered advisable. Death ensued in a few hours. From the autopsy examination an anatomical diagnosis was made of tuberculosis of the left apex with basal pleurisy and tuberculosis of the right kidney. There was fibrocaseous degeneration of the right adrenal and slight congestion of the spleen. The cause of death was not determined, possibly a virulent pneumonia in the left lower lobe in the stage of congestion. From a consideration of this case it must be admitted that no adequate cause for the bleeding could be ascribed, unless the case was placed with that group of cases described by W. Hale White as gastrostaxis, and even then no cause could be given, for the etiology of that condition was unknown. The writer felt that loath as we were to create new terms, with our present limited knowledge we could not do better than to retain the term gastrostaxis, and that the case herein reported was properly included. The case served to emphasize that cases of gastrostaxis might closely resemble duo-

denal ulcer and that the x-ray was not an infallible guide in diagnosis.

Dr. FENTON B. TURCK said he thought it might be of interest to bring out a few experimental points that might be of some service in clearing up somewhat many of these cases of obscure hemorrhage, that were really much more common than was generally recognized. It was well known that operations were often performed for ulcer in patients in whom the symptom of hemorrhage had been present, and no ulcer found. In his experimental work Dr. Turck said he had found that in feeding animals intestinal flora the bacteria migrated to the region about the pylorus, this being one of the selective sites. Of course, it was well known that we might have hemorrhages in other sites, as the retina, the kidney, or other parts of the body, but the hemorrhage occurred oftener in the stomach than in other parts of the body. The plates which he was exhibiting showed how after feeding large doses of intestinal flora the bacteria migrated to the region of the pylorus, and there was an anaphylactic action, sensitizing the walls of the blood vessels, with a resultant dilatation, venous stasis, and atony that permitted the bacteria to pass through the walls of the vessels, and as the dilatation increased the blood cells could be seen passing out through the vessel walls, and eventually there was a definite hemorrhage. Furthermore, the plates showed that such hemorrhage occurred from the veins and not from the arteries. These hemorrhages could be observed in other conditions as well, and had been shown to occur in shock. Dr. Turck cited instances in which an enlarged colon, with a resultant stasis and autointoxication had produced hemorrhagic symptoms suggestive of duodenal or gastric ulcer. It was well known that foreign proteins, being in colloidal suspension, would, according to the laws of the diffusion of colloids, pass through the lumen of the intestine. Autointoxication, anaphylaxis, venous stasis, etc., produced changes in the vessel walls that led up to hemorrhage. It was quite possible to have such hemorrhage, without a rise in temperature and without alarming symptoms, that might result fatally in a comparatively brief period of time.

Dr. GEORGE B. WALLACE said that Dr. Turck had shown experimentally the same thing that was found in septicemia; one might have similar hemorrhages in septicemia, although there would be also a general infection which Dr. Turck had been able to avoid.

In Dr. MacKenzie's cases there appeared to be a complete absence of local changes in the gastric mucosa, while Dr. Turck's experiments seemed to show definite structural changes, at least in the blood vessels. He would like to ask if a microscopical examination was made of the gastric mucosa in Dr. MacKenzie's case. It was very puzzling to understand how there could be a hemorrhage such as Dr. MacKenzie described without any visible change in the stomach or intestinal mucosa. The word gastrostaxis did not explain anything of the pathology of the condition.

Dr. MACKENZIE, in closing the discussion, replied that the gastric mucosa had been examined microscopically and the pathologist was unable to find anything abnormal. The treatment for a duodenal ulcer that bled was excision, or cauterization of the ulcer with a gastroenterostomy, gastroenterostomy alone not curing the bleeding. As to the possibility of this case being due to erosions which had healed, it was examined just one week after the hemorrhage had occurred, and if erosions had been the cause there would still have been some evidence of them. Mayo Robson reported that at operation he had watched the bleeding or oozing from the gastric mucosa. These cases of gastrostaxis gave a history of gastric pain or distress for quite a long time, as did this case. As this case had no organic basis for the bleeding that could be discovered, and symptomatically was like those cases in which oozing had been observed, it had therefore been assumed that it was, too, a case of oozing or gastrostaxis. Dr. W. Hale White considered gastrostaxis analogous to menstruation, oozing occurring in both, but admitted that he was ignorant of the etiology. The term gastrostaxis should, therefore, be reserved for oozing of blood from the gastric mucosa of obscure origin.

Treatment of Twenty Cases of Group I Lobar Pneumonia with Serum.—Dr. JOSEPH E. CONNERY made this presentation, which consisted of a tabulated analysis of this series of cases. The conclusion to be drawn from his observations was that all cases of pneumonia should be given the serum treatment, regardless of the type of pneumococcus present.

Dr. T. STUART HART congratulated the reader of the paper on his interesting presentation of his cases of lobar pneumonia. He said, however, that he would hesitate, in the present state of our knowledge, to use serum in all cases of lobar pneumonia. It seemed to him best, as yet, to confine treatment to the cases of lobar pneumonia which belonged to the specific type for which serum had been prepared. Practically all patients who were treated with serum suffered from serum sickness. Serum sickness made the patient very ill for a few days, although Dr. Hart had never seen a fatality following the administration of serum. Any one who had watched the patient go through a serum illness would not want to subject a patient to this unless he was definitely assured of some benefit to the patient. It seemed to him that one ought, therefore, use serum only in cases of Group I. He thought that we should regard the use of serum as still in the experimental stages. In his opinion the most important proof of the value of serum was in its power of sterilizing the blood stream. In Dr. Connery's report one case only showed a positive blood culture. These, of course, were the patients most seriously ill. These were the patients in which the use of serum was without question indicated. Until recently, Dr. Hart said, he had never had a patient, belonging to Group I, with a positive blood culture, in whom the blood was not sterilized forty-eight hours after the administration of the serum, if the patient lived that length of time. This record, however, had been recently broken. A patient in the Presbyterian Hospital with lobar pneumonia, Group I, had a positive blood culture. This patient had received five or six treatments of 90 c.c. each of the Rockefeller Hospital serum. In spite of this the blood stream never had become free from the organisms. In a consultation over this case, on account of this unusual finding, it was thought that the patient must have some focus of infection other than the lung, which was supplying pneumococci to the blood stream. The patient died a day or two later. At autopsy there were found vegetations on the valves of the heart which showed the presence of Group I organisms. This was undoubtedly the source of the prolonged presence of organisms in the blood stream. He felt most positively that a positive blood culture was a strong argument for the use of specific serum.

Dr. SELIAN NEUHOF disagreed with the last speaker, and emphasized Dr. Connery's point that the serum should be used on every case of lobar pneumonia. He recalled a series of cases of pneumonia from the Lebanon Hospital that he had reported in the *New York Medical Journal*, June 2, 1917, in which he made the important point that if the serum was going to do any good it should be given early in the course of the disease, even before they knew with what type of organism they were dealing. When the clinical diagnosis of pneumonia was made the serum should be used, just as in diphtheria they gave the antidiphtheritic serum as soon as they had diagnosed the case as one of diphtheria, without waiting for the report on the culture. This was especially of importance in private practice where one did not have the facilities for a rapid laboratory diagnosis. Dr. Harlow Brooks, at Camp Upton, was following the procedure above outlined, namely, giving the serum at once, and then isolating the type of bacterium afterward. At the time the speaker read his paper one of Dr. Cole's assistants brought up the point made by Dr. Hart, but the speaker believed that a delay of twelve to twenty-four hours made such a difference in results that one should have the serum on hand and use it at once when the case had been diagnosed as one of lobar pneumonia.

Dr. MACKENZIE called attention to the fact that there was a school at the present time which thought that pneumonia was a bacteremia. Dr. J. C. Wilson of Philadelphia had found the organism in the blood in 75 per cent. of his cases. Dr. Cole and others thought the septicemia occurred only in the severe cases.

A Case of Polyserositis.—Dr. LOUIS L. SHAPIRO presented this patient. He stated that the patient was a Russian who had come to this country fourteen years ago. He was a shirt operator, married, and had four children, all living and well. His family history was negative, his habits good. He used alcohol in the form of whiskey, one or two glasses daily, and an occasional glass of beer. He had had typhoid fever and made a good recovery. He had a cough lasting three weeks, fever, night sweats, and a loss of weight four years ago. Otherwise his history was negative. His present illness dated back three years, when he had cramp-like pain localized over the upper quadrant and central portion of the abdomen, followed about a week later by tremendous swelling of the abdomen and a sense of oppression over the upper portion. On the advice of his physician he entered St. Luke's Hospital on June 6, 1915, where he remained until June 19, 1915. The diagnosis made at that time was hepatic cirrhosis with thrombosis of a tributary of the portal vein. The patient then returned home, resumed his occupation, and enjoyed perfect health until two months ago, when a similar attack occurred. There was pain in the abdomen, marked abdominal swelling, more gradual in onset than on the previous occasion, and swelling of both feet and legs. He was admitted to Mount Sinai Hospital on April 9, 1917, and remained until May 24, 1917, being discharged as improved. Here again the diagnosis of hepatic cirrhosis was made. During his stay in the hospital paracentesis was performed twice, with the removal of 2500 and 5000 c.c., respectively, of serous, straw-colored fluid. The abdominal swelling entirely subsided and the patient again resumed his routine life, being apparently perfectly well. From September, 1917, until the present date he had had nine similar attacks, including the present one, and had been tapped three times at home, three times at Mount Sinai, once at Bellevue Dispensary, from which he was referred to Bellevue Hospital, and once since admission. He was tapped in all ten times in as many months. A careful physical examination made at the time of his admission to Bellevue Hospital led to the diagnosis of chronic adhesive pericarditis, serofibrinous pleurisy, thickened pleura, and ascites. On December 24 a paracentesis was performed, and 10,400 c.c. of fluid removed. Following this the liver was not palpable, and could not be made out enlarged. The spleen was palpable an inch below the free costal margin. It was firm, smooth and not tender. The temperature varied from 97° to 102°; it was 98.4° at the present time. The pulse varied from 64 to 104, and respirations averaged 22 a minute. The blood Wassermann was negative. The results of blood examination and blood chemistry were reported in detail, showing nothing very striking. The urine was negative. The feces were negative for ova. The ascitic fluid was straw-colored, specific gravity 1014. It showed no spontaneous coagulation. It contained 120 cells per c.c., mostly lymphocytes. The pleuritic fluid was serofibrinous, and showed 80 cells per c.c., mostly lymphocytes. The culture was sterile, being negative for tubercle bacilli. The writer stated that they considered both these fluids as low grade exudates, showing evidence of chronic peritonitis and pleuritis. The tuberculin test was negative. The x-ray examination of the gastrointestinal tract showed no evidence of new growth. The fluoroscopic examination showed distortion and irregularity of the cardiac outline, pleuro-pericardial adhesions, and left pleural effusion. The diagnosis of polyserositis was made because of the multiple involvement of the serous membranes, namely, the pericardium, pleura, and peritoneum, with the presence of the following symptom complex, first described by Pick in 1896, a sense of fullness and oppression in the upper part of the abdomen, preceded by the sudden onset of acute pain, occurring in cases of chronic adhesive pericarditis with ascites requiring frequent tapping; the absence of edema of the legs, which may be slight at the late stage, and absence of jaundice. The diagnosis of chronic adhesive pericarditis was made on the following: systolic retraction of changes in cardiac dullness on respiratory phases, imperfect descent of the apex beat during inspiration, occurring over a considerable area, the limited shifting of the apex beat on change of posture, the absence

absence of pericardial effusion in the presence of peritoneal and pleuritic effusions, and on the x-ray and fluoroscopic examination. The diagnosis of pleuritis was made on the physical signs, the withdrawal of fluid, with the character of a low-grade exudate, and the x-ray. The diagnosis of peritonitis was made on the frequent occurrence of the ascites and the character of the fluid. Hepatic cirrhosis (uncomplicated) might be ruled out on the following grounds: presence of ascites over a considerable period of time, requiring frequent tapping, with intervals of complete subsidence and perfect health. Hale White, in his review of cirrhosis hepatica, stated that patients did not survive long following paracentesis; they usually died before a second paracentesis was performed; absence of the etiological factors of cirrhosis; absence of gastrointestinal disturbance; absence of marked dilatation of the superficial veins of the abdomen; absence of edema of the lower extremities and jaundice, and the character of the ascitic fluid. Thrombosis of the portal vein extending over a period of three years would manifest some evidence of collateral circulation either superficial or deep. Tuberculosis of the peritoneum might be ruled out on the following grounds: absence of tuberculous history and habits; absence of tuberculous elsewhere, including negative eyegrounds for tubercles; absence of tubercle bacilli in ascitic fluid and pleuritic fluid; negative tuberculin test. Syphilis and so-called Banti's disease, which recently had been called a syphilitic manifestation, might be ruled out on the following grounds: absence of luetic history; absence of general lymph gland enlargement; absence of marked emaciation and anemia; (this is usual in the terminal stages), and absence of gastrointestinal disturbance. Malignancy, including abdominal new growth, was ruled out by the following: absence of marked emaciation; history of frequent tapings; lack of evidence of metastases elsewhere; negative x-ray.

Dr. W. J. PULLEY said he wished to dissent. This case was one that had been with one of his coworkers at the University Clinic. It was peculiar in that the patient was almost absolutely intolerant to fluid. If he took water it seemed to go immediately into the peritoneal cavity. That made him think that the trouble was due to a disturbance of the portal circulation. He had seen one similar case on the third medical division which proved to be due to a disturbance of the portal circulation. It was in a woman who came in shortly after pregnancy, and it was thought that she had a portal thrombosis. He believed this case of Dr. Shapiro would eventually be shown to be due to a disturbance of the portal circulation. The case, however, had been very well worked up.

Associated Incidents of Cardiovascular Leses and Syphilis of the Central Nervous System.—Dr. E. DAVID FRIEDMAN presented this communication. He stated that it had long been suspected that syphilis played an important part in the causation of aortic aneurysm, and reviewed the literature demonstrating this. He also reviewed the literature emphasizing the luetic origin of tabes, the occurrence of angina attacks, and other vasomotor and cardiac disturbances in connection with tabes, and stated that these cardiac complications usually came on late in tabes. It was observed by Ruge and Hurtner that in tabetics who developed cardiac disease the aortic valve was chiefly affected. Roge and Mueller, in 1906 and 1907, emphasized the fact that the frequency of this association of tabes and cardiac involvement were not sufficiently appreciated. Usually one of the two conditions dominated the clinical picture, and the symptoms and signs of the latent condition had to be carefully studied and elicited. The tabes in a case of aortitis might be very mild; likewise the vascular lesion in tabes may sometimes be found only after careful chest and x-ray examination. In Roge's and Mueller's twenty-four selected cases showing this association the most frequent lesion was aortic regurgitation, or aortic regurgitation and obstruction. In fifteen of the twenty-four cases there was tabes and aneurysm. Most of these fifteen cases showed myocardial degeneration and premature arteriosclerosis. In over 58.3 per cent. there were definite cardiac complaints. The cases of sudden death in tabes were probably due to dilatation from myocardial degeneration, coronary thrombosis, or rup-

ture of an aneurysm. In nine of these cases there was definite evidence of lues; in ten others it was probable. In only two of these cases was there a history of polyarthritis. Rheumatism in these cases usually meant tabetic pain. Of the twenty-four cases seven were women, and their average age was 40 years. Bittovt found the average age of nonluetetic aortic sclerosis to be 55 years. The cardiovascular symptoms came on later than the nervous symptoms. A focal lesion in the cord gave symptoms earlier than one in the aorta. In a case of cardiovascular lues the symptoms of tabes were usually very mild. The pupils might be miotic, rigid, or unequal, or irregular, the Achilles jerk might be lost, which was evidence of sacral tabes, which was an important group. There was hypotonus present even in cases with exaggerated knee jerks. The loss of tone, however, need not always be attended with loss of deep reflexes. There might be lancinating pains or gastric crises. There frequently was undue retention of urine, some of the patients taking pride in their ability to go all day without voiding. There might be tabetic flat foot, ulnaris hypoesthesia, or hypoesthesia of the anus or urethra. The absence of a history of rheumatism or other infectious diseases in a case of aortic regurgitation, the localization of a murmur in the second right intercostal space, or the occurrence of aneurysm in the young, was suggestive of cardiovascular lues, and the signs should be looked for with care. In radiographic examination aneurysmal bulging might be seen in the first oblique diameter, encroaching on the so-called retrocardiac space. Every case of tabes should be examined radiographically, and electrocardiographically, if possible, to determine changes in the cardiac musculature, to which Brooks first called attention.

Cases with myocardial changes occurring early in life, with dyspnea, anginal attacks, palpitation, cough and slight edema, should be examined for signs of tabes. Light would thus be thrown on many obscure lesions. For instance, a fixed pupil might clear up the luetic origin of an obscure liver affection, and the loss of the Achilles jerk might mask a stomach syndrome as a gastric crisis. In our times we were fortunate in being able to corroborate our diagnoses by means of the tests applied to the blood and spinal fluid, but we must respectfully express our appreciation of the best of clinicians who were able to perceive truth and make accurate clinical observations even without our modern laboratory aids.

Dr. Friedman said his own observations were made on 50 tabetic patients at the Central Neurological Hospital, among which there were eight cases of cardiovascular disease. Four of these were males and four females. These cases he reviewed. Two cases were recently seen in the Third Medical Division at Bellevue Hospital (service of Dr. Brown); one showed tabes, aortitis, and dilatation of the arch of the aorta, and the other aortitis, with a to-and-from murmur, and a basilar meningitis luetica involving the fifth, seventh and eighth nerves on the left side. Of three cases from the writer's private practice, one showed tabes and aneurysm, a second tabes and premature arteriosclerosis, and the third aortic regurgitation with dilatation of the arch, tabes, and general paresis. Through the courtesy of Dr. Douglas Symmers, he had had access to the records of the State Hospital for the Insane at Morristown, N. J., for the period 1907 to 1915. There were eighty-three cases of general paresis among them. Of these, the writer selected only those about forty-five years of age or less with changes in the aorta indicative of lues. There were forty-nine such cases, and among the remaining older cases the lesion in the aorta was a distinctive meso-aortitis luetica in thirteen cases, making a total of sixty-two cases with syphilitic aortic disease, or 75 per cent. In concluding, Dr. Friedman referred to the intraspinal treatment of tabes, stating that the cerebrospinal fluid was poor in antibodies, as was shown by the necessity of taking larger quantities of it than we did of the blood serum for the Wassermann test. In this way Hauptmann succeeded in obtaining many more positive fluids than had been obtained previously. We knew also the value of intrathecal administration of serum in cerebrospinal meningitis, where, too, the antibodies were introduced from without. The attempts to treat general paresis

with nucleic acid tuberculin really resolved themselves into efforts to stimulate the antibody mechanism, which we knew now was intimately associated with the incidence fever. So it seemed to the author that it was not so much a question of introducing salvarsan into the cerebrospinal fluid as of introducing antibodies. The value of a preliminary intravenous injection of salvarsan would consist in the destruction of spirochetes, with the consequent calling into play of the antibody activity of the blood. The injection of the patient's own serum would then furnish the antibodies which seemed to get into the cerebrospinal fluid with difficulty. It would be up to the immunologists to devise a means of concentrating the antibodies in the blood, and using them for therapeutic purposes.

Two Cases of Local Edema, One Showing Marie's Sign Group.—Dr. W. J. PULLEY presented this report, which he prefaced by stating that the title of the paper was misleading. What he wished to direct attention to was localized edema of the arm, forearm and hand in two separate cases and to bring them together for comparison. In the one case there was no change in the bones or soft parts of the hands and arms except for the edema, while in the other there was a demonstrable degree of morphological change both in the soft parts and the bones. In the first case a study of the radiograph made it seem probable that the pressure was from without on the return circulation, while in the other the cause of the edema was problematical. Both cases suffered with cardiac and blood vessel disease. In the first, the pressure case, the cardiac lesion was pronounced at the aortic orifice and in the aorta, while in the second case the heart lesion was more definitely located at the mitral orifice, showing both an obstructive and a regurgitant murmur. The bone changes were found in the case in which the pulmonary circulation was interfered with. This case presented the unusual condition known as Marie's sign group. By this was meant that the fingers were clubbed and there was a rarefaction of the radius and ulna at the lower ends, and an apparent condensation of the shafts of the metacarpal bones and phalanges bones was a very gradual process, much slower than only on the affected side. The rarefaction of the long the clubbing of the fingers, and it might be that the first step toward rarefaction was the apparent compactness of the bone on this side as compared with the other, and the narrowing of the bone canal might be followed later by rarefaction. Dr. Pulley said that it might be recalled that, in 1890, Bierre described the Marie sign complex and called it pulmonary hypertrophic osteoarthropathy. In his description of some of the cases not only the long bones and their joints were involved but also in some cases the bones of the face were affected. Further investigation showed that those cases in which the bones of the face were affected were cases of acromegaly. Clubbing of the fingers and curving of the nails invariably occurred in Marie's sign group. In a gradual manner morphological changes then followed in the ends of the long bones and their joints. In the great majority of cases the condition was bilateral. More recently observations had shown that the name pulmonary hypertrophic osteoarthropathy was misleading, indicating that a lung poison was necessary for the production of this condition, in that the disease had been observed in connection with other diseases in which the lungs were normal. It had been observed in fibrous pyloric obstruction, in cancer of the esophagus, in cirrhosis of the liver, and in other chronic conditions. It was just possible, however, that any one of the diseases just mentioned might produce an obstruction to the pulmonary circulation by impeding the action of the diaphragm and very quickly producing dilatation of the right ventricles. Two principal theories had been advanced as a cause of this condition—first, the mechanotoxic, and, second, the neurotrophic. The first maintained that there must be a lung toxin present in addition to the mechanical obstruction to the blood current. The second and later, the neuropathic theory, maintained that lesions below the pons very often produced trophic changes in the bones and soft parts of the affected side or part. These cases were still under observation, blood examinations were being made, and a more complete report would be possible later.

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THE TREATMENT OF TUBERCULOSIS.

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IF an animal of experiment, a guinea pig or rabbit, is inoculated with a large dose of virulent tubercle bacilli the result is inevitably death within a few weeks or months. It matters not what treatment is employed; no amount of rest or fresh air is of any avail, and liberal feeding can only slightly prolong life.

Why, then, it may be asked, is there reason to hope for benefit from such inadequate helps as fresh air, rest, and food in the tuberculosis of man? The answer is, that the animal has never been in contact with tuberculosis and has had no opportunity to acquire the heightened resistance as the result of such contact which we call immunity. The young child or the uncivilized adult who receives large or, what amounts to the same thing, frequently repeated doses of tuberculous poison without having had any previous experience with tubercle bacilli dies as certainly and speedily of tuberculosis as the animal of experiment. Animals, including man, differ as to their susceptibility to different strains of the tubercle bacillus and to the tubercle bacillus in general, but given a sufficient primary dose of tubercle bacilli virulent for the species, the result is always the same—death in a few weeks or months, provided that this dose is really the first one received. Moreover, the form of the disease is an acute generalized tuberculosis which bears little resemblance to the pulmonary tuberculosis with which we are familiar.

But animal experimentation has abundantly shown that if an animal is given a small amount of tubercle bacilli as an initial dose, and if sufficient time elapses between doses, when a second and much larger dose is given, the result obtained is very different. The animal either experiences no ill effects whatever from the second dose or is very slightly affected by it in comparison with the deadly effect from the large primary dose, the results varying somewhat with the species and to some extent with the individual. There can be no question that these facts are applicable to the tuberculosis of man, that the reason why our patients do not die, as a rule, of acute tuberculosis, but have a chronic and limited form of the disease is because they have had small immunizing doses of tubercle bacilli and have acquired a

certain immunity. A non-resistant animal which receives an intravenous injection of pneumococci does not die of pneumonia, but of pneumococcus septicemia. A certain amount of resistance is demanded in order to localize the disease as a pneumonia. Just so the non-resistant animal dies of generalized tuberculosis after a large dose of tuberculosis and only the relatively immune animal acquires tuberculosis limited to the lungs. But pulmonary tuberculosis as it usually presents itself manifests a tendency to cure or at least a tendency to become localized; so many years of conflict are required in many cases before it succeeds in having its own way with the patient that there can be no doubt that an immunity is present and that it is an immunity of a very high degree.

Supposing now that the patient has this high degree of immunity, that there has been only a slight lapse from the state of absolute immunity, it is reasonable to believe that comparatively slight remedial agents, a little improvement in the conditions of life, a little rest, somewhat better and more abundant food and the like, may suffice to assist the patient's organism to make the comparatively slight effort demanded to acquire again the state of absolute resistance to the tubercle bacillus. What we seek by our treatment is not to find agents that shall destroy or inhibit the tubercle bacillus, as much as to help our patients to restore their own immunity. Countless drugs have been useless, or worse than useless, in combatting tuberculosis because they have been employed with a false idea. They have been selected with a view to destroy the tubercle bacillus, or to cure some symptom such as cough, not with a view to strengthening the resistance of the patient, or restoring his immunity. It may be doubted whether any drug will ever be found that will have any material effect in impairing the activities of the tubercle bacillus, but it is quite easy to name numerous drugs which will have an injurious effect upon the patient. In the present state of our knowledge it may be laid down as an axiom that anything that is bad for the general health of the patient is bad in the long run for his tuberculosis. On the other hand, the making of antibodies against the tubercle bacillus is a function of the nutritive activities of the cells of the body. Hence anything that favors a more perfect nutrition is of benefit in helping to regain the lost immunity. The agents that have been found to be helpful in this regard are better oxygenation from abundance of pure air, rest to restore the weakened nerves of the patient and lower demands upon his reparative powers, and good food well assimilated. These constitute the tripod

of treatment; with them wisely used wonders can sometimes be accomplished, but only, it should always be borne in mind, in cases in which there already exists an immunity which is capable of reinforcement. Some patients get well, in spite of gross neglect of treatment; others are cured only by much careful treatment; still others die with tuberculosis which advances inexorably from the very outset, no matter what treatment we may adopt, the result in the individual case depending fundamentally upon the degree of immunity which the organism is capable of attaining.

In tuberculosis we prescribe not medicine, but a mode of life. It is a simple matter to write prescriptions; it is difficult to work upon the patient's mind so effectively that he will be willing to change entirely his mode of living and to persevere in the new way for months, perhaps for years, often through his whole life. To do this requires much patience and zeal. The physician must have faith in the treatment that he prescribes; he must really believe what he says when he strives to influence the patient. You can deceive a patient for a little while, but he will detect shams in daily intercourse which extends over months. The physician then must have the zeal of a missionary seeking converts. He must also have a knowledge of the reasons why certain things are necessary in treatment and be able to present these reasons so convincingly as to persuade the patient to receive them and be guided by them. And, thirdly, the physician must have skill in diagnosis to determine the exact condition of the patient so that therapeutic measures, like exercise, rest and feeding, may be so prescribed as accurately to meet the patient's varying needs.

The psychical side of treatment is that which is most neglected, yet in it the most notable successes are attained. Some physicians expect their patients to be morally weak, to demand amusement, to need diversion, to be unable to exist without the presence of their families, and they excuse harmful exercise on the ground that otherwise the patient will become despondent. No good results are ever attained in that way. Others consider it necessary to keep up the patient's faith in treatment by the use of drugs, which are given as placebos, not because they are of therapeutic value. And they will tell you that as the course of the disease is long it will be necessary to frequently change the drugs employed, in order that the patient's hopes may be kept alive. This also is a device of the faint-hearted and the pessimistic. They are trying to deceive their patients and must inevitably fail in the long run. The patients may not indeed believe that they are being deceived, but they will infallibly lose faith in the efficacy of the medication.

The physician with faith and zeal will endeavor to bring the patient's will to assume command. He will encourage optimism and perseverance, a resolute putting away of doubts and fears, a stout-hearted determination to endure cheerfully a monotonous existence. The patient, to be a successful patient, must himself have a good deal of the philosopher in his make-up. The writer's experience leads him to believe that fully

two-thirds of the patients can be successfully influenced psychically. Intelligence in the patient is much to be desired, but not all intelligent patients can be influenced. Next to a good immunity and a good physician the third most important desideratum in the treatment is faith in the physician and willingness to co-operate on the part of the patient.

Rest.—The influence of rest in abating the severity of an inflammatory process is well known. Especially important in tuberculosis is rest with a view to lessen the volume of the pulmonary lymph. The effect of motion and of friction in spreading infection from a suppurating focus is a familiar surgical fact. As Tendeloo has pointed out, it is probable that extensions of tuberculosis in the lungs are caused in a similar way. The diseased portion of the lung, having lost some of its elasticity, expands less than the neighboring healthy portions and at the same time contains a greater amount of fluid; hence the possibility of the suction of lymph, presumably contaminated with tubercle bacilli and their poisons, from the focus into the healthy lung through the numerous anastomosing lymph channels. The danger of such extensions will naturally be the greater the more acute the inflammation, and consequently the larger the volume of lymph, and the more vigorous the respiratory movements. In other words, with relative rest of the parts the neighboring healthy lung will not be as likely to aspirate lymph from the tuberculous focus, partly because from the favorable influence of rest there will be less lymph to aspirate, partly because the suction will be less. From the foregoing it is evident that breathing exercises are contraindicated in the active stage of the tuberculous process. Not only should deep breathing be avoided, but motion of the upper extremities should be reduced to a minimum.

Rest is also highly desirable to promote cicatrization and encapsulation. Surgeons have discovered that the formation of fibrous tissue in wounds is greater when the parts are at rest than when they are in motion. So far as the lungs are concerned, the process may be explained as follows: Tendeloo has shown that a chemical irritant injected into the normal lung excites zones of inflammation the nature of which varies with the concentration of the irritant, there being a central necrosis, then fibrinous, then serous inflammation, last of all a zone of proliferation of fibrous tissue. Similarly, in tuberculosis the formation of fibrous tissue is caused by irritation from the poisons of the disease. Now there must be an optimum amount of irritation which will excite the growth of fibrous tissue to the greatest possible extent. The parts being at rest and the irritant being supposed to be produced as a constant quantity, the influence of the irritant will be most apparent at the distance at which the optimum stimulus is excited by it; connective tissue may perhaps be formed within and beyond that zone, but the efficient encapsulation will take place at the optimum distance. If the parts are in motion the irritant instead of exerting its stimulant effect over a certain limited zone will be diffused, now one and now another part of the tissues being

flooded by it, but there being nowhere a zone in which the optimal stimulation is steadily applied. The result of this will be a wider diffusion of less well-developed fibrous tissue, so that, while there may be in the aggregate a larger fibrous transformation its effectiveness as a capsule will be impaired directly as the extent of its diffusion.

And lastly, rest of the body is needed for its recuperation. In fighting its mortal enemy the body has two tasks, first to make antibodies against the tubercle bacillus; second, to erect fortifications in the shape of encapsulations. Both tasks have to be performed by an organism below par. Perfect nutrition is required for the complete success of the undertakings, especially for the more difficult problem of furnishing efficient antibodies, but the nutritive activities have to be exerted by cells more or less poisoned, more or less badly nourished, fed by blood that may be fevered, but which, whether fevered or not, is certainly tainted. Evidently with such tasks before it the organism cannot afford to waste its strength and substance in making unnecessary repairs, not only in replacing the cells of voluntary muscles, but much more in making up deficiencies of that mysterious force which we call nervous energy. If anything is certain in the therapeutics of tuberculosis it is that the most fatal injury that can befall the consumptive is the exhaustion of his nervous energy by over-exertion. We must then guard his scanty store of this most precious possession by every means in our power in order that what remains of it may be used only for the most necessary expenditures.

Rest, as we use the term in the treatment of tuberculosis, means, of course, necessarily only relative rest. There is no doubt—in the mind of the writer at least—that the nearer the patient can approach to a state of absolute rest, if he is more than slightly affected and if the disease is active, the better his chances of cure. An example will serve to show how great an improvement may be made by apparently slight differences in regimen. A physician with advanced and extensive pulmonary lesions and with a maximum temperature oscillating about 102° and 103°, was accustomed to dress every day, go down stairs, and spend the greater part of the daylight hours sitting quietly out-of-doors. When the writer assumed charge of the case he at once directed that the patient go to bed. To this the patient strenuously objected, saying that he would get weak in bed, would lose appetite, that he was not taking any exercise, etc. However, he finally went to bed with reasonably good grace. Very soon improvement in his condition became manifest, his temperature gradually dropped to normal and remained there, and the evidences of activity in his lesion abated and finally disappeared. The patient admitted, after six months in bed, that not only had he not become weak, but that his muscles were larger and stronger than they were when he took to his bed. Upon passing from under treatment the patient returned to the East. Here experts examined his lungs and told him that the disease was arrested. He became over-sanguine, exerted himself too much, and finally died. The case is cited as an evidence not only of the value

of nearly absolute rest as a curative agent, but also of the need of long perseverance with the treatment in advanced cases if durable results are to be obtained.

Sitting is an artificial posture which requires the constant contraction of certain groups of muscles. It is therefore not only a form of exercise, but a bad form of exercise. It is much better, therefore, for the patient to lie flat on bed or couch when resting. But even in lying certain minutiae must be taken into consideration. Some patients do not know how to rest, even lying down. They are constantly in motion, turning from side to side, restlessly changing their position. Or they constantly busy themselves in reading, writing, or talking. For such patients even lying down is exercise, and not the best form of exercise. The full benefit of the recumbent position can be attained only if the patient is taught to practise lying perfectly still with relaxed muscles.

It is unfortunate that the term relaxation smacks of dilettanteism in medicine, having been used in the Delsarte method, for the procedure is one of value if thoroughly understood and faithfully practised. It was pointed out long ago by Charles Darwin,* quoting Herbert Spencer, that the nervous energy liberated in mental activity overflows upon the muscles and, if in large amounts, upon the viscera. The mental activity of the subject can be determined in a rough way by inspection of the face, the expression of one in deep thought having a tenseness which is absent in revery or mental relaxation. Much more evident are the changes in expression when the emotions are excited. It is very easy to see that the face you watch denotes anger, grief, or joy, the tension of the facial musculature varying with the emotion felt. We judge of the nature of the emotion by the action of the small and unimportant facial muscles which are but little controlled by the will, but the overflow is not limited to these groups. The infant expresses his joy by waving his arms and kicking his legs. As he grows older he learns by degrees to express emotional display in the voluntary muscles which are well under his control, but more or less tension still exists. Furthermore, the viscera also are specifically affected by the varying emotions. Stimulation of the tear gland with its unimportant secretion of salt water discharged outside the body furnishes a safe means of minimizing the repercussion of emotion upon the viscera. The sthenic emotions raise the blood pressure and strengthen the heart action; the depressing emotions have the opposite effect. Anger is injurious to the liver; nervousness causes a polyuria, fear strengthens peristalsis with resulting diarrhea or even vomiting. The relation of the emotions to the genital organs is also a conspicuous illustration of nervous overflow.

The converse of the above proposition, namely, that the absence of tension of the muscles has a tendency to quiet the emotions and to inhibit the general activity of the brain as an organ of thought is not so easily proved, but seems to be shown by experience to be true. There is no better means of securing sleep than to relax com-

*Expression of Emotion in Man and Animals, 1873.

pletely all the voluntary muscles. The method is as follows: Assume a comfortable position with the body so placed that it is in a state of stable equilibrium; that is to say, is not maintained in its position by muscular effort, the arms and legs being likewise so disposed that muscular relaxation will not change their position. These precautions will prevent the "startings" or reflex contractions which so often disturb the body which is relaxing in its first sleep. Then give the attention to the relaxing of any muscles that are in a state of contraction, devoting especial attention to the muscles of the neck. Very often it will be found that the position thought to be one of rest has only been maintained by the contraction of groups of muscles, which when they relax cause the nose to plunge into the pillow or otherwise necessitate a change of position. The best way to relax the muscles is to expire deeply, letting the muscles go during the process, "hitting the bed hard" as the saying is, then holding the position gained in the following inspiration. There is an analogy here with the method of exploring the abdomen by pressure during expiration which is obvious. The classical position for relaxation is supine at full length with arms and legs everted, the stronger flexors thus being stretched to their full length, the weaker extensors being less likely to maintain involuntary contractions, but the principle in either position is of course the same. This procedure will seem to many a trifle unworthy of consideration, but nothing is a trifle which will exert a favorable influence to however slight a degree through weeks and months, and it is precisely the failure to take advantage of the seemingly little helps which makes the difference between success and failure in the treatment of tuberculosis. The patient having learned to relax for a few minutes—and it is useless to expect more at first—is encouraged gradually to increase the length of the time during which relaxation is obtained, being charged to seek perfect relaxation for a comparatively short time rather than to practise it carelessly for a longer period. Having learned the art, it is best to require him to devote to it certain periods of the day, preferably before meals, for as long a time as it can be endured without becoming burdensome. Patients differ much as to their success. Some succeed almost too well, so that they drop to sleep at every opportunity; others, taking it up half-heartedly, never really acquire the method. But the relaxing of the muscles is only the beginning of the schooling of the patient. He must be taught likewise to control his emotions. The influence of worry, homesickness, and other depressing emotions upon the nutrition is a familiar fact. The patient must be instructed to put away resolutely such depressing thoughts, at first during periods of relaxation, later at all times. To such counsel the obvious retort is: "I know that I am sick, miss my friends, etc., and it is useless to pretend the contrary." This is true, but the proper answer here is: "It does not matter what you know, so long as you do not allow it to excite your emotions. Your stomach does not care what you *know*, it is only disturbed when you *feel*." The idea that it is the emotional reaction to unpleasant ideas that is

injurious, not their intellectual apprehension, is one more easily imparted to the intelligent patient than might be supposed at first sight. For those who do not readily yield their consent to this psychic training it is well to suggest that, if they must worry and feel "blue," they select certain hours of the day as "worrying hours," in which they may feel as despondent as they please. The suggestion rarely fails to excite a smile and it is quite evident that an emotion deliberately excited at a fixed hour will rarely be strong enough to be prejudicial. It is well also to incite the patient to suggest to himself sensations of comfort and well-being, especially during the periods of relaxation. We physicians are far too prone to neglect the influence of unfavorable suggestions upon the well-being of our patients. The fact of sickness, one's presence in a sanatorium, physical examinations, discussion of symptoms, etc., are so many suggestions of an unfavorable kind. It is our duty to train our patients to feel that their salvation lies in securing a preponderance of favorable suggestions, that here again though one really does not feel well, yet if he can hoodwink his viscera into the idea that he does, he is accomplishing something worth while. Just as the intellectual apprehension of the fact of illness does no harm when divorced from the emotion reaction to the same unpleasant fact, so a more or less feigned sense of well-being does good though the intellect perceives its falsity; moreover, the feigning of a sense of well-being is the best way to realize a genuine sensation of the same kind.

The tuberculous patient is neurasthenic; that is, he has a weakened nervous system. Wundt long ago showed that if the sciatic nerve of the frog's leg is stimulated by an electric current, the effect of the stimulation of the fresh nerve is to produce, first, an inhibition of contraction, with continued action; later, a contraction of the muscle. But when the nerve has become exhausted by repeated stimulation the inhibition is absent and the first effect of the current is contraction. In other words, excessive irritability of the nerve is a sign of nervous exhaustion.

Similarly, the nervous system shows its weakness by a too ready yielding to emotion, a too rapid response to stimulation, a tendency to expend energy to the impoverishment of its store. Hence it is said that the neurasthenic have anesthesia of fatigue. A stimulus which would remain unnoticed by the healthy sets the nervous "on edge." A healthy man has no tendency to expend energy except for adequate reasons, the exhausted nervous system expends energy with extravagance on slight or no provocation. The restlessness of the sick is felt as well by the overfatigued. They are "too tired to rest." So the neurasthenic keeps up his activities to the point of exhaustion, and often prides himself upon an activity of mind and body which is overdrawing his capital. A patient will often claim with pride that he has a too active mind because unable to quiet his brain, though its activity is employed to no useful purpose. He may also be too "active" in his own estimation to need bodily rest. When a patient, after working beyond his strength, or at the end of long journeyings, is at last put to bed, the nervous excitement

which has kept him up abates and he begins to realize his true condition of weakness. He sometimes misinterprets this and believes that rest in bed, instead of revealing his weakness, is causing it. Not uncommonly he will demand to be allowed to leave his bed, declaring that he is growing weaker every day and will soon die unless he gets up. No time should be lost in explaining to the patient the need of rest and the reason why he has not apprehended that need. Complete rest with relaxation of the muscles is an imperative indication; the patient must learn at the earliest moment what his weakness really is, and, as it were, build up strength from a solid foundation. Having recreated in some measure his energy, the next problem is to persuade him to store it up. The overirritability of the nervous system does not disappear in a day. The patient is impelled to expend his minimal quantity of energy as soon as it is created. Whereas he much needs a bank account, he acts like the child who must spend his penny as soon as he receives it. The patient most difficult to control is he who has not experienced an exhaustion, the existence of which could not be denied. The thoroughly exhausted patient does not forget his experiences and is taught by them to appreciate considerations like the foregoing. But the patient who is simply "nervous" and restless requires much patient endeavor to bring him to a realization of his need of absolute rest. In fact, the best thing that could befall him would be an accident like a fracture, which demands long rest without any question. The history of a patient of the writer will best illustrate the fact that conditions which call for unusually prolonged rest often operate to the ultimate great advantage of the patient. A naval officer, fifty-eight years of age, had a rather large and active tuberculous lesion, involving the right upper lobe. There was sometimes rather high fever, but this abated under rest and he became able to take some exercise without apparent ill effect, except that cough and positive sputum persisted. The patient and his family were under the impression that an active life was to be desired and by rides and walks he fancied that his condition was improved. The probable outcome of the case appeared to be a considerable prolongation of life without absolute arrest of the tuberculosis. But, fortunately for him, a complication, usually regarded as serious, declared itself. His activities began to be impeded by pains which he ascribed to rheumatism and treated ineffectually in various ways. Finally the severity of the pain drove him to consult the writer, who at that time had not been in direct charge of the case. It then appeared at once that he had the classical signs of Potts' disease, with a well-marked "knuckle" over a dorsal vertebra. The prominence of the protrusion, the severity of the pain, and, above all, the fact that when attempt was made to apply a cast the pain shifted from one to the other side of the body led to the diagnosis of such a breaking down of the vertebra that the spinal cord was in danger of compression. The attempt to use a cast was therefore abandoned and the patient was put to bed on his back. There he remained, without once turning on his side, for seven months.

At the end of this long period, when he finally arose, his spine was soundly healed and the disease of his lungs was completely arrested. This happened twelve years ago. The patient is still on duty and in excellent health. There can be no doubt that the spinal complication was the most fortunate event that could have befallen him so far as the cure of the pulmonary condition was concerned.

The treatment of tuberculosis as thus outlined is not an easy treatment. It is well, therefore, to train the patient from the outset to feel that he has a responsibility for the outcome, that he must learn to exercise control over his nervous system, that the treatment involves a discipline which is not easy to acquire. The following case illustrates what may sometimes be accomplished with an intelligent and docile patient. An officer of the army arrived at Fort Bayard upon a litter, after a long journey, in such a state of exhaustion that death appeared imminent; in fact, his mother was at once sent for to be with him at the last, and stimulation was resorted to in the hope of keeping him alive until she could arrive. The case was one of acute involvement of the entire right lung. There was an enormous cavity, and the fever was high. In short, the case was one that seemed inevitably destined to death. The patient requesting a prognosis, he was told that he was very ill and that no promise of recovery could be given, but that there were certain things that he could do to help himself, and that they were worth trying. The psychic treatment was thereupon explained to him. He grasped the idea quickly and devoted himself to its realization with his whole soul. The result was that his mother, who came to see him die, remained at his bedside for two years. When he was finally able to leave his bed no one who saw the rosy face and well-rounded limbs of the patient would have dreamed that he had lost practically the whole of his right lung. He is still living after twelve years, is married, and at last accounts was in good health. If the skeptic doubts the connection between the brilliant outcome and the method of treatment, the writer can only rejoin that he has never seen so ill a patient recover, nor has he ever known a patient to carry out so thoroughly and persistently the principles of treatment inculcated.

The thought of spending endless days in bed, without occupation, is terrifying at first. But it is surprising how quickly the docile patient learns to adapt himself to the situation if the issue is squarely presented to him at the outset. The psychic training gives him occupation and in favorable cases the manifest benefit therefrom encourages perseverance. It helps greatly to have a schedule of work for the day, so many minutes or hours for muscular relaxation, succeeded by reading or listening to reading, perhaps writing letters, the care of the toilet, etc., then another period of relaxation, and so on, but always with the idea that the rest is the serious work of the day, its interruption the less frequent and prolonged periods of amusement. And so the patient soon learns to spend his days in a kind of busy idleness which makes them seem not long. Much depends upon the persistence and robustness of

view of the physician. If the latter indulges in an injudicious sympathy, tries to amuse the patient, teaches him to depend on outside helps instead of upon himself, not much will be accomplished. In short, the patient must be made to feel that the physician really believes in what he teaches. The patient must be taught the necessity of not interrupting the treatment on any excuse. The tubercle bacillus has no "days off"; he must, therefore, take none himself.

Fresh Air.—Rest must be by all means associated with the outdoor life so far as is practicable. Fresh air is perhaps as important a factor for the cure as rest, in the long run, but the difference between the air of a well-aired room and the outer air is not great enough to justify loss of rest or the endurance of discomfort in order to obtain the latter; a very ill patient is not strong enough to endure the vicissitudes of the outdoor life and does better in his room with windows raised. A stronger patient will profit by sleeping out of doors the whole or the greater part of the year; but no patient should be permitted to defy the storms and thus run the risk of becoming wet and chilled. A certain amount of hardening is advisable. Covering should be rather light than heavy. Warmth which leads to perspiration is always bad. For the same reason hot-water bottles should be used sparingly and for brief periods, and so-called chest-protectors should be eschewed altogether. As in the case of rest, it is important that the patient should feel that the physician is in earnest in his advocacy of fresh air. This he will not believe if he finds that he is permitted to stay in ill-ventilated rooms or even sit behind the stove in a room filled with tobacco smoke. Strictness of discipline in this regard is of much importance.

Exercise.—The febrile tuberculous patient in whom the maximum daily temperature habitually exceeds 99.5° F. should unquestionably be kept in bed. As the temperature falls the patient may be allowed to attend to his own toilet, perhaps shave himself or walk about a few minutes. Such relaxation of the regimen should occur immediately after eating, in order to take advantage of movement as a stimulation to peristalsis. It is better to permit alternations at first only between lying in bed and walking or standing than to allow much time to be spent in the sitting posture even without walking. These indulgences should be carefully specified, their duration prescribed and increase in length made very gradually under control of the temperature by repeated thermometric observations. The question as to the importance and significance of minor fluctuations in temperature is a most difficult one to decide. The temperature of a normal man who is left in bed continuously for weeks shows fluctuations of a fraction of a degree from very slight causes, as interesting studies have demonstrated. In these studies the temperature of normal men at work was also taken, night and morning, during a month, with the result that temperatures above 99°—99.2°, 99.3°, even 99.5°—were not uncommon in the evenings. The temperature which, taken before breakfast after a night's rest, was perhaps 97.8°, after half an hour's work habitually rose about 1°. The members of the group studied in

this way four years ago have all remained well. The fluctuations of temperature while perhaps not, strictly speaking, an entirely normal phenomenon, were at least not evidence of a masked tuberculosis. It is therefore unsafe to regard minor fluctuations of this kind an evidence of tuberculosis in doubtful cases without careful regulation of the mode of life. The well man may show considerable fluctuations, but they are developed in the course of an active life with its irregularities as to expenditure of energy and as to amounts and character of food consumed. If, on the other hand, the tuberculous patient is shielded from vicissitudes and leads a regular life, similar changes of temperature may rightly be ascribed, as a rule, to the tuberculous process *per se*. The problem, however, remains one that will frequently tax the acumen of the physician. The best rule is to require the acute case to rest irrespective of temperature, as the conditions become more chronic, to be guided strictly by the thermometer, and when the case has become one that is progressing toward arrest to ignore the slighter fluctuations of the temperature. Cases with large lesions must be treated with more severity as respects the enforcement of quietude than those with small lesions. All of which goes to show the absolute necessity of an accurate diagnosis of the patient's condition in every respect if one is to gauge with correctness the indications for rest or exercise, and, if the latter is permitted, its amount. Each case must be the subject of special study. No hard and fast rules as to fluctuations nor as to thermometer readings which permit exercise can be laid down. In case of doubt it is always safer to err on the side of too much rest. Exercise as a therapeutic measure should be restricted to the chronic case and the physician should be quite sure that he is able to determine the fact of chronicity before making such prescriptions. The writer has sometimes had occasion to reproach himself for undue leniency in permitting exercise prematurely. The error most frequently made is to allow the amount of exercise to be too rapidly increased and to fail to insist upon adequate control of the effects of exercise by the thermometer. As has been well said, the patient who begins to exercise has reached a period of danger in his course of treatment. He can hardly be too carefully watched. In the Southwest are the graves of many consumptives who have been told to "rough it and keep away from doctors."

Feeding.—The patient who has worked beyond his strength has often been too tired to eat for long periods, in some cases has had little and poor food. Put such a patient to bed, with a mind free from care, and give him an abundance of good plain food, and it is surprising how much he can eat and how well he will digest his food, gaining weight rapidly and improving unmistakably in general condition. In a case of this kind, where there is a deficit to make up, the problem of nutrition is easy—all that is necessary is to give the patient what, and as much as, he wants. When cases from the proletariat of large cities are admitted into tuberculosis institutions for comparatively brief periods, a few months at most, the great majority of the patients will be-

long to the class which is able to eat well and will be benefited by so doing. Hence has arisen the teaching that a patient should be overfed, that hyperalimentation is one of the factors of treatment. So it is, so long as there is a deficit of nourishment to be made up. He who has starved long can feast for a while with impunity. But if such a patient remains long under treatment the time will come when he is "filled up," as the saying is. He has made up his deficit and from that moment he becomes like others as respects the dangers of surfeit. Many patients have always had an opportunity to rest and an abundance of good food to tempt their appetites. They have no true deficit to make up. For such patients stuffing with food is only prejudicial. In many cases difficulties of digestion are dependent upon the kind rather than the amount of food. Too much of concentrated foodstuffs, acids, sugars, fats, and meats, tax a system not stimulated by exercise and produce heaviness, gastric acidity, and bad-temper. The stomach and intestines of him who lies still all day, if kept over full, become enfeebled in their peristalsis and dilatations readily occur. The food consumed at one meal should be entirely digested before the next meal. It is a common fault to overfeed from a sense of duty, with no real desire for food. The patient who begins the day with a too ample breakfast often makes that breakfast his only meal. It is often wise to omit a meal or two until a healthy hunger develops. He who is a little ahead of his needs is never hungry, he who does not quite satisfy his appetite always enjoys eating. There is truth in the saying, "It is better to eat yesterday's dinner than to-morrow's." In view of the prevalent doctrine of the need of overfeeding in tuberculosis, it may be well to cite a case in which the cure of tuberculosis progressed, though the patient was on what might be called starvation diet. An officer returned from the Philippines with small tuberculous lesions of both upper lobes. The sputum was positive for tubercle bacilli. In addition to the tuberculosis he had tropical sprue, and had had hookworm. Upon arrival he was unable to eat anything for many weeks except small quantities of milk. To this he was finally able to add a small quantity of grapenuts and very gradually to increase his food supply by an occasional egg, a few biscuits, a ripe pear, etc. Notwithstanding the fact that his diet for months was greatly deficient, both in calories and in nitrogen, his tuberculosis progressed most favorably to complete arrest. He finally recovered entirely from the sprue, and has been on duty in the Philippines for six years.

The fact that semistarvation does not necessarily lead to tuberculosis, as is commonly believed, has been demonstrated on a large scale in the case of the French prisoners. The alarming accounts as to the prevalence of tuberculosis among these unfortunates, which have received universal credence, are now found to have been greatly exaggerated. In certain groups of returning prisoners the percentage of tuberculosis has been rather high, but among large numbers returned of late it is reported to have been surprisingly low.

Symptomatic Treatment.—The symptomatic treatment of the consumptive does not differ from that of other patients. Cough medicines should be used sparingly and only for special indications, as, for example, after hemoptysis. Much can be done by teaching the patient to suppress useless cough. The patient who has a cavity should be taught to empty it, at least once a day, by assuming a position that will favor drainage into the bronchi. Some patients have the idea that it is necessary to expel expectoration at the earliest possible moment and often exhaust themselves by prolonged coughing in order to raise an insignificant pellet of mucus, which, with a little patience, would have been forwarded by the natural mechanism so as to be readily ejected with little effort. The idea that expectoration is infectious for the patient and must be gotten rid of without delay is one for which the physician is sometimes responsible. A worse error is to inculcate the notion that it is extremely dangerous to swallow sputum. Patients are sometimes kept in a state of nervous apprehension, which is most prejudicial to their recovery by such injudicious teachings.

The tuberculous patient ascribes all his unpleasant sensations to the tuberculous process. For him the pain in the chest which is so common, always means pleurisy and a little diarrhea raises the specter of intestinal tuberculosis. The physician can be of much comfort by teaching that the fugitive pains in various parts of the body, and the various manifestations of indigestion, are common in all those whose health is below par and have no direct connection with tuberculosis. At the same time such symptoms call for inquiry as to the cause with a view to improving the personal hygiene and the patient should be encouraged in the ambition so to regulate his life as to have as nearly perfect digestion and elimination as can be attained under the conditions.

Tuberculin.—The writer has seen too often very serious harm from tuberculin as employed by others, to be enthusiastic concerning its use. Tuberculin is most helpful to those who need help least. Advanced cases of tuberculosis are very seriously injured by it, but the rather numerous class of sanatorium patients who have little or no active tuberculosis, their disease being of a chronic, though often diagnosticated as acute type, are able to tolerate it, sometimes apparently to their advantage. Those physicians whose practice is mostly confined to cases of well-marked manifest pulmonary tuberculosis are rarely enthusiastic advocates of its use. An accurate diagnosis is indispensable. Tuberculin in the hands of the ignorant is a terribly deadly weapon. The writer believes that cases of genuinely active tuberculosis are more often harmed than benefited by it and is of the opinion that better results in the long run for the average patient are attained by the psychic treatment. He is, therefore, opposed to the use of tuberculin in army hospitals.

^a *Carabelli's Tubercle in Antiquity.*—Jeanselme has found this supposed stigma in the teeth of subjects in all periods of history and pre-history and from all countries. This discovery greatly lowers the worth of the claim that it is very largely a stigma of inherited syphilis.—*La Presse Médicale.*

STAMMERING.

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STAMMERING is a transient hesitancy in pronouncing a vowel or a consonant, or in uniting a vowel with a consonant. Should the obstacle occur in the middle of a word, it often happens that the preceding letter or syllable is repeated several or many times, when the defect is known as stuttering.

Etiology.—The etiology or cause of stammering is the subject of much conjecture, and many superficial observers have supposed that they had discovered it, only to be disappointed upon further examination. In seeking the etiology of stammering, it is essential to consider any predisposing influence that may be exerted by the various factors associated with the defect.

Age.—Stammering is an affliction that belongs to youth. Makuen in a report of 1035 cases studied at the Philadelphia Polyclinic Hospital, states that it is rare for the affection to develop after puberty, and that 38 per cent of his patients asserted that they had stammered as long as they could remember. Sala, in his work, "Cura Della Balbuzie e Dei Defetti Di Pronunzia," states that stammering appears most usually between the ages of 3 and 9, rarely after puberty. The predisposition to stammer may be noted in some cases even before the child has learned to talk fluently.

Sex.—Statistics show that about 84 per cent. of the cases seeking relief are males, and this would seem to indicate that sex should be regarded as a factor contributing to the cause of the affection. Makuen attributes the prevalence of male stammerers to the more variable and unstable male cerebral speech centers.

It is a matter of incidental interest, perhaps deeper than a coincidence, that males suffer much more frequently from neurotic and psychoneurotic affections than females. Among school children, Goddard tested, by the Binet measuring scale, 1547 cases, and his figures, distributed over various age limits, indicate a lower mental status for boys than for girls.

Temperament.—A characteristic nervous temperament is typically dominant among stammerers. This condition may follow one of the infectious fevers or other diseases of childhood, or it may be the result of eye strain, hypertrophied tonsils, adenoid vegetations, or intranasal pressure from whatever source. Strong emotional tendencies, fright, timidity, fear, and a proneness to imitate or mimic are further temperamental characteristics of the stammerer.

Mentality.—Stammerers do not present, as a rule, any markedly abnormal mentality. An analysis of 1035 cases made by Makuen shows the following distribution: 85 per cent. average, 10 per cent slightly below average, 5 per cent decidedly below average. These percentages do not differ radically from those cited by Goddard in his report on the examination of about two thousand school children, comprising one whole school system.

Chervin, in his work "Le Begaiement, Sa Place Dans La Neurologie," expresses the view that in

most cases stammerers do not present an impaired mentality, and that any tendency toward mental dullness by them manifested is dependent upon their conscious effort to avoid embarrassment or ridicule.

Health.—The health of the stammerer is generally below par. Neuroses and psychoneuroses are prevalent in stammerers and their ancestors, and should be considered among the probable predisposing causes. Constitutional disorders are related to stammering only in so far as they are capable of reacting, reflexly, on the central nervous system.

Glandular enlargements in the pharynx and intranasal hypertrophies and spurs act as causal factors in so far as they interfere directly with the free automatic action of the muscles of vocalization and articulation. Such cases should be referred to the school medical examiner, and his counsel obtained.

Heredity.—Many authorities regard stammering as an inheritable defect. Denhardt, in his book, "Das Stottern Eine Psychose," claims in 1994 cases to have found evidences of heredity in 1545 stammerers, that is approximately 78 per cent. Wyneken says on the matter, "One cannot escape the fact that there exists in many cases a certain inborn disposition to stammering," and he adds further, "which cannot be eradicated by the most careful training." Makuen believes heredity to be the most important etiological factor. His figures are: 39 per cent. had relatives who stammered; 32 per cent. stammered through association (imitation); 28 per cent. dated stammering to an instant having received a sudden shock; 3 per cent of stammerers were the offspring of consanguineous marriages.

Davenport, in his "Heredity in Relation to Eugenics," gives pedigrees of two stammering families. When we consider that the combined observations of Denhardt, Makuen, and Wyneken were able to accredit, and without positiveness, an hereditary etiology in only 35 per cent. of 4231 cases, it detracts materially from the probability of Davenport's view, based on two cases, that stammering is to be regarded, hereditarily, as a unit character.

Doubtless many cases of stammering ascribed to heredity are in reality due to unconscious imitation; but where this explanation fails, heredity in its relation to the transference of a psychoneurotic diatheses, which, as we have noted, predisposes stammering, must be considered before one may definitely claim the existence of an hereditarily determinative stammering unit in the germ-plasm.

Stigmata of Maldevelopment.—Decided evidence of arrested or imperfect development, whether anatomical, physiological, or psychical, are unfailingly present among stammerers.

High and irregular palatal arches, palatal growths, bifid uvula, atrophied or hypertrophied velum, and hypertrophied ligular frenum are the chief anatomical stigmata to be found among stammerers.

Nystagmus, asthenopia, strabismus, astigmatism, and partial deafness are important physiological stigmata.

Immoral habits of life, manias, hallucinations, illusions, and tendencies toward hysteria, melancholia, epilepsy, and dementia are the frequent psychical stigmata encountered.

Mental Type and Primary Cause.—Adopting the

nomenclature of Charcot as regards the types of mental imagery determining thought, we have: (1) The visile. (2) The audile. (3) The motile. The visile remembers best that which he sees; the audile, that which he hears; and the motile, that which he feels. The prerequisite of voluntary speech is a definite antecedent mental verbal image, be it visile, audile, or motile.

Failure to transfer an antecedent verbal image, once formed, to the nervous mechanism of speech, is aphasia. We shall not concern ourselves with aphasia at this time. Incapacity to form an antecedent verbal image, is amnesia.

Secondarily, the age, sex, temperament, mentality, health, heredity, and stigmata of maldevelopment are contributory factors that assist in the undue irritation of the psychologic qualities whence amnesia arises.

Primarily, stammering results from a transient amnesia which temporarily inhibits the arousal of the necessary antecedent verbal image, of whatever type—visile, audile, or motile.

Derangements Accompanying and Resulting from Stammering.—The derangements accompanying and resulting from stammering and stuttering may be divided into two groups: (1) Psychologic. (2) Physiologic.

Psychologic.—In common with the physical manifestations of all psychoneurotic affections, stammering and stuttering may, and usually do, give origin to secondary psychic disturbances. A general hypersensitiveness to suggestion is the predominant secondary disturbance occasioned by stammering, and through this channel, mimicry and association exert their cogent effect upon the psychic mechanism involving amnesia.

Physiologic.—Physiologically, the derangements accompanying stammering and stuttering may be classified as to (1) Respiration, (2) Vocalization, (3) Articulation.

Respiration expresses two distinct ideas. On the one hand, it may mean the entrance of oxygen into, and the exit of carbon dioxide from the individual; on the other hand, it may have reference to the visceral, that is, muscular and pulmonary, movements by which these gases are caused to flow in and out of the lungs.

Inspiration is the process brought about by certain muscles, which by their action enlarge the thorax and involve the diaphragm, abdomen, and costal appendages. At the end of inspiration, the various muscles relax, and combined with an active recoil of the lungs, which have been stretched during inspiration, the thorax compresses and expels the air. Eupnea is a condition of normal easy breathing. Dyspnea, difficult breathing; apnea, suspended breathing; hyperpnea, increased respiratory activity; polypnea, deep, labored breathing; and asphyxia is the condition of convulsive breathing followed finally by infrequent and feeble respirations.

Depending upon the severity of the case, or the time of duration of the transient amnesia, the stammerer may present any of the gradations of abnormal breathing from dyspnea, apnea, hyperpnea, polypnea to asphyxia, in which latter case the heart beats are less frequent, the blood-pressure is increased, the skin may become congested and red,

or bluish, the lips and gums become cyanosed, and in rare cases consciousness is temporarily lost.

Another type of respiratory defect which is not uncommon among stammerers, is the attempt to vocalize at the end of expiration or the beginning of inspiration. There being no air with which to vibrate the vocal cords for the production of voice, the stammerers' attempt to speak results in a temporary aphonia, or absence of voice; and their failure to produce speech reacts detrimentally upon their psychic amnesic center prolonging the amnesic period, and therefore the stammering interval.

Derangements of vocalization may occur in one or two ways: First, by an affection of the exceedingly complex nervous mechanism of afferent and efferent fibers that run to and from the cortical centers controlling the voice. Second, by affections of any of the anatomical parts concerned in the mechanical production of sound.

Disturbances involving the nervous mechanism of the voice belong to the consideration of aphasia; but where the psychoneurosis is the product of stammering, the nervous mechanism of voice may become involved secondarily, and the two neuroses act, circumfluently, with corresponding speech interference.

Communicating with the trachea below, and the pharynx above, the larynx, holding the vocal cords, is the seat of vocalization. The vibration of the cords produces a sound which is intensified by reinforcement of the vibrations, by the resonating cavities above and below their insertion.

Disturbances of the voices may be referred to any of the three features of voice, which are: (1) Intensity, (2) Pitch, (3) Quality. The intensity depends upon the amplitude of vibrations of the cords. Hypertonicity of the muscles regulating the stretching of the cords produces an abnormal intensity. Cancerous growths on the vocal cords have been demonstrated not infrequently; and their effect on the intensity markedly noted.

The pitch of the voice depends upon the number of vibrations that are produced in a unit of time. The thickness, tension, and length of the cords determine the pitch of the sound produced; and any abnormality of the thickness, tension, or length is manifested by an unusual pitch. The quality of the tone depends upon the character of the upper partial tones which are combined with the fundamental tone. These are varied by the alterations in the shape or size of the buccal, nasal, and pharyngeal cavities. It is self-evident what the effect of adenoid vegetations, hypertrophied tonsils, stenosis of the nasal cavities, palatal defects, and similar abnormal growths and formations of the resonating cavities will be.

The derangements of articulation, like the derangements of vocalization, may be of nervous or anatomical origin. Interference with the nervous supply of the tongue, the lips, the velum or soft palate, or to the facial muscles involved in the mechanical setting of the letter sounds may act reflexly on the cerebral speech centers with sufficient intensity to produce amnesia. More often, the amnesia affects the nervous supply of the articulatory organs. This is accomplished by the combined effect of the many periods of anarthria, or suppressed articulation which the amnesia institutes.

As to the anatomical derangements of articulation, the vowels being laryngeal sounds, any defect in their formation is to be found in the larynx, or secondarily in the malpositions of the tongue due to anatomical deformity of that organ or to nervous affliction, like unilateral paralysis of the same; whereas, in the case of the consonants, anatomical derangements are sought in the particular organs that are used in the formation of the labials, labiodentals, linguodentals, anterior linguopalatals, or the posterior linguopalatals. Since the names of these consonant groups indicate the region of the mouth in which they are produced, and the means by which the air blast is interrupted, it is superfluous to repeat the various anatomical entities that are apt to be deranged in their malproduction.

Wyllie, Bastian, Gutzmann, and their contemporaries adhere to the theory of causality of stammering announced by Dr. Arnott in 1827, wherein the inability to produce voice is designated as the fundamental cause of stammering.

If the difficulty lay primarily with the inability to produce voice, all traces of the impediment should disappear when the stammerer whispers, for in whispering the voice is not involved. The general experience to the contrary is sufficient to refute the validity of this theory.

Similarly, defects in articulation and respiration have, at various times and by numerous writers, been considered as primary causes of stammering and stuttering. As in the case of delayed vocalization, the unsoundness of these views is evident.

There can be no doubt that remedial methods of phonation based on these theories do afford varying relief; but stammering is not a defect of phonation. Phonation is simply a physical manifestation of the defect of stammering; and, as we shall see later, the most permanent and the most satisfactory results in the treatment of stammering are obtained when the primary transient amnesia is recognized, and the remedial measures aimed at the removal or obliteration of the same.

Diagnostic Examination.—We must never lose sight of the fact that neither in a normal nor a pathological sense is there any mental activity which is not dependent on the central nervous system. The faculty of speech is presided over by delicate and complicated cerebral areas inciting to action and working in harmony with peripheral organs having other important bodily functions in addition to those of voice and speech production. A particular type of stammering or stuttering, therefore, having its origin in a defective action of some of these important central areas and peripheral organs, necessitates, for the better understanding and the scientific handling of the case, a minute investigation into the condition of each of the twelve cranial nerves.

Without attempting to describe the details of the methods for testing the functioning of the cranial nerves, we shall enumerate the deranged conditions and the manifestations of the derangements with a view of noting the underlying relation between imperfect nerve action and stammering.

From this tabulation, two features stand out pre-dominantly. First, the relation of the cranial nerves to the definiteness of the mental type; second, the relation, from the physiological standpoint, that

deranged function bears to the mechanism of the organs of speech. This latter item is especially manifest in the cases of the glossopharyngeal, vagus accessory, spinal accessory, and hypoglossal nerves.

Nerve.	Condition.	Manifestation.
1. Olfactory.....	Anosmia.	Partial loss of smell, bilateral or unilateral.
2. Optic.....	Amblyopia. Anisometropia. Hyperopia. Myopia. Astigmatism.	Partial loss of vision. Formation of imperfect retina images. Far-sightedness. Near-sightedness. Refraction errors.
3, 4, and 6. Motor oculi, patheticus, abducens.....	Orthophoria..... Heterophoria. (a) Esophoria. (b) Exophoria. (c) Hyperphoria.	Perfect binocular vision. Imperfect binocular vision. Inward deviation. Outward deviation. Upward deviation.
5. Trifacial.....	Sensory anesthesia. Motor paralysis.	Injury to sense of touch. Difficulty in chewing.
7. Facial.....	Emotional expression.	Unilateral or bilateral facial paralysis.
8. Acoustic.....	Deafness.	Impaired air conduction. Impaired bone conduction.
9. Glossopharyngeal....	Loss of pharyngeal reflex.	Nasal regurgitation of liquids.
10. Vagus accessory....	Pharyngeal. Laryngeal.	Inability to swallow. Change or loss of voice.
11. Spinal accessory.....	Palatal paralysis.	Non-movement of velum.
12. Hypoglossal.....	Lingual paralysis.	Modified articulation. Deranged mastication. Impaired deglutition.

Next in order, the diagnostic examination should be directed to the elicitation of the mental type of the stammerer. To this end, the modern methods of psychophysics, or of physiological psychology, are sufficient.

It should be recalled that the results of the cranial nerve examination afford a general indication of the mental type of stammerer; so that in most cases it is superfluous to conduct the routine psychophysical investigation in full.

The kinesthetic and static senses play an important part in the perception of space, besides furnishing data for the perception of the positions and motions of our members and bodies as a whole. To discern the motile, or kinesthetic mental type then, it is only necessary to direct investigation along the following kinesthetic line:

1. *Muscular Sense*—(a) Lifting moderate weights. (b) Discriminative sensibility for lifting weights (Weber's Law). (c) Adjustment of the motor discharge.

2. *Inervation Sense*—(a) Simultaneous movements. (b) Illusory movements of immovable members.

3. *Sensations of Motion*—*Joint Sensation*—(a) Passive elbow motion. (b) Location of movements.

4. *Sensations of Resistance*—(a) Illusory resistance.

5. *Bilateral Asymmetries of Position and Motion*.—(a) Apparently asymmetrical motions of the arms.

6. *Recognition of the Body as a Whole*.—(a) Recognition of direction. (b) Vertical and horizontal positions of the body.

7. *Sensations of Rotation*.—(a) Perception of uniform rotation. (b) Illusion of backward rotation. (c) Location of the organs for the perception of rotation.

8. *Sensations of Progressive Motion*.

Having completed the kinesthetic sense inquiry, we now explore the auditory or hearing sense. This is accomplished somewhat along these lines:

1. *Sounds in General*—(a) Minimal sound. (b) Discriminative sensibility for the intensity of sound. (c) Auditory fatigue. (d) Inertia of the auditory apparatus. (e) Noise.

2. *Single and Successive Tones*—(a) Highest tones. (b) Lowest tones. (c) Recognition of absolute pitch. (d) Just observable difference in pitch. (e) Pitch distances. (f) Recognition of musical intervals.

3. *Simultaneous Tones*—(a) Beats. (b) Combination tones. (c) Blending of tones. (d) Compound tones. (e) Timbre.

4. *Binaural Audition and the Location of Sounds*—(a) Unison tones heard with two ears. (b) Beats heard with two ears. (c) Judgments of the direction of sound. (d) Intercranial location of sounds. (e) Location of the tones of tuning forks pressed against the head.

Finally, the eye mechanism and vision in general are investigated as to the visual sense. This includes:

1. *Retinal Images and Accommodation*—(a) Retinal image. (b) Accommodation. (c) Accommodation image. (d) Mechanism of accommodation.

2. *After-Images*—(a) Accidental or consecutive. (b) Positive after-images. (c) Negative after-images. (d) Sequence of colors.

3. *Movements of the Eyes*—(a) Reflex movements. (b) Associated movements. (c) Actual movements. (d) Convergent movements. (e) Involuntary movements.

Having concluded the psychophysical examination of the stammerer, we are now informed as to the mental type which he represents.

Completion of the diagnostic routine includes the noting and recording of whatever anatomical or physiological derangements the stammerer presents.

By anatomical derangements, reference is made to abnormal formations or growths. Perforated palate, or adenoid vegetations are typical examples of the anatomical derangements.

By physiological derangements, we refer to the functional abnormalities through which stammering is made manifest. Imperfections of articulation, respiration and vocalization are the typical physiological derangements.

The diagnostic routine, then, if properly carried out, affords us the following information: (1) Status of the central nervous system. (2) Mental type of the stammerer. (3) Anatomical and physiological manifestations of the defect.

The information gained by a scientific, systematic survey after this scheme places us in a better position to localize accurately and to attack effectively the stammering evil.

Remedial Measures.—Most systems of treatment consist of exercises and expedients that are presumed to give one control of the refractory organs, or to regulate in some way the aberrant function. The basis of such systems is the prevalent view that stammering is a physiological defect, and that its cause lies in some respiratory, articulatory or phonetic anomaly.

There can be no doubt that in the majority of cases, systems of respiration, articulation, or phonation render valuable assistance in remedying stammering; but where this occurs, it does so not for the physiological benefits that the systems impart,

but for the psychological effect that they bear on the child.

To eliminate useless and endless repetition, the most practical presentation of the subject of the treatment of stammering will be to describe the units without necessary reference to the systems in which they occur.

Respiratory Measures.—Respiratory disturbances are often attributed to weak nerves or to muscular spasms. Gutzmann, Chervin, Findley, Shuhlman, Behnke, and Kreutzer are the foremost exponents of this view.

Respiratory disturbances are treated by breathing exercises which have for their object the strengthening of the respiratory muscles and the establishment of conscious control of the expiratory stream.

Systematically arranged, the breathing exercises involve various combinations of inspiratory and expiratory movements, and periods during which the breath is held.

The following exercises may be regarded as typical of the average system where breathing exercises form a prominent feature:

1. Inhale through a period of two seconds, fully inflating the lungs.

2. Exhale through a period of two seconds, fully deflating the lungs.

3. Inhale similarly through a period of four seconds.

4. Exhale similarly through a period of four seconds.

5. Inhale through a period of six seconds.

6. Exhale through a period of six seconds.

7. Inhale through a period of eight seconds.

8. Exhale through a period of eight seconds, etc.

9. Inhale through a period of two seconds.

10. Exhale through a period of ten seconds.

11. Inhale through a period of ten seconds.

12. Exhale through a period of two seconds, etc.

13. Inhale discontinuously through a period of four seconds.

14. Exhale discontinuously through a period of four seconds, etc.

Endless combinations of these exercises have been devised. Many persons teach these exercises from charts in which the directions are conveyed by symbols. Inspiration and expiration are represented by vertical and horizontal lines, or dots and dashes, or squares and circles. Periods during which the breath is held are usually indicated by parentheses, figures in the parentheses indicating the length of the pauses. In class instruction the time is either measured by a metronome, or is given by the instructor, who leads the class with a baton or beats time with his hand.

In another type of exercises the various sets of breathing muscles—the chest muscles, the intercostal muscles, the dorsal muscles, are exercised separately. Some sort of procedure is often prescribed for giving one consciousness of the diaphragm.

Use of the spirometer, an instrument for measuring lung capacity, forms part of the equipment of some instructors.

Throughout the United States, breathing exercises are practised in connection with dumb-bell exercises.

Still another expedient of respiration control that one finds among English, French, and German workers, is reading in a whisper. Bell, in his "Principles of Speech," recommends this procedure as a simple breathing exercise.

Prescinding from further review of the respiratory exercises commonly employed for the treatment of stammering, it may be stated, without any reservation, that these exercises may furnish an excellent instrument for elocutionists in treating physical stammering; and in the hands of a competent instructor, physical stammering has often been eliminated in a surprisingly short period; but the primary cause of stammering, the transient amnesia, remains unaffected.

If one has unreserved confidence in any system, one is temporarily absolved from fear, bewilderment, and inhibitive autosuggestion; and for a time at least physical stammering is reduced; but since the primary cause persists, confidence may be lost at any time, and the secondary causes return.

While respiratory measures are superficially beneficial, their failure to eradicate the transient amnesia explains the relapses and recurrences of stammering among children who are discharged as corrected.

Vocalization or Phonation.—We shall now examine the common expedients relative to phonation that are considered efficacious.

It should be observed that one of the commonest views in regard to stammering is that the disturbance is caused by a failure of the voice. This is a truism. Stammering is a failure of the voice, and to the supporters of this view, Ashmann, Thorpe, Wyneken, Arnott, Muller, and Forbes included, the question should have been put, "What causes failure of the voice?"

Two general methods are followed in combating defective production of the voice. First is the training of the child in various exercises with a view to establishing voluntary control of the vocal organs. The other method is to practice the child in some special mode of utterance with the object of counteracting the supposed cause of stammering during actual speech.

Popular exercises for infixing consciousness of the movements of the entire larynx consist in the monotone pronunciation of the vowels and vowel sounds. The ascent and descent of the larynx are then pointed out.

Establishing the conscious control of the vocal cords is the purpose of Guttman's direct and indirect attack.

Inflection exercises are frequently resorted to for strengthening the muscles of the larynx, the vocal cords, and the glottis and epiglottis. These exercises are frequently practised from charts, rising and falling inflection being indicated by various arbitrary symbols.

The following sentences for the practice of inflection are typical:

1. John sold a horse.
2. John sold a cow and a horse.
3. John sold a bull, a cow, a calf, and a horse.
4. John sold a pig, a bull, a cow, a calf, and a horse.
5. John sold a sheep, a lamb, a pig, a cow, a bull, a calf, and a horse.

6. John sold a cow, not a horse.

Similar sentences are repeated *ad nauseam*, until John has sold all the live-stock of Noah's Ark.

A number of these exercises have been endowed with special names. Thus we hear of Expulsion and explosion, Expulsive and explosive stress, Tremor, Swell and stop, and a score of others.

Drill charts are often employed, and their complexity is augmented by various refinements and improvements; and in some cases musical notes, inflection signs, and intensity signs are included in the charts.

As in the respiratory exercises, the time is measured by a metronome or is given by the instructor who leads the class with a baton in his hand.

Systems of phonation are highly valuable for their psychological effect. Vocal exercises, when practised daily, may intensify the auditory imagery of the stammerer, and thereby exert a beneficial influence on speech; but if an auditory intensification of imagery occurs, it is temporary, and whatever speech improvement has accrued is likely to be lost when the exercises are discontinued.

Before leaving the topic of phonation, let us consider a few of the various measures that are supposed to obviate stammering when applied during actual speech.

An expedient popular for more than half a century is that of talking in a low-pitched voice. In support of this measure, the argument is advanced that a low-pitched voice requires relaxation and separation of the vocal cords, which argument would have been more or less sound if it had first been shown that stammering is caused by the lack of relaxation and separation of the vocal cords.

A similar measure is that of beginning a sentence in an unusually quiet voice.

Speaking in a monotone is recommended as a specific for stammering; and in contrast to this measure the expedient of using the entire range of the voice in a sing-song fashion.

Arnott's expedient was to prefix a short *e*, as in *berry*, to the first word of the sentence. This device, with its countless variations, has become quite prominent in the therapy of stammering. A more recent version of the formula requires the prefixion of the short *e* to every word in the sentence.

A variant of the above measure consists in prefixing the sound of the letter *n*, or *m*, to the initial word or to difficult words in a sentence. This ruse is already three-quarters of a century old, and its value is as questionable as that of the indefinite *e*.

Comment on the measures mentioned is unnecessary. Stammering is not a defect of phonation; defective phonation is but a physical manifestation of stammering; and it is as pernicious to attempt to relieve stammering through the correction of one of its manifestations, as it is to attempt to cure heart disease by feeding phenacetin or pyramidon to relieve the headache which is an index to the heart trouble.

Articulation.—When the cause of stammering is considered to be misuse or lack of control of the articulative organs, the corrective training usually consists of exercises for strengthening the speech muscles and rendering them subservient to the will, and of practice in articulating the various refractory consonants.

Considering first the exercises intended to produce muscular control and development, we find that labial exercises are deemed important. The following labial exercises are taken from various sources, and are typical:

1. Open the mouth wide, giving it its fullest extent longitudinally.
2. Do the same, extending it laterally.
3. Pout the lips, making a somewhat wide orifice.
4. Close the lips and let them remain closed without pressure.
5. Blow through the lips.
6. Blow through the lips with the cheeks puffed out.
7. Blow through the pouted lips.
8. With the teeth apart, draw up the lower lip between them.
9. Do the same with the upper lip.
10. Do the same, drawing in both lips.

Exercises similar to the following are sometimes recommended for the lower jaw.

1. Drop the jaw.
2. Protrude it.
3. Draw it back.
4. Move it to the right.
5. Move it to the left.
6. Go from one to the other of the above exercises.

Lingual exercises are popular with a number of instructors. As a type, the exercises recommended by Guttmann in his "Gymnastics of the Voice," have been widely followed by speech-specialists. They are too numerous to enumerate now.

Exercises for the soft-palate or velum are now and then encountered.

Most of these exercises for the articulative organs are doubtless of value as ordinary elocutionary measures. The jaw exercises are probably dispensable; while the soft palate exercises are valuable only when there is a tendency to nasality.

As in the cases of respiratory and phonetic exercises, charts and diagrams are resorted to in abundance.

A passing mention should be made of a few stratagems used for circumventing particular consonants and consonantal sounds.

1. The use of *oo* for *w*. Oo-aif, for waif. Oo-ill for will.
2. The use of *ee* for *y*. Ee-ou, for you. Ee-awn, for yawn.
3. The use of *kw* for *q*. Kw-ick for quick. Kw-alm for qualm.
4. The regeneration of *r*, as er. Er-rot, er-run, er-rat.

Concerning these stratagems, it may be said that *oo* requires the same position as *w*; *ee* requires the same position as *y*; *kw* requires the same position as *q*, for which letters they are substituted. The substitutions are self-evidently inconsistent; and should they prove temporarily effective they are still open to the criticism that they induce unnatural speech.

Mechanical Aids.—Resort to mechanical aid is occasionally recommended. Knotted towels and head bandages to keep the tongue in a high position; paper knives, buttonhooks, knitting needles, to correct faulty articulation; speaking with a mouth full of gravel, like Demosthenes, who, incidentally, was troubled with lallation, not with stammering; the

use of cork between the teeth; and many other mechanical contrivances and collections of machinery are still employed for the treatment of stammering.

Even the surgeon has had his hand in the treatment of stammering. The operating craze began in 1841, but like many of its victims it was blessed with an early death. The parent operation consisted in slicing a wedge from the base of the tongue, and subsequently sewing the gaps together. The filial operations consisted in removing adenoids, tonsils, elongated uvulas, and any other accessory material.

No intelligent person can contend that genuine obstructions to respiration should not be removed. Such obstructions are, however, seldom in causal relation to stammering.

Psychological Methods.—Among the psychological methods we find an accessory that has been in use for over a century. A period of silence at the beginning of the sentence. Sing-songing, time beating, and drawling are equally antiquated and futile. By sing-songing, any stammerer might drawl fluently from the beginning; but it is an open question whether the sing-songing is more pleasant to listen to than the stammering.

Hypnotism, a major psychologic procedure in the treatment of stammering, has failed so completely as to preclude the necessity of any consideration.

The most recent psychologic expedient is psychoanalysis, the purpose of which is to ascertain the obsessing fear. Lack of data prevents me from discussing this topic.

We have reviewed, in a cursory manner, the leading physiologic systems advanced for the treatment of stammering, which include systems of Respiration, Phonation, and Articulation.

Since respiration, phonation, and articulation are not in causal relation to stammering, it is manifestly unnecessary to repeat how trifling is their value in remedying that speech defect.

To correct stammering successfully, rapidly, and permanently, it is of paramount importance to eradicate its cause—the transient amnesia of whatever type.

From the results of the cranial nerve examination, and the psychophysics elicitation of the mental type of the stammerer, let us assume one of the possible diagnoses, stammering due to a transient auditory amnesia.

That means that the defect, in the case mentioned, is due to the recurring transient inability on the part of the stammerer to form the required antecedent audible verbal image necessary to normal speech.

The treatment, briefly, consists in re-educating the central nervous system, somewhat after the fashion connected with the name of Fraenkel, in such a manner that the antecedent verbal images are no longer auditory, but either visual or kinesthetic. This accomplished, the stammerer no longer depends upon his defective auditory sense for his antecedent speech images, but upon a new-formed, and more perfect, visual or motile sense.

In summary, the treatment may be divided into three steps:

1. Determine the status of the central nervous system for the purpose of finding a more perfect sense to replace the defective one of the stammerer.

2. Determine the mental type responsible for the stammering defect according to the psychophysics examination suggested.

3. Re-educate the stammerer in a new mental imagery, using any well-established re-education system.

This same routine is brilliantly successful in the prophylaxis of stammering. To this end, it should be carried out in the case of prodromal stammerers, which procedure would result in the abortment of the defect among school children.

195 BROADWAY.

A PRELIMINARY REPORT OF THE USE OF OZONIZED CHLORINATED OIL OF EUCALYPTUS.*

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MANY so-called antiseptics have come before the professions for which extravagant claims have been made by their overenthusiastic advocates, only to fail, or at least to fall far short of what we were led to expect of them.

The search for a perfect germicide began when Lister first applied the principle of Pasteur to the practice of surgery, and this search is still going on. Much has been written about the Dakin-Carrel, Dehelly and Depage solutions, and many remarkable results have been reported from such reliable sources that we are forced to realize that in this solution we have at last an antiseptic or germicide of real value. That the virtue in this solution is dependent entirely upon the amount of available chlorine that is present requires no argument. The perfect germicide must meet two simple requirements: (1) It must kill all parasitic life; (2) it must not harm the cells of the living body.

Quoting from an article by Dakin, Lee, Sweet, Hendrix, and LaConte: "The lethal effects of all the usual germicides on the animal cells, with the clinical results of the retardation and inhibition of the natural processes of repair have become so well recognized of late years that an attitude of antiseptic nihilism has existed. Surgeons have developed a technique which has depended somewhat on soap, water, and alcohol, but chiefly on the natural bacteria resistance of the patient. The tremendous demands made upon surgery incident to the world war, when the surgeons' daily work is made of treating innumerable open and infected wounds, has again stirred our interest in the question of a reliable and active germicide, and the world owes a debt of gratitude to Dakin and Carrel and their co-workers for the introduction of the new and improved chlorine solution."

It has been long recognized that in chlorine we had a powerful but irritating antiseptic, and even in this modern solution Dakin himself says that "the solution must be made with extreme care, and that it is very unstable." He also warns us that "this chlorine solution irritates the skin if it remains in contact with it for any length of time." A few words as to the technique of Dakin, Carrel, Dehelly, Depage.

*Read before Northern Medical Society, March 8, 1918.

1. A constant protection of the skin exposed to the chlorine solution with vaseline is necessary and most important.

2. With the use of a very weak solution of hypochlorites, below 0.4 per cent. of nascent chlorine, the effects are nil; while above 0.5 per cent. the irritation to the skin becomes serious, so that it can be seen at once that a very small margin for variation can be allowed. A concentration of 0.48 per cent. is what is usually employed. My own experience with the use of this solution has been that it is extremely difficult to get the proper solution, and when one does succeed in getting the solution properly made it is very unstable, and will keep but for a very short time. If made fresh daily by a skilled chemist it undoubtedly will give the excellent results claimed for it, but for the ordinary routine of general hospital work, or for the work of the general practitioner, it is not available or practicable. Recognition of this fact has stimulated other workers to produce a substitute for the Dakin-Carrel solution, and they have offered in its stead Dichloramine T.

Let me again quote from Dakin, Lee, Sweet, Hendrix, and LaConte: "It appears that when hypochlorites react with proteins of any kind, one of the first reactions consists in the formation of a substance containing the NaCl group. These products, which belong to the group of the chloramines, are active germicidal agents. Dichloramine T is a synthetic substance made by several methods, as described by Kable, Keiser, Brady, and Chattaway, but is open to almost as many objections as is the Dakin solution, for while it is less irritating, and more simple to apply, it has three great drawbacks. Its three great enemies are light, heat, and water. In addition to this, the solution is not permanent, and cannot be brought in contact with any metallic substance. All these are very serious obstacles to its practical use. Realizing that in chlorine in proper strength and in proper vehicle we had a powerful and valuable germicide, I suggested to C. A. Weeks, a member of the Institute of Chemical Engineers, and a scientific chemist, that he attempt to produce a substance that would be more practicable and more easily handled than the two I have just briefly described. I wish to-night to present to you the new antiseptic, which we have named "dichloride of eucalyptus." This substance is produced by Weeks' formula, as follows: Eucalyptus (not eucalyptol) is first oxidized by means of ozone to destroy the impurities and to make it more readily chlorinated; the resultant product is slightly acid in reaction. This ozonized chlorinated oil is readily miscible in water, and makes a solution that contains 0.02 per cent. of chlorine of sufficient bacterial strength for irrigation; this strength has proved to be very successful clinically, and is stable, not being affected by light, heat, or cold. The solution remained unchanged at the end of thirty days after exposure to the air in an open vessel. This ozonized chlorinated oil is made by direct application of ozone and chlorine to the oil of eucalyptus. The chlorine is obtained from chloride of sodium by electrolysis, and is allowed to pass into the oil until a 20 or even 30 per cent. solution of chlorine is obtained.

Eucalyptus oil contains principally three terpenes: Pinene, COH_2 ; cymene, COH_2 ; cineol or eucalyptol,

COH.; the latter being present in large amounts. The hydrogen in the oil combines with the first chlorine to form hydrochloric acid, which passes off as a gaseous vapor, further chlorination replacing the hydrogen to form a chlorinated product. Upon this replacement of the H by chlorine the stability of the product is established. This product is dichloride of eucalyptus, and contains 30 per cent. of available chlorine; it is a permanent product, non-irritating, and can be used with paraffin oil or petrolatum to any desired strength, and is soluble, or at least miscible with water.

The clinical use of dichloride of eucalyptus, or, for convenience, D. E., has up to this time been very encouraging, and while I do not consider this paper any more than a brief preliminary report, since I have not yet had enough experience to justify me in making any definite claims, still I have been much encouraged by the results noted. Dichloride of eucalyptus can be used either in solution in water, for irrigation, or in an ointment for local application to superficial wounds and ulcers, and I have also used it in this way in certain skin infections, such as acne, with marked results. I have used it locally, combined with equal parts of paraffin oil, painting it on the surface, with no evidence of any irritation following. I have also used it in full strength as a substitute for rubber gloves, and in this particular I hope to prove by a more ripe experience that we have something far superior to rubber gloves, with their many inconveniences and annoyances. By using dichloride of eucalyptus applied to the hands the surgeon has an impervious, non-irritating antiseptic covering that not only protects the patient from infection but also protects the surgeon from an infection from the patient, a matter of no small importance.

A dram to the gallon of lukewarm water makes a solution of sufficient strength for all practical purposes; this has been used to irrigate all kinds of open and infected wounds. After irrigating thoroughly the wound is packed lightly with sterile gauze wet with same solution; this gauze is left in from 12 to 24 hours, occasionally dampening with the solution; then at the end of from 12 to 24 hours, depending on the amount of infection, the gauze is removed, the wound irrigated, and fresh gauze applied. The solution has been used for vaginal irrigation following various plastic operations, with excellent results. Ordinary tap water is all that is required in making the solution either for vaginal irrigation or for treating wounds. I have treated a number of old leg ulcers by first washing with the solution and then applying an ointment of $\frac{1}{2}$ to 1 dram of dichloride of eucalyptus to 1 oz. of vaseline, with rapid healing; always, however, using an elastic bandage to support the venous circulation.

I should like to mention, in passing, that I had under my care a patient upon whom I had performed a radical operation for carcinoma of the breast, requiring the removal of a large area of skin; this wound was skin grafted with only partial success, leaving an area filled with heaped-up granulations about the size of a silver dollar. I treated this wound by means of salt solution, with a slow healing, and I was repeatedly compelled to cut away the exuberant granulations. I finally applied the ointment of dichloride of eucalyptus, $\frac{1}{2}$ dram

to the ounce, and had a rapid healing, with disappearance of the granulations. Up to this time I have used the remedy in solution, ointment, or mixed with paraffin oil 50 per cent., in a fairly large series of cases, and only once have I seen any irritation follow. This patient had a periosteal sarcoma, which was removed and treated with massive doses of x-ray and Coley's fluid, and how much of the irritation was due to the dichloride of eucalyptus and how much to the x-ray I am unable to decide.

A number of wounds have been treated and rendered sterile, and then sutured with good results. Several breast abscesses have been treated with much more rapid healing than is obtained under the usual technique. An axillary abscess, post-typhoidal, reaching from the top of the axilla to the brim of the pelvis, was opened, drained, and irrigated, with complete healing in 15 days. After the wounds are rendered clean, or nearly sterile, the moist packing is abandoned and plain sterile or iodoform gauze is used. The degree of sterility is determined by taking a smear and making a bacterial count. This procedure, however, is used only when suturing of the wound is to be considered.

As I stated in the beginning of this paper, this is only a preliminary report of my experience with dichloride of eucalyptus, and I wish, if possible, to avoid overenthusiasm, to which every one is prone while working out any new procedure. I have invited a number of medical associates to try out this preparation, and their reports seem to more than corroborate my own findings, and I shall be glad to have the cooperation of any one present who wishes to try out this preparation in his own work. According to the experience at the Lankenau Hospital with the Dakin solution (Bodley, Means, and Knox, MEDICAL RECORD, February 23, 1918), it has not been found efficacious in wounds infected with *Bacillus pyocyaneus*, and bichloride solutions were resorted to in that class of infections. To me this seems to point to the weakness of the chlorine content in the Dakin solution, for I have noticed in my own cases, when green pus was present, we got no results with the weak, watery solution; but with the stronger solution, made up with paraffin oil, prompt disappearance of the green pus was noted.

In comparing the dichloride of eucalyptus solution with dichloramine T, it is to be noted that the dichloramine T has an injurious action upon all metallic substances, and therefore no atomizer with metallic parts can be used; this objection does not apply to the eucalyptus solution. For the last few months I have used the dichloride of eucalyptus routinely in my hospital work for disinfecting instruments in dressing trays, instead of alcohol, which we formerly used. In the dispensary service, open and infected wounds are washed with dichloride of eucalyptus solution and then painted with a 50 per cent. solution in paraffin oil; a sterile dressing is then applied, and the results have been very satisfactory. All our infected granulating wounds following burns, and crushed wounds, are treated with the ointment, with very rapid and satisfactory results, for this ointment seems not only to act as an antiseptic but to stimulate the healing process.

In conclusion, I wish to state that as far as my clinical experience with dichloride of eucalyptus has gone I believe that we have in this agent a practical, easily handled, non-irritating but powerful antiseptic, and one that any physician, with a little experience, can learn to use successfully in any of the infected wounds that come to him for treatment. I have not gone into the question of the technique of the surgical treatment of wounds, as it is understood that proper drainage, proper cleansing, and removal of all dead tissue must, of necessity, be attended to in the usual way, as no antiseptic can or should be expected to do the work of the surgeon. Taking it for granted, then, that the proper surgical treatment of the infected wound is carried out, I feel confident that with dichloride of eucalyptus as rapid sterilization of the wound can be produced as by either Dakin solution or dichloramine T, without cumbersome apparatus, or danger of irritation, and by an agent that is simple to handle, and one that can be used in any required and dependable strengths.

1318 LOCUST STREET.

INDIGOCARMINE USED INTRAVENOUSLY FOR LOCATING URETERAL ORIFICES IN TUBERCULOUS CYSTITIS.

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TUBERCULOSIS of the urinary bladder is caused by infection of the walls of the bladder with the tubercle bacillus, which may reach that structure by several different paths: First, along the walls of the ureter, secondary to a renal tuberculosis; second, along the walls of the vas deferens, secondary to a tuberculous epididymitis; and third, direct from the blood stream, primary.

Primary tuberculosis of the bladder is very rare. The usual course of the infection in the genitourinary tract is for the tubercle bacilli to be deposited first in the epididymis or the kidney, and then spread down the walls of the vas deferens or the ureter until they reach the wall of the bladder just above and to the outer side of the ureteral opening. At this spot a submucous deposit of miliary tubercles is formed, which later may break down and form a tuberculous ulcer.

In the earliest stage of the disease the cystoscope may reveal the deposit around the mouth of either ureter, though usually only around the diseased one, if the case is secondary to renal infection. The deposit may be to the outer side of one ureteral opening. This suggests that it is secondary to testicular infection. The deposit appears at first as a raised, red, submucous patch, covered with tiny shreds of adherent white debris. As the infection progresses, however, this patch increases in size and gray pin-point areas may become visible. Later still these gray points coalesce and give place to large yellowish areas of irregular size and shape, and eventually these in their turn break down and form definite ulcers. Neighboring ulcers tend to coalesce and form large irregular areas denuded of epithelium. Their floors are irregular, and covered with crusts and sloughs or with projecting exuberant masses of villous granulation tissue, which flutters about in

the urine, and which may even be mistaken for carcinoma or papilloma. Their edges are rounded or irregular and undermined and surrounded by swollen reddened mucous membrane which has a tendency to bleed easily when touched, and which may exhibit gray or yellow tubercles.

The above changes microscopically appear as follows: Tubercle bacilli are deposited first in the submucous tissue spaces and produce hyperemia, exudation and proliferation of round and spindle cells with the formation of miliary tubercles. These coalesce, undergo necrosis, and give rise to submucous collections of yellow, cheesy material. The epithelium on top of this area then undergoes necrosis and disappears, leaving the cheesy material to be discharged into the bladder so that an ulcer is formed, the floor and edges of which are lined with tuberculous granulation tissue.

The process may spread through the muscle coat to the perimuscular connective tissues producing necrosis and abscesses in these tissues. Great care should be taken while inserting a cystoscope in advanced cases not to pass the instrument completely through the friable bladder wall.

In chronic cases there is usually a progressive inflammation with resulting sclerosis of the fibrolipomatous perivesical tissue continuous with that surrounding the infected ureter and kidney. The walls of the bladder are thus thickened, and by reason of muscular hypertrophy from frequent urination and from a progressive sclerosis the cavity of the bladder is greatly diminished in size. In many cases it may hold no more than an ounce of urine.

The disease may begin suddenly with frequency in urination and burning pain during micturition, or it may be so gradual in onset that the patient is unable to recall when the trouble first began. The pain as a rule is not severe and is characterized more by a burning sensation felt along the deep urethra and in the glans penis. At first urination may occur every one to two hours, both day and night. This gradually increases, however, till in the later stage of the disease urine may be voided as often as every ten or fifteen minutes. As a rule a greatly increased quantity of urine is passed in twenty-four hours, which may be due to reflex kidney irritation.

In the early stages of the disease there is, as a rule, no general symptoms such as pyrexia, weight loss, or anemia, and the patient may appear healthy and well. Later, however, after the onset of secondary infection or of very extensive ulceration of the whole urinary tract, cachexia and hectic temperature may be present. In these later stages the suffering is constant from the frequent agonizing calls of the bladder to empty itself. This may also be a factor in the rapid loss of weight.

In the early stage the urine may appear clear to the naked eye, or contain little white flaky shreds floating on the surface, which are very suggestive if there has been no previous history of gonorrheal urethritis, though examination generally will reveal a trace of albumin, a few red blood cells in centrifuged specimen, and even tubercle bacilli. Hematuria is not common at the onset; though a few drops of blood may be passed

at the end of micturition for the first few days and occasionally the disease even may be ushered in by a profuse hematuria lasting several days. Hematuria is seldom repeated, save in the later stages when there is extensive ulceration.

Pyuria for a long time may be intermittent, exacerbations of the discharge being marked by the formation of fresh ulcers. In the later stages it may be constant.

In cases of tuberculosis of the bladder secondary to a renal tuberculosis the chief symptoms are those of an irritable bladder which may be accompanied by a constant dull, aching pain, or intermittent attacks of dull pain in the loin on the infected side. Hematuria may or may not be present, but pyuria is usually well established, especially in the well-advanced stages. In cases secondary to tuberculous epididymis the first symptom may start with a sudden profuse hematuria, followed by the aforesaid symptoms of irritable bladder. A firm, irregular nodule felt in the epididymis will also prove a great aid in the diagnosis.

The finding of the tubercle bacillus in the urine accompanied by pyuria or other local symptoms and signs will tend to confirm the diagnosis of tuberculous cystitis. The specimen of urine, however, must be obtained free from the smegma bacillus, because, as yet the bacteriologist is not prepared to distinguish between these two acid-fast bacilli by staining methods alone. The smegma bacillus may be excluded by cleansing the glans penis or vulva for several minutes with swabs and hot soap and water. In a male the penile and bulbous urethra should then be flushed out thoroughly by means of a urethral nozzle, using sterile warm water. The patient can then void part of his urine to flush out further the urethra while the remainder of the urine is passed direct into a sterile flask, or a sterile catheter may be introduced into the bladder and all the urine withdrawn into a similar flask. Examination is then made of stained films of the centrifuged urine. In any doubtful cases, however, the diagnosis based upon finding acid-fast bacilli should be further confirmed for tuberculosis by guinea-pig inoculation.

It used to be held that cystoscopy was seldom required in the male in cases of tuberculosis of the bladder; the risks of setting up secondary infection were considered to be so great that at any cost cystoscopy was avoided. Owing to a change in modern conception of the origin of tuberculosis of the bladder, however, it is now held that the patient's best chance of cure depends on early cystoscopy. Primary tuberculosis of the bladder is a very uncommon event and many leading urologists are of the opinion that such a condition never really exists; the disease being secondary to tuberculosis in the kidney or epididymis, or both.

If the infected kidney or testicle and vas can be removed in the early stages the bladder appears to be able ultimately to overcome the infection, if reinfections are prevented.

Without cystoscopy it is impossible to ascertain accurately whether one or both kidneys are infected, or what the functional power of each is.

It is therefore important to be able to locate the ureteral openings.

In diffuse tuberculous cystitis, when the bladder has become greatly reduced in size and the slightest movement of the inserted cystoscope causes the entire cystoscopic field to become bloody, it is by no means an easy matter to locate either ureteral opening even though one kidney is normal. It is in this type of cases that the employment of indigocarmine intravenously may prove of great value by causing a blue spurt of urine to appear from the ureteral orifices against a diffuse red background and thus act as a target at which to direct the ureteral catheter.

Voelkner and Joseph brought forth the use of indigocarmine as a test of renal function in 1903. They used a 4 per cent. solution of the dye, injecting 4 c.c. into the gluteal region. These observers made a careful study of the time of its appearance in the urine, the quality of the color, and the frequency and force of the ejections at the meatus. Indigocarmine has been extensively used in Europe during the past ten years, and to some extent in America as a test of renal function.

Peterson reported in 1915 in the cystoscopic examination of a woman with marked cystitis, that it was impossible to see the ureteral mouths. Ten cubic centimeters of a 1 per cent. solution of indigocarmine was then injected into the gluteal region and ureteral catheterization was accomplished readily after the appearance of the dye.

While an assistant in the Urological Department of the Mayo Clinic I saw and employed this method with very satisfactory results in several cases of severe cystitis. In all these cases it had been impossible to locate the ureteral openings until after the appearance of the dye.

In tuberculous cystitis, when there is difficulty in locating the ureteral orifices, the following procedure is recommended: Inject 2 c.c. of a saturated solution of indigocarmine into one of the veins at the bend of the elbow after the cystoscope has been used for inspection of the bladder, and while it is still in place. The region of the trigone is then kept under observation for the appearance of the blue color. The time of appearance of the dye on each side may be recorded. The catheters are then passed into the ureters and specimens collected for microscopic study. The dye as a rule will appear in the urine in from two to twelve minutes after the injection.

In the following cases of tuberculous cystitis cystoscoped during the past year, I used indigocarmine to locate the ureteral openings:

CASE I.—F. S., male, aged 25. Duration of symptoms, six months. Urinalysis showed acid reaction, specific gravity 1014, moderate amount of albumin, no sugar, pus in abundance, and tubercle bacilli present. Cystoscopic examination performed in November, 1917, revealed a severe diffuse cystitis. I was unable to see either ureteral opening; the bladder capacity was six ounces. Two c.c. of indigocarmine was then injected intravenously. The dye returned from the right ureteral opening in two and one-half minutes. This ureter was then readily catheterized and specimens collected, which contained no pus or tubercle bacilli on examination. There was no return of dye from the left ureteral opening at the end of fifteen minutes. This ureteral opening was not located. A phthalein functional test was then made. The phthalein returned in three minutes from the right kidney and showed up

3 per cent. for the first fifteen minutes and 9 per cent. for the second fifteen minutes. Examination of the catheterized bladder specimen taken at the end of the second fifteen minutes, while the right ureteral catheter was still in the ureter, showed no trace of phthalein. Left nephrectomy performed two weeks later revealed a large tuberculous kidney.

CASE II.—L. K., male, aged 45. Duration of symptoms, one year. Urinalysis showed acid reaction, specific gravity 1020, trace of albumin, no sugar, small amount of pus, and tubercle bacilli present. Cystoscopic examination performed in August, 1917, revealed a diffuse cystitis; bladder capacity six ounces. The left ureteral opening was located with difficulty and clear urine appeared to be spurting from it. This ureter was then catheterized. The right ureteral opening, however, could not be located, until after 2 c.c. of indigocarmine had been injected intravenously. The dye then returned only faintly at the end of ten minutes but was of sufficient strength to locate the ureteral mouth. The right ureter was then catheterized. Specimens were collected from each side which were examined for tubercle bacilli. The specimen from the left kidney proved to be entirely normal, while that from the right kidney contained a moderate amount of pus, and tubercle bacilli were present. A differential phthalein functional test showed a return of the dye from the left kidney in three minutes, and from the right kidney in eleven minutes. The specimen from the left kidney examined for the first fifteen minutes showed 15 per cent. of phthalein present, while that from the right side showed only a trace. There was 17 per cent. of phthalein from the left side at the end of the second fifteen minutes and only 2 per cent. from the right side. The bladder specimen contained 1 per cent. of phthalein at the end of the second fifteen minutes. Right nephrectomy was advised, but the patient refused operation.

CASE III.—Mrs. M. H., female, aged 25. Duration of symptoms, two years. Urinalysis showed acid reaction, specific gravity 1025, much albumin, no sugar, pus in abundance, and tubercle bacilli present. Cystoscopic examination performed in August, 1917, under a general anesthetic revealed a greatly contracted bladder with marked diffuse cystitis. Bladder capacity one and one-half ounces. Neither ureteral opening could be located. Two c.c. of indigocarmine was then injected intravenously. The dye made its appearance faintly from each side at the end of fifteen minutes. A number four ureter catheter was then inserted into each ureter and specimens collected. Examination of the urine thus obtained showed tubercle bacilli and pus present in each kidney. The patient was referred to a tuberculosis sanatorium.

CASE IV.—J. R., male, aged 32. Duration of symptoms, six years. Urinalysis showed acid reaction, specific gravity 1017, moderate amount of albumin, no sugar, pus in abundance, and tubercle bacilli present. Cystoscopic examination performed in February, 1917, revealed a severe diffuse cystitis, the entire cystoscopic field was very bloody and neither ureteral opening could be located. The bladder capacity was four ounces. Two c.c. of indigocarmine was then injected intravenously. The dye returned from the right ureteral opening in five minutes. This ureter was then catheterized, and examination of specimens collected from this side showed no pus or tubercle bacilli present. There was no return of dye from the left ureteral opening. The phthalein functional test showed a return of the phthalein in five minutes from the right kidney, and the specimen collected for the first fifteen minutes from this side contained 20 per cent. of the dye. The specimen collected for the second fifteen minutes also contained 20 per cent. of phthalein. The catheterized bladder specimen taken at the end of the second fifteen minutes revealed no trace of the phthalein. Left nephrectomy performed three days later revealed a tuberculous pyonephrosis.

In review of the literature Peterson gives the most complete description of the physical and chemical properties of indigocarmine. He states that indigocarmine is the sodium or potassium salt of indigo disulphonic acid ($\text{H}_2\text{C}_8\text{H}_6\text{N}_2\text{O}_6$).

(SO_3)₂. It is soluble in water; 0.8 per cent., and is of a dark blue color. Its reaction to litmus is neutral and can be sterilized by boiling or by steam pressure.

By addition of sodium hydrate solution the blue is changed to a yellow color and on the addition of sodium hydrate solution and boiling, a clear solution is obtained. If sodium hydrate is added to a solution of indigocarmine until all trace of blue disappears, and a pale yellow color is obtained, on the addition of acetic acid it again becomes the characteristic blue of indigocarmine. By rendering a solution distinctly alkaline and then boiling the solution a complete oxidation occurs and the acetic acid does not restore its color.

The behavior of indigocarmine toward sodium hydrate makes it possible to bring out the characteristic red of phthalein by adding sodium hydrate, which at the same time causes the blue color to disappear. Thus the phthalein functional test may be employed satisfactorily after using indigocarmine to locate the ureteral orifices. Indigocarmine is stable in ordinary watery solution, and in the presence of acetic acid. The dye is rapidly oxidized by nitric acid and less affected by hydrochloric acid. By slowly adding sodium hydrate to a solution of indigocarmine the color first changes to a greenish tinge and finally to a light yellow. Indigocarmine is soluble in water 0.8 per cent. It has been noted that when a stronger suspension of the dye is injected intravenously transitory symptoms of shock varying from mild manifestations, such as dizziness and pallor, to complete collapse will occasionally occur. These manifestations may possibly be due to the action of undissolved particles of the dye as momentary thrombi. For this reason the dye should be used intravenously only when in complete solution and carefully sterilized.

BIBLIOGRAPHY.

1. Kidd, F. S.: Urinary Surgery.
2. Voelkler, F., and Joseph, F.: Kidney Functional Test Without Ureteral Catheter, *München. med. Wochenschr.*, 1903, I., 2081-2088.
3. Cumston, C. G.: The Indigocarmine Test, *N. Y. Med. Journal*, 1915, CII., 983-985.
4. Furniss, H. D.: Preliminary Report Upon the Use of Indigocarmine Intravenously as a Test of Renal Function, *Surg., Gynec. and Obstet.*, 1915, XVI., 568-569.
5. Thomas, B. A.: The Result of Two Hundred Chromoureteroscopies, Employing Indigocarmine as a Functional Kidney Test, *Jour. Am. Med. Assn.*, 1913, LX., 185-188.
6. Peterson, A.: A Preliminary Report on the Simultaneous Use of Indigocarmine and Phenolsulphonphthalein Tests in Surgical Diseases of the Kidneys, *Surg., Gynec. and Obst.*, 1917, XXV., 561-565.

504 ELECTRIC BUILDING.

Syphilis and Maleness of Offspring.—Sex determinants have not been permanently isolated in connection with the human race but according to Girault and Tissier, Maurel was right in his recent claim that syphilis in parents reduces the number of male births. These authors found that 201 syphilitic mothers gave birth to 119 boys and 82 girls; but that of 97 macerated still-born children 60 were males. This was slightly offset by the fact that in 40 deaths soon after birth 24 occurred in girls, but the net result as seen in the living healthy children was 43 boys and 21 girls. In other words, of 124 non-survivors 76 were boys and but 48 were girls, or, in round figures, syphilis killed 3 boys for every 2 girls.—*Le Progrès Médical*.

THE TREATMENT OF FLAT FEET.

BY LEO MAYER, A.M., M.D.,

NEW YORK.

WHOEVER has read Dr. Whitman's original publication on the subject of flat feet (Transactions of the American Orthopedic Association, 1889) must be impressed by the lucidity of explanation and the cogency of the author's argument. That the writer knew his own mind clearly, is well evidenced by the fact that since the time this article appeared he has altered his opinions in scarcely a single detail. Little wonder that his teaching should gradually have become the dominant one in this country and that the Whitman foot-plate should be recognized as the standard.

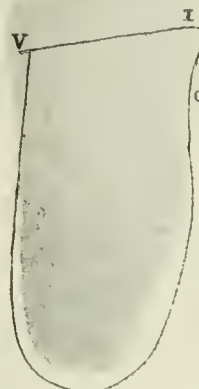
Yet, despite the gratitude which all medical men owe Dr. Whitman for the light he has thrown upon the etiology and treatment of this lesion, I venture to offer the heterodox opinion that, theoretically, his original communication is not entirely sound, and that practically the orthopedist will be confronted by a number of cases which do not yield readily to his method of treatment. The theoretical weakness of Whitman's arguments lies not in his conception of the etiology, but in the application of the anatomical facts to the therapy. It is true that the flat foot represents a subluxation, but it does not follow that the only proper method of treatment is the reduction of this subluxation at each step by means of a powerful lever. This method may work very well in instances where the patient is able to stand the pain of this oft-repeated act of reduction, but in many instances the flesh will rebel against such a procedure. Whitman states (page 130) that the brace should be light, inelastic, and comfortable. My experience has shown me that for many patients it is uncomfortable to such a degree as to prevent them from wearing it; secondly, that they frequently complain of its excessive weight; and, thirdly, that the demand for inelasticity fails to recognize the normal spring of the arch which Virchow and Fick have demonstrated.

During the past three years I have been trying a plate which seems to me to meet the physiological requirements and is both light and comfortable. With practically no exceptions it has entirely relieved the symptoms of the 500 patients treated, and when combined with exercises it has frequently completely cured the deformity.

The technique of making it is simple, but not a little experience is necessary before those minute modifications can be properly appreciated, which mean the success or failure of its application. A plaster model of the feet is not necessary. Simply an impression is taken as shown in the accompanying illustration. With this as a guide, a paper pattern is cut out. On the inner side this reaches forward to a point just back of the bearing area of the first metatarsal bone; on the outer side to a point just back of the head of the fifth metatarsal bone. Its width anteriorly should be somewhat less than that of the foot. At the heel it reaches slightly beyond the impression on all sides. On the inner side the line joining the heel with the anterior tip must be so made as to allow for raising the arch. It is therefore convex with the most prominent point corresponding to the position of the scaphoid. Anteriorly there should be a concavity (C), since

otherwise the plate would cut the leather of the shoe. From this paper form a celluloid model is cut out. This is readily done with an ordinary saw and filed down until it corresponds exactly with the paper outline. To shape the celluloid plate, it is kept in boiling water until sufficiently softened to permit accurate molding. It is this step of the technique which requires practice, since in each individual instance the molding differs according to the type of deformity present. If the deformity is chiefly one of planus with a little tendency to valgus, the support is made with comparatively little difference in the height of the outer and the inner margins. If, however, there is no planus but marked valgus, then the plate must be so molded as to tip the foot by raising the inner border and depressing the outer border. If there is a depression of the anterior arch, the anterior portion of the plate must be bowed so as to support the metatarsal bones. These are merely a few indications of the numerous possible modifications.

One feature is particularly important, namely, to



Impression of a child's foot showing planus deformity and the outline of the author's flat-foot brace. Note that the inner margin has a double curve—convex near the center so as to allow for raising the arch, concave anteriorly (C), since otherwise the plate would tend to cut the shoe. The "I" indicates the bearing surface of the first metatarsal bone; the "V" the head of the fifth metatarsal bone.

make the transverse curve of the support correspond with the anatomical curve. Almost every other arch support which I have seen is concave from side to side. This is anatomically incorrect, since the tarsal bones, as well as the metatarsals, are held together in such a way as to form an arch, whose convexity points upward—not downward. The plate must have a corresponding cross section, *i. e.* it must not be concave, but convex.

The celluloid plate, when molded, is rapidly cooled in running water and can at once be tried on the patient. Frequently it is possible to decide at once that it is correct. In other instances it is advisable to allow the patient two or three days to try out the model before a leather-covered metal plate, corresponding accurately in form to the celluloid, is made as the permanent brace. This gives slightly with each step. It is gratifying to note the quick alleviation of pain and the readiness with which the patient accustoms himself to the new support.

The brace constitutes, of course, only one phase of the treatment, whose other factors—exercise, correct foot hygiene, and, in certain instances a night splint—are equally important in the successful management of the case.

41 WEST EIGHTY-THIRD STREET.

Medicolegal Notes.

Liability of a Charitable Hospital for Negligence of Its Agents.—On the ground of diversity of citizenship, an action was begun in the federal court against a hospital, chartered under the laws of the State of Pennsylvania as a charitable corporation, to recover on account of the death of a patient. The Circuit Court of Appeals, Third Circuit, holds that the federal court should, on the ground of comity if for no other reason, follow the States rules as to the liability of such hospitals. The court found that the inapplicability of the doctrine of respondeat superior to charitable corporations has crystallized in Pennsylvania into a rule of property. It said: "We have examined the whole range of learned and lengthy opinions cited on this general subject, but we refrain from entering the tempting field of joining in such discussion. Whatever may be the grounds for their conclusions, the Pennsylvania decisions and those in accord therewith have adjudged two things, namely, that hospitals and the like are public charities; and, secondly, that the law does not impose liability on such charities for negligence of an agent in administering such charity to beneficiaries. Some decisions are based on restricting trust funds to fulfill trust purposes, some on the public character of the trust, and some treat the exemption as an exception from a general liability. We see nothing to be gained by an abstract discussion of these theories. The simple fact is that if liability by a hospital, to a patient, for the negligence of a nurse exists, it is one imposed by law and is not created by contract. The imposition of that liability, in other words, invoking the legal principle of respondeat superior, was, when the question originally arose in Pennsylvania, largely a question of judicial discretion, and the due exercise of that discretion involved, on the one hand, the broad field of invoking, encouraging, safeguarding, and perpetuating charitable gifts and trusts, and, on the other, a due regard for the welfare and protection of those who availed themselves of the ministrations of these charities. With this in view, the Pennsylvania courts charged with the responsibility of imposing or not imposing liability, and leaving the wide field of encouraging, as well as of beneficially administering, charitable trusts, held they could not impose liability on the part of the trust to a beneficiary for the negligent act of an employee or agent in administering its benefits. Whatever the reasoning process by which it is reached, the conclusion commends itself to us.

"The many accidents resulting from the industrial pre-eminence of Pennsylvania have called into being hospitals in every section of the State. These hospitals have in turn inspired large private and State benefactions, and have called to their directorship the most efficient, careful and thoughtful of men and women. The outcome has been that for one patient injured by a nurse's negligence, thousands have had a degree of solicitous care far in excess of a legal standard of mere duty. The unselfish aims of charities, the high grade of thoughtfully careful people whom the very nature of such charities enlist in their service, the voluntary act of recipients in seeking their aid, the comparatively few cases in which nurses have proved negligent, all unite to vindicate the far-seeing wisdom of the earlier decisions of Pennsylvania which refuse to impose liability on a hospital for the negligence of a nurse, and we see no reason why this court should depart from, and every reason why it should abide by, this ruling of the Pennsylvania courts."—Judgment for the hospital was affirmed.—*Paterlini v. Memorial Hospital Assn. of Monongahela City, Pa.*, 247 Fed. 639.

Malpractice—Insufficient Evidence—Expert Opinion.—Action was brought for the death of the plaintiff's wife, which was alleged to have been caused by the defendant's negligence, unskillfulness and carelessness

while performing an operation upon her for chronic ovaritis. From the testimony it appeared that the patient had long been a sufferer, and perhaps because of her almost constant pain she had become addicted to the use of morphine, and in addition had contracted other ailments more or less dangerous, and at the time of the operation complained of she was in an exceedingly precarious condition. The operation occurred in November, 1916, and in the early part of that year two minor operations had been performed by the defendant; but the one in November, the major operation, was that about which negligence was charged. Other physicians and a trained nurse attended the operation, and the latter gave to and received from the defendant the gauze pads which he used. The patient showed signs of dissolution, and the cavity was hurriedly closed up to prevent it, and shortly thereafter the nurse discovered that one of the pads was missing. In closing up the cavity, as is usual in such cases, a gauze drainage was arranged so as to let out pus or other deleterious substances, and in it was one of the pads, which was discovered four days after the operation by the wound being opened up, at which time some of the parts, including some of the smaller intestines, were found to be inflamed, and the patient shortly died. The chief act of negligence complained of was that of leaving the pad in the wound, but under the evidence and instructions of the court the jury found that this was not an act of negligence, or, if it was, it could not be termed the proximate cause of the patient's death, and accordingly returned a verdict for the defendant.

On appeal, the Kentucky Court of Appeals hold that, though an act may be negligent, and involve a violation of duty, before a cause of action can be predicated thereon the injury flowing therefrom must have been the proximate result of such dereliction. It also holds that medical witnesses were properly allowed to state in substance that an operation was practiced according to the approved methods of the medical profession, and that the patient in her diseased and run-down condition would have died and as a matter of fact did die from such conditions, though the defendant left a pad in the wound, since, though an expert witness may not take the place of the jury by stating whether certain acts constituted negligence, he may give his opinion in regard to matters which require scientific or specialized knowledge or experience, and for which the general common sense and practical experience of the jury are inadequate. The court added that this rule should not be extended to permit witnesses to testify to conclusions on matters within the common scope of knowledge and experience. Evidence given by some of the physicians who assisted at the operation concerning statements made by the defendant relating to the conditions which he found in the patient, and other subjects connected with the operation, during and while he was performing it, was held admissible as part of the *res gestae*.

After defining the defendant's duty on undertaking the operation, the court properly instructed as to liability, "and they (the jury) further believe from the evidence that such negligence or want of care, if any, on the part of defendant, was the proximate cause of the death of decedent," without adding that the decedent's death "was not caused by ovaritis or other disease, if any, not produced by the operation." It was not necessary for the court in its instructions to define what constituted an operation, since any ordinary layman would know that an "operation" included everything done, from its commencement until it was completely finished. The evidence was held to sustain the verdict for the defendant, the patient's condition having been so precarious that it could not be said that any negligence was the proximate cause of the death.—*Barrett's Adm'r. v. Brand (Ky.)*, 201 S.W. 331.

Promise to Pay for Services to Another.—The Texas Court of Civil Appeals holds, in an action for payment for professional services, that where the defendant injured a boy, and took him to the plaintiff's hospital, and requested the plaintiff to treat the boy's broken leg, the defendant's agreement to pay the plaintiff for his services was an original undertaking of the defendant's, not within the statute of frauds as to a promise to pay for the debt, default, or miscarriage of another.—*Banfield v. Davidson (Tex.)*, 201 S.W. 442.

Military Medicine.

PATHOLOGICAL ANATOMY OF SECONDARY HEMORRHAGE AFTER WAR WOUNDS.

SECONDARY hemorrhage as met with in the surgery of warfare is of two kinds. The first, which is unquestionably the most frequent, is produced by lesions of important vessels; the second type being general oozing from badly drained cavities which are lined with granulation tissue bathed in pus. Hemorrhages resulting from vascular ulcerative processes are the freest, therefore the most serious. Occasionally the vessel is simply fissured, but generally the loss of blood is the result of a tear or an ulceration of the vessel walls. In a septic or gangrenous wound, the terminal portion of the vessels, having undergone inflammatory changes, rupture upon the slightest contact. Usually, however, the hemorrhage comes from an ulceration of one of the large trunks, such as the femoral, axillary, or external iliac arteries, or popliteal veins. Cases have been met with in which, after the most minute inspection, no lesion could be detected, the hemorrhage resulting from general oozing.

Secondary hemorrhage occurs in the major traumata with serious infection, such as diffuse phlegmon, gas gangrene, and compound fractures. In phlegmonous processes the arteries, surrounded by pus, are dissected out of the tissues and, as they do not resist the microbic invasion, ulceration of their walls occurs. Consequently, all necessary conditions for the production of serious hemorrhage arise. In compound fractures with the almost inevitable infection of the battlefield, the bone splinters and fragments contaminate the arteries and favor the development of a septic process in their walls, while their mechanical action greatly aids the nefarious work of the bacteria present in the traumatic focus. The ultimate outcome of all this is a secondary hemorrhage from some large vascular trunk, such as the axillary or humeral, for example, necessitating ligation of these vessels, with all the danger that is inherent in such an interference, even when carried on under the most favorable circumstances.

Such are the arterial changes in traumatism of warfare. Their pathogenesis can be briefly summed up as follows: The suppurative process invades the periarterial connective tissue, provoking a progressive disaggregation therein, finally to end in denudation of the vessel. The mesarterium, in contact with the suppurating mass from this time on, directly impregnated with the bacterial toxins, degenerates and loses all resistance. The endarterium, involved in its turn by the toxins which become diffused through the partially necrosed middle layer, reacts by a hypertrophic process. At this time the walls of the vessels, in contact with the pus, are composed of (1) a very thickened, fibrous endarterium, (2) a degenerated, necrosed mesarterium whose external layers are infiltrated with pus and destined to undergo early distention, followed by rupture. By the force of the blood current, the thickened and purely fibrous endarterium becomes distended; the degenerated mesarterium which has attained the limit of its resistance becomes fissured, so that at certain points the en-

arterium is in direct contact with the pus and is infiltrated by it. The dilatation becomes progressively more marked and finally the endarterium suddenly gives way at a point of lesser resistance.

The Returned Soldier in Canada.—The Canadian Parliament some time ago appointed a Special Committee on Returned Soldiers. The report of that committee makes the following recommendations: That both federal and provincial authorities take up without delay effective measures to prevent the spread of tuberculosis; that those soldiers who are hopelessly insane be cared for at the expense of the Federal Government in provincial institutions under the same conditions as fellow citizens similarly affected; that returned soldiers who are suffering from venereal diseases be quarantined at the port of arrival in Canada until cured; that orthopedic institutions be provided at centers throughout Canada, in addition to the one located at Toronto; that a sufficient number of returned men be induced to learn and follow the manufacture of artificial limbs, and that their services be utilized to supply limbs to soldiers free of cost, and renewals and repairs at the cost of the State during the lifetime of the soldiers; that returned men who have been undergoing convalescent treatment and have partly completed courses of vocational training be allowed to continue such courses for a period of two months after their discharge as medically fit, if in the opinion of the vocational training officer of the district, it is in the interest of the State and of themselves that they should do so.

MEDICAL SECTION OF THE COUNCIL OF NATIONAL DEFENSE.

The annual meeting of this body was held in Washington, D. C., May 4 and 5, 1918, under the chairmanship of Dr. Edward Martin of Philadelphia.

Surgeon General GORGAS, U. S. A., in addressing the meeting, alluded to the age of the Medical Reserve Corps of the United States Army which he said was eight or ten years older than any similar organization. At the outbreak of the war its membership was only about fourteen hundred, but was now about twenty-eight or thirty thousand; five thousand more men could be used at the present time and General Pershing had just notified the Surgeon General that he wanted five hundred more doctors at once.

Surgeon General BRAISTED of the United States Navy spoke on the activities of the naval surgeons. The navy medical corps was not as large as that of the army, he said, but the need in that branch of the service was just as real. The work done by the naval surgeons during the past year had been of the very highest character.

Col. BERT CALDWELL, U. S. A., gave some information about the personnel of the Medical Reserve Corps. He stated that of the first 23,059 doctors who had applied for commissions in the Medical Reserve Corps during the past year 1,598 declined the commission and 1,656 had been discharged from active service. There were now in the Reserve Corps 1,252 majors, 4,584 captains, and 12,370 lieutenants. On active duty there were 1,170 majors, 4,158 captains, and 11,224 first lieutenants. In the National Guard there were 19 lieutenant-colonels, 246 majors, 150 captains, and 790 lieutenants. In the Medical Corps of the regular army there were 3 brigadier-generals, 12 colonels, 91 lieutenant-colonels, and 8 majors. In the United States there were approximately 150,000 doctors; of these one out of every twelve had joined the army. There were about 76,000 between the ages of twenty-two and forty-five, and one out of every eight of these had joined. Colonel Caldwell believed

that it would never be necessary to draft physicians. The Surgeon General wanted to mobilize the profession and all who were qualified should join the Reserve Corps; then the Surgeon General could supply the army with competent officers and the whole thing would be easy. It was useless to apply for a commission in the Medical Reserve Corps if one was over fifty-five years old or was unfit for active duty. In the latter case very restricted duty could be given, but this was a matter which would be decided individually.

Surgeon JOSEPH A. MURPHY of the United States Navy said that one thousand men would be needed in the navy during the coming year, or an average of one hundred a month. So far fifty a month had been the average. The needs of the navy were always exceeding the estimates. For example, when the Dutch vessels were taken over lately there was a call for medical officers for them. The age limit of naval officers was forty-four years, because they were more likely to be subjected to hardships than men in the army. They were sometimes stationed in some small place where they were obliged to do all kinds of work. In France the naval surgeons were expected to treat the civil population. Many retired officers had been called back into active service only to break down. Later on older men would be called upon for service in this country to replace the younger men who had been called abroad. The doctor entering the navy, whether he was an internist, surgeon, or a specialist, might be required at first to vaccinate, examine troops, etc. He might have to do military duty, serve on courts martial, on various boards, do inspection work, etc.; he might be required to do bacteriology and even gynecology. Hence the all-around man was more useful than the specialist, although the latter could be used in base hospitals, two of which had been established abroad of five hundred beds each. There was a bill before Congress which would almost double the navy.

Dr. J. D. MCLEAN reviewed some of the activities of the States' Committees. They had been making a list of the doctors available for the Medical Reserve Corps and those not available. They had corresponded with the State Committees in regard to the exemption of internes, etc. They had obtained official rulings from the Surgeon General's office and transmitted them to the States. They had helped to combat venereal diseases and were daily answering many letters of inquiry.

Dr. E. P. DAVIS told of the activities of the Volunteer Medical Service Corps. Some doctors were ineligible for the Medical Reserve Corps, yet wished to serve their country. Some of these taught in medical schools, held State hospital jobs, or helped in sanitation work. Others wished to serve in other ways, and the outcome had been the organization of this body. The five thousand doctors who had applied for commissions in the Medical Reserve Corps and been rejected would be given membership first. All services were voluntary and might consist of such things as going as consultants to neighboring camps, and the like. The membership was made up of doctors who would be taken in the Medical Reserve Corps except for disqualification on account of age or sex.

Dr. FRANKLIN MARTIN told of the great need of the allied armies, which need doctors more than fighting men; England and France needed two thousand doctors at once. At the front they were working in two twelve-hour shifts. The wounded and sick extended for half a mile around the hospitals, and orderlies were sent out to get the worst cases.

A letter from President Wilson was read expressing his appreciation of the efforts of the Medical Section.

Senator OWEN addressed the meeting at the afternoon session and spoke of the great need of higher rank for medical officers. Other countries, he said, found it necessary, and in France, England, and Japan there were twice as many general medical officers in proportion as there were in the United States. Higher rank should be given military surgeons, to enable them to do their work more effectively and not as a reward. No rank, he said, which the United States could give, could add more dignity to a Crile or a Mayo. The medical corps of the army needed 20,000 officers, 50,000 nurses, 200,000 hospital corps men, and 500,000 beds at once.

Senator HOWARD SUTHERLAND of West Virginia addressed the meeting on May 5, and after speaking of

the sacrifices which had been made by American physicians in giving up lucrative practices to go to war, he said that he had been greatly impressed by the claims made by the American medical profession for increased recognition. He believed that the feeling of the committee on military affairs in the United States Senate was favorable and he for one pledged his aid to secure higher rank. The bill might not be available in its present form, but undoubtedly one would be drafted which would be satisfactory to the profession; in fact, a sub-committee had already been appointed to do this.

Surgeon-General GORGAS expressed appreciation of Senator Sutherland's remarks. He wished to call the Senator's attention to the fact that the Medical Reserve Corps comprised 90 per cent. of the personnel of military surgeons. If the present bill was passed it would mean the addition of five general officers, 40 colonels, and 80 lieutenant-colonels.

Dr. FRANKLIN MARTIN reviewed the past year's work of the Advisory Board and enumerated the various conferences which had been held and the committees which had been appointed. Many of the latter, he said, had been taken over by the Surgeon-General's office which was indicative of the important work the board had been doing.

Dr. E. P. DAVIS said that applications were coming in fast for the Volunteer Medical Service Corps. Invitations were first sent out to the 5,000 physicians who had tried ineffectually to get into the Medical Reserve Corps. Next, to all members of Medical Advisory Boards who were over 55 years of age and finally to members of leading medical societies who were over fifty-five. Other applications would be sent out to properly qualified persons in due time. The Secretary of War had given his approval of this body as well as of its insignia. Qualifications for entrance were very high.

Major BASCOM JOHNSON reported for the Committee on Training Camp Activities. He stated that lawyers as well as doctors had been found necessary in carrying out this work as it was found necessary in dealing with civil authorities to use persuasion and even coercion before proper co-operation was obtained. Special attention had to be given to the venereal disease problem. In doing this it was found that communities were usually to blame and not military activities. It had given a great deal of time to providing wholesome recreation for the men and to cleaning up "venereal swamps." "Red-light districts" had been eliminated for five miles around every military and navy camp. Seventy-five of these districts had been abolished in the past nine months. In dealing with the alcohol problem, Texas offered considerable difficulty as it was a "wet" State and there were 300,000 troops there. The Governor was asked for legislation and several weeks ago dry zones of ten miles in extent were established around every army and navy station and ship-building plant.

Major WILLIAM F. SNOW reviewed the history of the fight against venereal disease. It was early found necessary to enlist the aid of the public. This had been secured to a gratifying extent. United States legislation had been applied for and obtained and perhaps by next year this disease would be placed on a proper epidemiological basis. Dr. Snow then exhibited charts showing the decrease in the prevalence of venereal disease in the army and the results of prophylactic treatment. He suggested that drafted men should be protected from the time they leave home as many infections occur *en route* to the training camp. Workers in United States industries should also be protected.

Assistant-Surgeon JOSEPH A. MURPHY reviewed the activities of the medical department of the Navy during the past year. The health of the Navy had been quite as good as in times of peace in spite of the rapid extension of the service and the breaking in of new men. Hospitals had been built, increasing the capacity from 3,800 to more than 15,000. The Navy nursing corps had been increased to over 900 women. Hospital corps men had been increased from 1,500 to nearly 9,000, and schools had been built to train them. Three base hospitals had been established abroad for the Navy sick and two more were ready to go. By next fall the Navy expected to have available 25,000 beds.

Mr. HOMER SMITH presented the report of the Committee on Supplies. He said there had been a gratifying response from manufacturers of medicine all over the country to the Government's appeal for aid in relieving the stringency of the war situation. As a result the supply of many necessary drugs had become adequate.

Colonel NOBLE presented the report of the Committee on Hospitals. He stated that the situation was much better than believed. When the war started there were four general hospitals which with the post hospitals had 4,000 beds. Fifty-eight hospitals had been added. By July it was expected that 90,000 beds would be available. In the United States now there were 22,000 empty beds available, this being partly due to the improved situation in venereal disease. Hospitals for overseas were being prepared. There must be hospital accommodations of 4,000 beds for every division. Today we had enough beds in this country not only for our own use but for any sick or wounded who might be returned from abroad.

Dr. OTTO GEIER presented a report of the Committee on Industrial Medicine and Surgery. This committee had to deal with the problem of securing sufficient men for the army for various industries. Physicians were needed to see that workers were kept in good health. The principal causes of slowing up of the production of war materials were excessive turn-over of labor and physical breakdowns. Three times as many industrial workers were maimed in a year as we expected to receive from the United States Army in the same length of time. The present non-effective rate of industrial workers was six per cent., and this could be cut in half by proper attention.

Lieutenant-Colonel WILLIAM H. WELCH of Johns Hopkins presented the report of the Committee on Nursing Conditions. The purpose of this committee was two-fold: To increase the number of student nurses and to assist the Red Cross to secure graduate nurses. There were 83,715 graduate nurses in the United States and of these 66,017 were registered; 14,387 would be graduated at the end of the year, making a total available then of 98,162. There were 42,671 student nurses in the schools and of these 38,938 were in the accredited schools; and in the 109 such schools there were accepted in 1917 3,803 extra students owing to the efforts of this committee, which also recommended that theoretical instruction be crowded forward in order to release the graduates earlier for government service. It had also recommended that houses be rented and transportation provided when accommodations at camp hospitals were inadequate. The ideal was one nurse to every six acutely sick men with a reserve of twenty-five over the quota at each hospital. Miss Edna Goodrich was making a tour of inspection of every hospital in the United States.

Mrs. GREELEY addressed the meeting in connection with the application for military rank for nurses. She stated that the authority of nurses in wards in military hospitals was in serious danger, for the enlisted men often refused to obey orders. This resulted in friction, disturbed morale, and caused delay. The best way of handling the situation was to give some outward evidence of authority to the 9,000 nurses in the army. This would be limited to medical and sanitary matters in and about military hospitals and would also be subordinate to officers of the Medical Reserve Corps. No corresponding pay or other appurtenances were requested. The only valid objection to this scheme was that perhaps the matter could be handled by regulations. This was a matter for expert testimony.

Lieut.-Col. FRANK BILLINGS of Chicago presented the report of the Committee of Reconstruction. The sentiment was growing that the soldier disabled in war should be returned to civil life in as good condition as possible and not be condemned to the life of a mendicant or a dependent as happened so frequently after the Civil War. Soldiers should not be discharged from the army until all the resources at our command had been tried. Curative employment was one of the best of these; and this should be really useful. Basketry, knitting, etc., were all right in their places, but did not really fit a soldier to be self-supporting, nor did they make for self-respect. At present some ten

hospitals had had beds added to them for this work and six of them had furnished workshops. In the past three weeks 160 men had been started on their way to recovery.

Dr. ROSALIE MORTON, reporting for the Committee on Women Physicians, said there were 5,989 female physicians on the first list compiled by this committee and since that time 137 names had been added, making a total of 6,126, of whom 40 per cent. had registered for military service and had been catalogued according to their specialties.

Need of Medical Men for War Service.—The weekly reports of the Surgeon General's office indicate that the officers of the Medical Reserve Corps are being called to active duty faster than they are being enrolled. The Surgeon General's report for March 22 gives the total of 18,138 officers in the Medical Reserve Corps and of these 14,911 were on active duty. In order to acquaint the medical profession with the great need for physicians and surgeons for work in connection with the war representatives are being sent to various parts of the country to address medical meetings called by the State committees who are co-operating with Washington. Physicians who enroll are urged not to relinquish their practice until informed by the Surgeon General's Office that they are soon to be called to active service.

Casualties in April.—British casualties reported in April reached a total of 52,475, of which 1,621 officers and 7,723 men were killed or died of wounds, and 7,447 officers and 35,684 men were wounded or missing. A report from Washington authorizes the statement that during the week ended April 26, 113 sick and wounded soldiers returned from the American Expeditionary Forces were landed in the United States.

Health of American Army Camps.—A statement issued by Surgeon General Gorgas, on May 2, shows that death and sickness rates in the American Army camps are declining. The deaths for the last week in April numbered 251, as compared with 278 the preceding week.

Medical School Will Hold Summer Session.—In compliance with a request from the War Department to Dr. John A. Witherspoon, president of the faculty of the Medical Department of Vanderbilt University, the faculty has voted to continue the school session through the summer months. The War Department has made similar requests of other medical schools throughout the country. By a continuous school term the junior students will graduate four or five months earlier than otherwise, thereby releasing them for Government service.

Sentenced for Refusing Vaccination.—A drafted man from Goodrich, Minn., a member of the depot brigade, recently refused to submit to vaccination. He was tried by a general court martial and sentenced to fifteen years in the disciplinary barracks at Fort Leavenworth.

Women in Red Cross Relief Work.—An announcement made at the Red Cross Headquarters in Washington gives a list of forty-three women physicians from various parts of this country who are doing medical relief work in France and other countries. The American Red Cross has presented \$2,000,000 to the committee directing the French Red Cross, the Femmes de France, and the Dames Françaises.

MEDICAL RECORD.

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CARDIAC RESERVE IN SURGICAL OPERATIONS.

CARDIAC efficiency for any purpose is measured not so much by the power it is able to generate for the usual activities of the body, no matter how great such demands may be, but rather by the amount of power it has in reserve to meet unusual demands. In prolonged diseases or in surgical operations the prognosis or the question of the surgical risk, as the case may be, depends upon the presence of such a reserve power and upon the disease or the operation called for. In myocardial, cardiovascular, renal, and other grave conditions that have a baneful effect upon the cardiovascular efficiency, the reserve power is usually very small, although the actual power of the heart is very large because so much power is required to drive the blood past the numerous obstructions or to supply extra demands. In such cases, except in emergencies, the wisdom of surgical operations with its general anesthesia becomes a very difficult question to decide. Although there is a vague understanding that in such conditions the reserve force of the heart is deficient, unless the fact can be definitely established with the relative amount of deficiency, such determinations are bound to be inaccurate and in so far valueless. Before a patient is refused surgical operation on this account it is essential to have a concrete understanding of the fact of this deficiency.

In normal individuals any exertion causes a rise in blood pressure, both of the systolic and the diastolic. The diastolic rises less than the systolic, but if the comparison is made between the blood-pressure readings before and after exertion this difference will be appreciated. In deficient reserve power there is a fall of blood pressure after exertion rather than a rise, as would be expected normally. It demonstrates the fact that the heart is unable to cope with the needs of extra exertion. There are shortness of breath, vertigo, fatigue, etc. This inability of the cardiovascular system to stand added strain must be determined before operations are undertaken because the strain of the anesthesia on the heart, the shock of the operation, all make extra demands upon the reserve force of the heart. If this is lacking sudden

death may be expected to follow—and without the slightest warnings of imminent danger. When all the actual and reserve power have been used up the heart simply ceases to functionate. These deaths are often attributed to unwise selection of the anesthetic or to pure shock, but are really the result of heart failure after unreasonable demands made upon the heart power by reason of the general anesthesia.

Cashman (*Amer. Journ. Med. Sci.*, 1917, pp. 476-489) suggests a method for determining the cardiac reserve power in order to anticipate heart failure during surgical operations under general anesthesia. He tests for the fall of blood pressure after mild exertion before undertaking any but emergency surgical operations, especially in those in whom there is gross evidence of the possibility of this deficiency, although the routine measuring of every surgical case is advisable. Both the systolic and the diastolic pressures are measured in the recumbent position, standing, and after exertion of a mild sort. In normal individuals there is a rise in blood pressure even on merely changing from the recumbent to the standing position. In patients with deficient reserve force there is, on changing from the recumbent position, or more on mild exercise, a greater or lesser degree of depression of the blood pressure. It is this type of patient, so sensitive even to mild strain, in whom the large strain upon the heart caused by surgical anesthesia is often unbearable and followed by fatal results. Where there are already gross cardiac irregularities due to disease this test cannot be applied, nor is it necessary to show by these methods that there is such a deficiency. When it is determined that the cardiac reserve force is below the limits of safety, necessary surgical operations must be performed under local or spinal anesthesia whenever possible.

A SPECIAL FORM OF STAPHYLOCOCCUS INFECTION.

NOLF, Bossaert, and Colard describe in the *Archives médicales Belges* for January a condition which at first escaped diagnosis—a non-contagious general infection which might conceivably pass for typhoid fever during an epidemic of the latter. The fever, however, appears suddenly in the midst of apparent health with the usual accompaniments of headache, prostration, pains in the limbs, anorexia, febrile urine, etc. It is of course easy to call such cases grippe or, if the digestive tract suffers especially, febrile gastric catarrh. The respiratory system remains intact throughout. A diagnosis of typhoid fever would not be thought of in the absence of an epidemic and among the vaccinated soldiery, although we cannot ignore the existence of rare cases of mild typhoid in the latter in which the intestine does not appear to be involved and in which hemoculture is often negative.

In searching the various body fluids and secretions for the typhoid bacillus the authors frequently stumbled upon a form of *Staphylococcus pyogenes*,

especially in the urine. Clinically no symptom stands out with such prominence as to implicate any one set of organs. The severe headache often present was never accompanied with nausea or vomiting. The fever rose to 104° F. without any typical curve. The spleen was as a rule somewhat enlarged. Only when the skin is reached do we find anything suggestive—pustules or boils, or at times non-pustular exanthems. When the skin is free there may be an angina. If staphylococci are absorbed from the skin and eliminated by the kidneys, as seems to be the case, they cannot always be found in the blood, nor do they set up any urinary symptoms—doubtless because present in such small numbers. There is no bacteriuria. The blood counts throw no light on the nature of the affection, even when hemoculture was positive for staphylococci, there were often no noteworthy changes. As would be expected hemocultures were most often positive in cases where high fever persisted after admission into the wards. The total number treated was 24. While some of these cases were mild others partook of the nature of clinical sepsis. Between a mere febricula lasting but a few days and severe septicopyemia there were various gradations of severity.

The authors are interested chiefly in the types which have not hitherto been recognized clinically—for staphylococcus sepsis and metastatic lesions are sufficiently well known. Such types correspond to the milder cases in which the germs at most caused a brief toxicosis, not pronounced enough to modify the blood picture, and unattended with secondary foci. To make a diagnosis in such cases we must depend chiefly on the uranalysis, for hemoculture is mostly negative, even with great technical refinements. Failure to recognize the nature of these cases might give rise to false beliefs—for example in the existence of post-vaccination typhoid or of some masked contagious affection.

STREPTOCOCCAL IMPETIGO AND ACUTE NEPHRITIS.

It is well known that acute nephritis is by no means an infrequent complication or sequence of scarlatina. In the *Practitioner* for April, 1918, Dr. W. Fletcher Stiell expresses his conviction that many cases of acute nephritis, for which formerly no definite causative factor could be assigned, are in reality a complication to an ordinary attack of contagious impetigo. His argument is as follows, that as impetigo contagiosa is simply the result of an accidental inoculation of the *Streptococcus pyogenes* beneath the skin, it is not very surprising to find that this disease can be followed by a nephritis identical with that following scarlatina. The analogy runs somewhat in this fashion: If it be admitted that scarlatina is itself a streptococcal septicemia with a primary seat of infection in the tonsils or lungs, then if there is some slight difference in the actual strain and virulence of the organism and its mode of inoculation there is still

sufficient similarity in the kind of infection and manner of inoculation to demonstrate a close association in the causation of both impetigo and scarlatina. Moreover, Stiell, as the result of his own observations, is of the opinion that not only is true streptococcal impetigo contagious but also infectious.

As in scarlatina, an acute case of nephritis may occur in impetigo without any definite signs of a generalized streptococcal septicemia. Albuminuria usually manifests itself for the first time at least a week after all pyrexia has vanished and septicemia has presumably subsided.

Five cases of acute nephritis resulting from typical impetigo contagiosa are briefly outlined and from an analysis of these cases Stiell draws these deductions. It seems probable that an acute streptococcal impetigo is capable of producing an acute nephritis, every whit as severe as that following an ordinary attack of scarlatina. It is not to be inferred that every case of impetigo will subsequently develop nephritis, but it is Stiell's belief that the risk of such an occurrence is quite as great as in scarlatina. Furthermore, he suggests that many of the cases of so-called "trench nephritis" in soldiers are, in fact, a complication either of an impetiginous pediculosis or an impetiginous scabies. In this connection it is interesting to note that in the British army cases of nephritis have now been made notifiable as a "contagious disease." It is not stated whether it is the actual nephritis, which is to be regarded as contagious or whether it is the cause of the nephritis. This seems to be a matter which should be made clear.

Stiell's theory appears to be not only extremely plausible, but supported by clinical evidence.

A NEW METHOD OF DIAGNOSIS OF DEATH ON THE BATTLEFIELD.

LECHA-MARZO, an ophthalmologist of Seville, contributes an article on this subject to the *Archives Médicales Belges* for March. The author is not engaged in military activities, and his method has been studied in civil practice. He begins with the work of Icard, which seeks to prevent the possibility of burial alive by recognizing the signs of life; and that of Thoinot, who searches for signs of death; for the two fields are by no means co-terminous, even if a sign of life be inverted to a sign of death, and *vice versa*. The true signs of death are all slow to appear, so that recognition of life in apparent death has been the more hopeful study. First should be mentioned the Hallum test for life—the instillation of a 20 per cent. solution of dionine into the conjunctival sac. If life is still present, there should appear in a few moments congestion, lacrymation, and chemosis. But it is not necessary to bother with dionine, for sulphuric ether will give the same reaction. This resource has never had a thorough tryout; other tests also rest on the integrity of the circulatory functions,

and in particular the fluorescein test of Icard. Much was at first hoped from this resource, but it was shown to be fallacious, in that it gave negative results in subjects proved to have been alive. In other words, circulatory insufficiency need not straightway mean death. Icard next introduced a sign of death, to wit, the staining of paper soaked in sugar-of-lead solution, when placed in the nostril, as a result of the liberation of sulphur in early decomposition of certain tissues. The present author showed that this reaction can occur in the living, while it may only appear in the dead at a late date. Several death tests based on the appearance of an acid reaction in the viscera have not made good in practice.

The author now submits his very simple test of death, which is likewise based on the change of reaction after death. The tissues and secretions of the eye are at first alkaline, then amphoteric, and finally acid. While other tissues have been known to again become alkaline after acidity, this has never been seen in the eye, so that ocular acidity is proof of death. Moreover, in almost every case this acidity is precocious, appearing within the first eight hours. It has been recognized as early as a half hour after death. In this connection, at the author's eye clinic the tears have been tested in over 1100 patients with various eye diseases, and in not a single instance was an acid reaction obtained. To practise the test, place a piece of litmus paper on the globe of the eye, beneath the lids, and then compress the latter. In the living subject the paper at once turns blue. If the subject is a cadaver there is either no change in the paper, or else a marked rose color appears.

THE DEAN OF AMERICAN INTERNISTS.

DR. ABRAHAM JACOBI celebrated his eighty-eighth birthday on Monday of this week. He was born at Hartum, in Westphalia, and was graduated in medicine from the University of Bonn in 1851. He began his long career of service to humanity in revolt against the iniquitous Prussian government, being perhaps the first man among those living today to attempt to "can the Kaiser"; he failed, and the Kaiser's ancestor canned him, and kept him in detention in Berlin and Cologne for two years on the charge of high treason. Perhaps had he succeeded in that laudable endeavor, Germany would now be as decent as the rest of the world and the present war would not have been. In spite of what he had tried to do to reform her, Germany felt she could not get along without him, and called him to the chair of medicine at Berlin some twenty or twenty-five years ago. Fortunately, he resisted the temptation, if temptation it was, and remained with us. Almost every local and national medical society of which he was a member has at some time elected Dr. Jacobi as its presiding officer, and the MEDICAL RECORD congratulates itself on having had the honor of nominating him to the presidency of the American Medical Association, his election occurring at the next meeting, in Los Angeles, in 1911. Mayor Hyman recently contributed not a little

to the gaiety of the town by demanding that Dr. Jacobi be dropped from the advisory health board for the reason that he had a son-in-law who was supposed not to think much of the Mayor. And thus, both directly and indirectly, this fine old gentleman lightens the tedium of our existence. The MEDICAL RECORD joins the other friends of Dr. Jacobi in wishing him yet many years of usefulness.

IS ECLAMPSIA A CONSEQUENCE OF INCREASED INTRACRANIAL PRESSURE?

IN uremia, cerebral edema is known to occur, while in eclampsia it is not found at autopsy. Zangemeister, who has done decompression operations on eclamptics, has, however, never failed to find it *intra vitam* (abstract in *Correspondenz Blatt fuer Schweizer Aerzte*, January 26, p. 122). Since all known theories of eclampsia causation fall short, this author endeavors to build up a case in favor of intracranial tension. The presence of increased fluid within the cranium is readily explained by the general tendency in late pregnancy to edema. The latter is seldom of renal origin, and we have no inkling as to why it affects the brain of one woman and not that of others. This increase of tension will readily account for the various symptoms of eclampsia, and whether a toxemia is the original moment in determining increase of tension may be left undecided. The mechanism doubtless comprises an excitation of the vasomotor nervous system. At the same time, Zangemeister would not claim that his theory exhausts the subject of the causation of eclampsia, but at the least it must be an important link in the chain. The success of various plans of treatment is in full accord with his theory, and he does not claim that decompression is an operation of necessity. He does not refer to the occasional successes ascribed to lumbar puncture. A prophylaxis directed against cerebral edema must be insisted upon, although no special recommendations are given.

News of the Week.

Nursing Service Cares for Record Number of Pneumonia Cases.—The Henry Street Settlement, New York City, announces that the large number of pneumonia cases in March caused a record number of calls on its nursing service. There were 6,868 patients reported to the service and 30,450 visits made, an increase of about 5,000 visits over March, 1917. Of these cases 1,050 were pneumonia and the percentage of deaths rose from 8.7 in 1917 to 12.3 in March, 1918. Much of the work was carried on in families of men in the Army; the nurses took these patients under the direction of the Red Cross.

Decrease in Automobile Accidents.—The report of the National Highways Association for the month of April, 1918, shows that 45 persons were killed by automobiles in the State of New York during the month, a decrease of 22 over the same period of 1917. In New York City, 29 persons were killed by automobiles, seven by trolley and five by wagons, as compared with 38 by automobiles, seven by trolley, and nine by wagon, in the corresponding month

of the preceding year. Ten persons were killed at grade crossings during the month.

Women's State Medical Society.—The twelfth annual meeting of the Women's Medical Society of New York State will be held Monday, May 20, 1918, at the TenEyck Hotel, Albany. Not only members but all women are welcome. The date and place are chosen so as to make it convenient for the members, many of whom are also members of Medical Society of the State of New York, to attend the annual meeting of the latter which opens the following day.

Developments in Health Department Shake-up.—The first official act of New York City's new Health Commissioner, Dr. Royal S. Copeland, was to suspend Dr. Lucius P. Brown, pending his trial on charges made by Dr. Copeland. The reasons given for Dr. Brown's suspension are that he made public a reply to the attack on his conduct of the Bureau of Foods and Drugs by Chairman James E. McBride of the Civil Service Commission. Dr. Brown's trial will be public and conducted before the Board of Health, which consists of the Health Commissioner, the Police Commissioner, and the Health Officer of the Port. Dr. Copeland finds the bureaus assailed by Mayor Hylan "magnificently handled," and fails to uphold Mr. McBride. He has declared his intention of keeping up the fight on nostrums and states that in his opinion public health education is a vital function of the Health Department. The Committee on Wartime Problems of Childhood of the New York Academy of Medicine, after a conference, framed resolutions which were sent to Dr. Amster, congratulating and applauding him for the courageous stand he had taken in refusing to be a party to the attempted spoliation of the Health Department. The Citizens' Union also sent resolutions to Dr. Amster, recording their appreciation of the courage and wisdom displayed in his struggle to preserve the agencies of the Health Department from threatened destruction. Mayor Hylan, in the meantime, has wisely retired from the contest, reversing himself on every point, evidently thinking it about time to "give a darn for those federal government letters." Dr. Charles F. Bolduan, head of the Bureau of Public Health Education, has tendered his resignation. Dr. Copeland is quoted as saying, in regard to this, that Dr. Bolduan is being punished for having followed Commissioner Emerson's orders, based upon the latter's "impractical idealism."

Still Another Investigation.—Commissioner Coler of the Charities Department of New York City is conducting an investigation of the city institutions on Randall's Island. It is alleged that "the condition in which the former administration left the children there is a disgrace."

The Medical and Chirurgical Faculty of Maryland held its annual meeting at Osler Hall, Johns Hopkins University, on April 24. Dr. William W. Keen of Philadelphia, who was scheduled for an address on Surgery, said he could not speak on that subject, that there was but one subject he could discuss with such a crisis confronting the Government, and that was the necessity of crushing the Hun. An interesting feature of the meeting was the presentation of oil portraits of the late Dr. Thomas R. Latimer and Dr. Isaac R. Trimble which

are to be hung in Osler Hall. The following officers were elected for the ensuing year: *President*, Dr. John Ruräh; *Vice-presidents*, Drs. J. Bergland, Philip Briscoe, and J. E. Deets; *Secretary*, Dr. John Staige Davis; *Treasurer*, Dr. William S. Gardner.

Charitable Bequests.—Among numerous bequests made by the will of Mrs. Margaret E. Zimmerman are the following: The New York Asylum for the Blind, \$5,000; New York Nursery and Child's Hospital, \$20,000; General Memorial Hospital for the Cure of Cancer and Allied Diseases, \$50,000.

Medical Society Elections.—THE CALIFORNIA STATE MEDICAL ASSOCIATION, at its meeting in Del Monte on April 17, 18, and 19, elected the following officers for the ensuing year: *President*, Dr. Cornelius Van Zwahlenberg of Riverside; *Vice-president*, Dr. John Graves of San Francisco; *Secretary-treasurer*, Dr. Faxton Pope of San Francisco.

THE TOLLAND COUNTY (CONN.) MEDICAL ASSOCIATION, at its meeting in Rockville, on April 18, elected the following officers: *President*, W. L. Higgins of South Coventry; *Vice-president*, Dr. R. L. Hurd of Somers; *Secretary and Treasurer*, Dr. F. W. Walsh of Rockville; *Councilor*, Dr. Thomas F. Rockwell of Rockville.

THE WORCESTER (MASS.) NORTH MEDICAL SOCIETY, at its meeting on April 23, elected the following officers: *President*, Dr. A. P. Lowell; *Vice-President*, Dr. C. E. Woods of Lunenburg; *Secretary*, Dr. F. M. McMurray.

THE MEDICAL ASSOCIATION OF GEORGIA, which met in Savannah on April 18, 19, and 20, elected the following officers to serve for the ensuing year: *President*, Dr. J. W. Palmer of Ailey; *First Vice-president*, Dr. George R. White of Savannah; *Second Vice-president*, Dr. L. B. Clark of Atlanta; *Secretary-treasurer*, Dr. W. C. Lyle of Augusta.

THE WINDHAM COUNTY MEDICAL SOCIETY, at its one hundred and twenty-fifth annual meeting in Willimantic, on April 20, elected the following officers: *President*, Dr. Ernest R. Pike of East Woodstock; *Vice-president*, Dr. J. A. Girouard of Willimantic; *Secretary and Treasurer*, Dr. A. D. Marsh of Hampton; *Counselloer*, Dr. R. C. White of Willimantic.

THE CONNECTICUT SOCIETY OF PHYSICAL EDUCATION, recently organized in New Haven, has elected as its *President*, Dr. E. H. Arnold of New Haven and as *Secretary*, Dr. F. E. Foretch.

Scout Camp Physicians.—A medical man is wanted to look after the health of a Scout camp of 750 boys from July 1 to September 1. Information regarding requirements and salary may be obtained from C. Elmore Smith, 59 Wall Street, New York.

Special Clinic for Syphilis.—The New York Skin and Cancer Hospital has inaugurated a syphilitic clinic on Tuesdays, Thursdays and Saturdays from 11 A. M. to 1 P. M., in addition to the daily clinics on dermatology and surgery; also on Monday and Thursday evenings from 8 to 9, only for the poor employed during the day.

Physicians Needed in New York Dispensaries.—At the meeting of the New York Academy of Medicine, on May 2, the Public Health Committee of the Academy, through its Chairman, Dr. Charles L. Dana, made an appeal to physicians who have had

dispensary experience but who at present have no dispensary affiliations and who because of age or for other reasons are not available for military service, to volunteer for dispensary duties as their contribution to the war. Dr. Dana stated that the withdrawing of physicians from civil life into military service has created a shortage of men in the dispensaries of New York, resulting in a curtailment of the services of these institutions, and that when subsequent calls are made upon the medical profession the dispensary service will be still further decreased unless steps are taken to provide substitutes for those called to Government service. The Boston dispensaries have been confronted by a similar problem and are meeting it by calling on the older men to volunteer for dispensary work.

New Public Health Law.—The Whitney Measure, which was passed by the New York State Legislature at the request of the Federal Government, went into effect on May 3. This law is described as the most drastic public health law ever enacted by any State in this country. It provides for the arrest and detention of persons afflicted with venereal disease, and is designed for the protection of soldiers and sailors. Under this law officials of the City Health Department are sent into the Night Courts to see that the law is enforced. The Health Department announces that men are arrested as well as women.

Obituary Notes.—Dr. EPHRAIM FLETCHER INGALLS of Chicago died on April 30, of angina pectoris. He was born in Lee Center, Ill., and was graduated from Rush Medical College in 1871. Immediately after graduation he became associated with the teaching staff of Rush, and maintained his connection therewith until his death. He also held teaching positions at various times in the Northwestern Women's Medical School and the Chicago Polyclinic. Besides being professor of diseases of the chest, throat, and nose, he was comptroller of Rush Medical School for the past twenty years. He was a member of many special and local societies and also of the American Medical Association. He was the author of a well-known treatise on "Diseases of the Chest, Throat, and Nose," and of many contributions to medical journals.

Dr. GEORGE FREDERICK BROOKS died at his home in New York City on April 26, aged 60 years. He was a graduate of the Medical Department of New York University, in 1880, a member of the New York Academy of Medicine, and chief examining physician on one of the local draft boards.

Dr. JEREMIAH EVERETT MCSWEENEY, a graduate of the University of Vermont, in 1891, died at his home in Hartford, Conn., on April 15, aged 52 years. Dr. McSweeney formerly resided in Barre, Vt.

Dr. WEEMS R. WINCHESTER of Macon, Ga., died of a stroke of paralysis, on April 15, aged 70 years. He was a graduate of the University of Maryland College of Medicine in 1874.

Dr. GABRIEL H. WADKINS of Hollow Rock, Tenn., died at his winter home in Clearwater, Fla., on April 18, aged 73 years. He was a graduate of Vanderbilt University Medical Department, Nashville, in 1877, and served in the Confederate Army during the Civil War.

Dr. FREDERICK BLUME, a graduate of the Medical Department of the University of Georgia, in 1877,

and a member of the staff of the Alleghany Hospital, died at his home in Pittsburgh, Pa., on April 14, aged 68 years.

Dr. EDWIN P. CLARK, a graduate of the Medical Department of the University of Pennsylvania, in 1857, died at his home in The Plains, Fauquier County, Va., on April 14, aged 85 years.

Dr. GEORGE DAVIE FYFE, a graduate of the New York University Medical School, in 1896, died of pneumonia at his home in Jersey City, on April 26, aged 48 years.

Dr. HENRY D. NICHOLS, a graduate of the Medical Department of the University of Pennsylvania, in 1898, died at his home in Douglas, Ariz., aged 47 years. Dr. Nichols practised medicine in Philadelphia and Atlantic City before removing to the Southwest.

Dr. H. B. GOODEBY, a retired physician of College Park, Ga., died, on April 9, at the age of 86 years.

Dr. ADELBERT DALTON ATWOOD of Brooklyn, a graduate of the Buffalo Medical School, in 1879, and for many years connected with the Brooklyn Board of Health, died on April 28, aged 68 years.

Dr. PAUL N. LITCHFIELD of Camden, N. J., died of pneumonia on May 1, aged 45 years. He was a graduate of Jefferson Medical College, in 1895, and at the time of his death was a member of the New Jersey Assembly.

Dr. EDGAR SNYDER of Edgewater, Col., died in St. Anthony's Hospital, Denver, on April 17, aged 69 years. He was a graduate of Rush Medical College, Chicago, in 1876.

Dr. TIMOTHY ROSE GROW, a graduate of Hahnemann Medical College and Hospital, Chicago, in 1877, died at his home in Lynn, Mass., on April 23, aged 78 years.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

MEDICAL MEN AND MILITARY SERVICE—IMPERSONATION AND MEDICAL COMMISSIONS—NEW ADVISORY BOARD OF THE ARMY MEDICAL SERVICE—RELIQUÆ OF JAMES PEDDIE STEELE—THE LATE DR. PROSSER JAMES—THE LATE PROFESSOR A. N. CARTER.

LONDON, April 11, 1918.

THE course of military events on the Western Front has led to the necessity of an immediate further strengthening of the man-power of the British army, and on April 9 the Prime Minister introduced into the House of Commons a bill raising the military age to 50, the first sub-section of the first clause setting a still higher age limit for medical men, and enacting that as regards any duly qualified medical practitioner the limit of age shall be "not exceeding 56." The members of the British medical profession have shown such patriotic willingness to serve their country in any military capacity upon the original voluntary basis, and through the organization of the Central Medical War Committee have so freely replenished the *cadres* of medical officers in the navy and army, as the exigencies of war demanded, that there is no doubt the same spirit will prevail in face of this last and very heavy demand. But the care of the civilian population will require strenuous work owing to the diminished number of doctors.

The new man-power bill, which places the age for military service between the years of 18 and 50 inclusive for all males, also provides, as has just been said, for the extension of this term of 55 years in the case of certain professional callings; and the one instance of such callings given in the House of Commons by Mr. Lloyd George when introducing the bill was naturally the profession of medicine, as the want of doctors with the navy and army is keenly felt when it regularly occurs. The age limit for doctors was accordingly raised to 55. Several episodes dating from before the war, some from its commencement, and some fairly recent, have led to the belief in the minds of people who have reason to know 'that it will be necessary to scrutinize closely the medical candidates for commissions, who are being at the same time urgently entreated to come forward. There is undoubtedly a considerable chance of successful impersonation at the present moment, and while it is unlikely that any medical man over 50 years of age, save at his own express desire, will be sent to the front, a successful impersonator would obtain rank, pay, and consideration, perhaps prestige, without running any risk whatever. The ordinary safeguard against impersonation is, of course, the Medical Register, the official roll on which a man's name is entered when he has obtained the necessary certificates showing that he is entitled to call himself a qualified practitioner, paying at the same time £5. Then for the rest of his life his name is on the Register, and the date of his qualifications affixed, while he carries away a receipt in his pocket, which more often than not he loses sight of, and it passes into any one's possession. In a London surgery I have seen two certificates hanging framed on the premises, the owners having left them behind for any improper use which they might serve. In normal times, for a man to carry on business as if he were some one else entails considerable risk. The real man is in existence somewhere, and at any time might communicate with the general Medical Council who keep the Register. But all this is altered in times of war, because the masquerader can boldly state that he is another man of the same name, over from the colonies, who has never troubled to register. The medical profession is in a flux. Men are doing each other's duties all over the country, as well as serving in the armies in the Far East, the East and the West, by sea and by land. As a rule, if a man said he was John Smith of Norwich, say, one could write to John Smith at Norwich, if doubt arose. But to-day John Smith of Norwich would not be at Norwich—the impersonator would make it his business to know that—and if you did not know John Smith by sight you could not find out that you were dealing with his impersonator. Also there are American and Canadian medical men doing duty at our hospitals who are not necessarily known to each other, any more than to our authorities. An impersonator claiming to be a Canadian or an American might not throw off all suspicion, but before his game was up he could vanish. Bearing all this in mind, and considering the danger which might be entailed by allowing impersonation to occur in the medical service of the army, it has been seriously suggested that on registration all British medical men should have their finger prints

officially taken. The suggestion was first made two or three months ago, at a time when a man named Siddons, who had been trained in veterinary medicine, managed to impersonate a medical man who had been drowned abroad, and whose death had not been notified for removal of his name from the Medical Register. Siddons, in this man's name, practised medicine with considerable success, and sat upon one of the recruiting boards, acting for a time as chairman. He was eventually detected, was found to have committed the same crime before, and destroyed himself while in prison. His impersonation was successful for a serious period of time, and resulted in a large number of bogus certificates, but a real medical member of the recruiting board on which Siddons sat testified that Siddons' professional eye as a veterinary surgeon made him a good rough judge of the physical quality of a man.

The Advisory Board of the Army Medical Service has been reconstituted, smaller in size, and in more direct application to its duties. The new board is composed of Sir Bertrand Dawson, a major general in the R. A. N. C. and physician to the London Hospital; Sir Berkeley Moynihan, also a surgeon-general, and professor of clinical surgery at Leeds University; Sir Robert Jones, a well-known Liverpool surgeon, who came early to the fore as an orthopedic surgeon, and is now Director-General of Military Orthopedic Surgery; Colonel Sir Harold Stiles, the leading operating surgeon in Edinburgh; and Colonel W. H. Horrocks, R. A. N. C., a famous expert in sanitation generally, and especially in the military development of his department, and the only member of the board just disbanded. The board will be presided over by the Director-General of the Army Medical Service, Surgeon-General Goodwin, who is well known to all the American medical officers; and the same may be said of Sir Berkeley Moynihan, who has latterly been on particular service with the Army Medical Corps of the United States. It is a strong board, and the probability is that Surgeon-General Goodwin will have reason to be glad that he has such a sound advisory body behind him. Sir Alfred Keogh, Surgeon-General Goodwin's predecessor, had the vast experience given by occupying a similar position in a previous war; upon this he could always draw, and leave his advisory board, also a good one, to discharge their separate medical functions almost undisturbed. He was sometimes criticised for the independence of his actions, and this would have been avoided had his critics known how regularly he was in informal communication with his advisers.

Prof. John Harrower, writing from the Greek Manse, Aberdeen, introduces to a classical medical audience a charming selection of Latin exercises by the late Dr. James Peddie Steele. Steele was a graduate in medicine of the University of Edinburgh, but his earliest academic work was done in the classics, and at one time he acted as assistant to the famous Professor Blackie, professor of Greek at Edinburgh. Medicine, however, attracted him, and after graduation he came to London to establish himself in private practice. Literary employment, as it chanced, came to his door much more frequently than patients, and within two years of his arrival in London he was a regular leader writer

on two or three important daily papers, London and provincial, as well as one of the principal editorial writers in *The Lancet*. While on the staff of *The Lancet* he was invited to Rome, where a very good opening for practice had occurred. He went, and lived for forty years in Italy, dying there last autumn. For the first twenty years he practised as a physician in Rome; for the last twenty he lived at his beautiful Florentine villa, or in the old monastery of San Antonio at Tivoli. During all the period of his retirement he was devoted to the study of Latin and Greek. He offered prizes and founded scholarships in connection with classics, and was a generous patron of the British School of Archaeology in Rome. Late in life he became assiduous in the composition of Latin verse, using elegiacs, alcaics, and sapphics with equal facility, and achieving on many occasions a wonderful Horatian illusion. Professor Harrower has brought together in book form some twenty of these charming little pieces, and it seems a pity that they should only be available for private friends. The love of elegant scholarship is not dead at any rate among English and Scottish medical men, and many of these would delight in Steele's polished Latinity.

The death occurred on April 6 of Dr. Prosser James, at the advanced age of 82. He had retired from the practice of medicine for some years, but in the 'seventies and 'eighties his activities were manifest in many directions. Moses Prosser James received his medical education at the London Hospital, but took opportunities of revising his knowledge at various continental medical schools, those of Lyons and Barcelona among others. He qualified over 60 years ago as M. R. C. S. Eng., but later graduated in medicine at the University of St. Andrews, and took the M. R. C. P. London in 1867. He was for a time lecturer in *Materia Medica* at the Medical School of the London Hospital, and on the foundation of the Hospital for Diseases of the Throat in Golden Square became physician to the institution, being at the same time physician to the Children's Hospital, Victoria Park, in the north of London, and physician also to the North London Hospital for Consumption. Relying on these various clinical opportunities, he published in 1884 a treatise on the "Therapeutics of the Respiratory Passages," and two works, illustrated in colors, upon affections of the throat, rhinoscopy, and laryngoscopy. Both treatises achieved the success of several editions, and much of their information was afterward condensed in the article on diseases of the throat contributed by Dr. James to the *Twentieth Century Practice of Medicine*. He was also an authority on the use of mineral waters in medicine, wrote a small work on the therapeutical resources of Vichy, and jointly with Professor Tichborne a larger book, entitled "The Mineral Waters of Europe." He was a man of considerable general accomplishments, and for very many years furnished the *MEDICAL RECORD* with a weekly London letter.

The death occurred in the same week of Professor Alfred Carter, professor of medicine in the University of Birmingham, and author of "The Elements of Medicine," a handbook which has been in popular use among British medical students for 30 years, a new edition having appeared as recently as 1912. The book was not designed by the author to supersede the larger manuals and systems of medicine,

but so adroitly do its contents summarize the essentials of medical knowledge that many students have successfully passed their examinations on "Carter," when they have used their clinical chances well, also.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

THE WORK OF THE RED CROSS IN SAVING THE CHILDREN OF FRANCE—ENCOURAGING PLAY AND TEACHING GAMES.

PARIS, April 1, 1918.

DR. WILLIAM PALMER LUCAS, chief of the Children's Bureau of the American Red Cross, believes that play counts as much for the development of a child as text books. The Red Cross has opened playgrounds in several of its children's homes, because they believe that games are just as important a part of education as anything that the child gets in school.

Organized games teach teamwork; they are not just physical exercise. A child learns cooperation with his fellows. This training in cooperation and reliance on teamwork learned on the playground is one of the greatest assets a man can have in business. Play breaks down petty personalities. You learn to respect the man who can play the game, even though you don't like him personally. That expression, play the game, is not just slang; there is a real reason for its hold on the American imagination.

The Red Cross got interested in play here in France because it was discovered that since the war most of the Paris playgrounds (there were never very many of them) have been closed. They found Miss Maud Cleveland, formerly physical play director at the University of California, as an aid at the Neuilly Hospital. She studied the situation here, and made some suggestions as to the kinds of games French children were used to play and what outdoor games could be introduced. Then she went to Toul, where she has been organizing play for the 430 children in the refuge there who come from the gas-bombed villages just behind the front.

Dr. Wilson, with some volunteer workers, has been teaching football and baseball to the boys in the Franco-American colony at Issy, and the boys get up early in the morning to practise.

They have two young men from the American Friends' Unit leading play at Le Glandier, the big refuge for 600 Belgian children in the corrèze. People have always said that French children didn't like American games. It isn't so. There are so many children at Le Glandier that half of them have schools in the morning and half in the afternoon; the other half day they pass on the playground. They play football and baseball, tag, prisoner's base; they have running and jumping contests and throwing the medicine ball.

One interesting thing that is coming out of this play is that the boys and girls play together. At first there was opposition to it, but it works. The little girls play just as well as the boys; they show just as much initiative and teamwork. Of course, this sort of coeducational play is the real basis of the American interrelation of sexes. It breaks down false ideas of separation and puts them on a more solid and firmer footing with each other.

In all social circles the two sexes are kept rigorously separated. A young lady of good family is never seen alone upon the street; either a member of her family or a domestic accompanies her, and she is never permitted to receive alone the visit of a male acquaintance in her own home. Always some third person is present, so one can more readily understand the revolutionary innovation of permitting children of the two sexes to play together freely.

Play ought to be developed in connection with all such work. It has been proved that the children do better and more work rather than less; they show more alertness and acumen when they have short, intermittent periods of play. The Red Cross is arranging to give a whole section to recreation in an exhibit it is going to give in one of the big cities this spring to demonstrate types of American play and games that can be adapted over here. Then it proposes to have a big playground, a sort of summer camp, near this town, and American playground workers have been sent for to come over and help them.

To leave the little refugee children idle, dispirited and playless is just as bad as to leave them hungry.

146, AVENUE DES CHAMPS ELYSÉES.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

April 18, 1918.

1. The Physical Examination in Pulmonary Tuberculosis. Joseph H. Pratt.
2. The Standardization of Hospitals. Charles A. Drew.
3. Surgical Sutures as Causes of Wound Infection. W. H. Watters.
4. A Plea for a Quick Bacteriological Diagnosis of Diphtheria. E. A. Beckler.
5. The Modern Treatment of Tuberculosis.

3. Surgical Sutures as Cause of Wound Infection.—W. H. Watters believes that if due care is exercised in the handling and employment of surgical sutures, ordinary wound infection due to this material may be entirely disregarded. He considers that the danger lies in the improper handling of the sutures after they leave the sealed container and, if the suture is tied too tightly, in the development of some slightly virulent skin staphylococci in the resultant improperly nourished tissues. He points out that catgut, each length of which represents all that is left of an equal length of sheep's intestine, is the most difficult suture to sterilize, as the tube cannot be laid open. Consequently, it is essential that measures of sufficient power be used positively to kill every form of bacterial life. While most bacteria succumb to a short exposure to 65° to 70° C., many spores can withstand a temperature of 120°, 130°, or even 145° C., for a certain time, and all sutures therefore must be subjected to conditions definitely fatal to anthrax and tetanus spores and thereafter protected from any possible infection. In wound infection the bacteria groups represented are the staphylococci, the streptococci, and the colon bacilli. All these organisms are readily and easily eliminated by thermal or chemical means, but it must be remembered that measures which are effectual against pyogenic organisms are not capable of destroying all spore-bearing bacilli and unless attention is paid to this point, tetanus or other disease is bound to appear.

The Boston Medical and Surgical Journal.

April 25, 1918.

1. Wounds of the Joints. L. Eloesser.
2. Trench Sanitation. Captain C. E. Burt.
3. Prevention in Public Health. D. M. Lewis.
4. Progress in Gynecology. Stephen Rushmore.

2. Trench Sanitation.—Captain C. E. Burt divides the vital things to be considered in trench sanitation

into five headings, namely: Food, water, conservancy, personal habits, and prevention of special diseases. He points out the value of the fireless cooker in the preparation of food, and the traveling kitchen or field cooker in the zone of the advance; the latter weighs twenty-four hundred pounds and cooks for two hundred and fifty men and their officers. The medical officer is charged with the following details: quality, variety, and cleanliness of rations and stores; quality and variety of cooking; cleanliness in delivery, preparation and sources of food; health of all persons issuing, preparing, or serving food; protection of kitchens from dirt and dust; daily inspection of towels. The water supply should be sterilized by boiling or with calcium hypochlorite; the Lister bag may be used. Cavalry soldiers are supplied with sterilizing tablets for use in the water bottles. A reasonable amount of water and basins should be provided for washing purposes, and even shower baths should be installed in a deep shelter. Under the head of Conservancy, Burt describes some of the devices employed to meet conditions in trench warfare and states that the only practical solution of the problem has been found in the system adopted by the British—the use of bomb-proof pits or dugouts leading out of the communicating trenches. The dugouts should be deep enough to protect against any missiles except high-explosive shells. A pit is dug and covered with a latrine seat. Excreta is collected in small buckets, empty gasoline tins, or other receptacles, which are set in boxes with a sliding cover, or else have a detachable seat and a cover hinged with leather, to make them fly proof. The receptacles when two-thirds full are removed by relieved troops and their contents buried, the buckets cleaned and brought back by the troops on their return. The latrines must be disinfected daily by a man from the medical department, the disinfectants used being sulphate of iron 10 per cent., cresol 5 per cent., and unslaked lime or milk of lime. Urine soakage pits and funnels are useful; all soiled areas should be treated twice daily with a 5 per cent. cresol solution. Burt states that the discovery during the war that the body louse is the transmitting agent of typhus fever makes it important that every effort be made by the Sanitary Corps to afford facilities for the necessary delousing of troops. Provision must be made for systematic bathing of all the men when they return to camp, and in order to do this on the Western front, one hundred and sixty men must be bathed per hour for nine hours a day if each man in the division is to receive a bath once every two weeks. Clothes are disinfected by sterilization and ironing is relied upon to rid them of lice. For personal use, a powder known as N. C. I. is dusted on the underclothing and has proved effective. It is composed of naphthalene, 96 parts; creosote, 2 parts; iodoform, 2 parts. About two-thirds of an ounce is required for each man. An ointment composed of crude mineral oil, 9 parts; soft soap, 5 parts; and water, 1 part, asphyxiates the young lice as they hatch out of the ova. This is rubbed into the interior seams of the various articles of clothing in the quantity of about one ounce per week. The body from the neck down may be anointed with this paste. Underclothing may also be dipped and wrung out in a solution of 1 per cent. each of naphthalene and sulphur in benzine or gasoline. This is the English "antiparasitic" vest and is not especially irritating to the skin. Burt states that the condition known as trench feet can be largely prevented by the following precautions: 1. Boots and shoes should be at least a size too large, so that two pairs of socks may be worn. 2. Rubber hip boots should be furnished if there is standing water in the trenches. 3. General circulation must be kept up by keeping body warm and dry. Wear waterproof clothing, especially in rains. 4. Every 24 hours the boots should be removed, the feet rubbed and dried, and dry socks put on. 5. Thorough rubbing into the feet and legs of whale oil or anti-frostbite grease. 6. If rubber boots are not worn, the boots should be well oiled or greased. 7. Drainage of trench or dry standing provided. Avoid standing still as much as possible. 8. Keeping the legs elevated while resting, and the avoidance of the sitting posture in sleeping. 9. Avoid fatigue by keeping up the physical condition of the soldiers by proper nourishment and warmth. Frequent use of hot soups and rum fills the bill. 10. Puttees should be loosely applied. Other conditions

probably brought about by the inevitable conditions of military life are trench fever, which it is believed is transmitted by the bite of infected lice, aided by cold, wet, and fatigue; trench nephritis; tetanus—a prophylactic subcutaneous injection of 500 United States Army units of tetanus antitoxin contained in about 3 c.c. of horse serum is given at the earliest possible moment in every case of wounds, however slight, and in severe cases a second dose of the same strength is given on arrival at the base hospital. Another complication of wounds is infection due to the *Bacillus aerogenes capsulatus* of Welch (*B. perfringens*), in which the prophylactic treatment depends on loose bandaging of the lino, frequent changing of dressings, sufficient drainage of the wound, and the introduction of an antitoxin. In regard to venereal disease, Burt adds that the ruling that punishment will be awarded in all cases upon proof that the disease exists, has done much to stamp out this enemy.

New York Medical Journal.

April 20, 1918.

1. Malpositions and their Treatment. J. W. Markoe.
2. Medical Supervision of Trinitrotoluol Workers. W. G. Hudson.
3. Bretonneau, Trousseau, and Dieulafoy. I. L. Nascher and Malford Thewlis.
4. Certain Nonspecific Phenomena and Therapeutic Results. Ralph H. Spangler.
5. Syphilis in Relation to Mental Disease. William C. Sandy.
6. The Intraarterial (Vertebral) Administration of Tetanus Antitoxin. Robert B. Pratt.
7. Sex in Life (Concluded). Joseph H. Toomey.
8. The Pupillary Reaction in Chronic Alcoholism and Alcohol Psychoses. Sylvester R. Leary.
9. Hoarseness. John J. Levbarg.
10. Principles of Treatment of Gunshot Wounds at Casualty Clearing Stations (Concluded). H. M. W. Gray.
11. Surgery in a British Base Hospital in France. Major Allen Greenwood.

6. The Intraarterial (Vertebral) Administration of Tetanus Antitoxin.—Robert B. Pratt submits a discussion of tetanus and the methods of treatment at present in use. He states that the intracerebral and subarachnoid methods of administration of antitoxin deserve no consideration and, quoting from Keen's Surgery, that the inability of the nervous tissue to take up antitoxin from the circulation shows the futility of subarachnoid injections and reminds us that subcutaneous and intravenous injections are only of value in so far as they neutralize toxin circulating in the blood, but cannot influence the process in the spinal cord, and that the only rational method of administration is by intraneural and intraspinal injections. He says further, the statement that nerve tissue is unable to take up antitoxin is an unproved deduction from what follows our present mode of injection and the answer seems rather to be that we do not get sufficient quantity in contact with the toxin laden anterior cornual cells because either we fail to give sufficiently tremendous doses subcutaneously and intravenously to overcome wastage or we do not give fairly large doses in such a manner that the antitoxin will be brought rapidly and unchanged and only slightly diluted to the relief of these cells. The tendency during the war shows an imperfect recognition of these facts with consequent increase in dosage and with probably some lowering of mortality, which, however, is pitifully high. Pratt considers Roger's method of injection directly into the cord to be fundamentally correct and an attempt at something that can probably be accomplished on a larger scale in another physiological way. He proposes the following method of intraarterial (vertebral) administration of tetanus antitoxin: Prophylaxis according to accepted standards; removal of the source of supply of toxin by the excision of tissue at the site of injury and the flow of any remaining toxin blocked by intraneural injection; (intracaudal injections are uncertain as it is difficult to inject into nerve trunks); neutralization of the toxin in the blood by large subcutaneous or intravenous injections repeated daily or oftener. In order to neutralize the toxin in the motor cells of the cord and medulla, the author suggests that a large dose or doses be given directly into one or both vertebral arteries by puncture of this vessel, during exposure under general anesthesia, as soon as a diagnosis can be made. The rea-

sons for this method are: (1) Proteins—toxins, alkaloids—when injected intraarterially, become fixed in the cells in the capillary distribution of the artery employed. (2) The vertebral arteries furnish a large proportion of the blood to the spinal cord and medulla through the long descending anterior and posterior spinal arteries which are given off near the medulla; the remaining blood supply comes from very small cervical branches of the vertebral and spinal branches of intercostal, lumbar, and sacral vessels. While there is free anastomosis throughout the circle of Willis, it is yet a fact that cocaine injected into the common carotid produces anesthesia of head and neck without medullary involvement, which would lead us to believe that there is a fairly sharp demarcation between vertebral and carotid distribution. As tetanus involves practically only the cord and medulla, the arterial blood of the vertebral will reach directly the attacked cells. Material injected into one vertebral reaches the entire distribution of both. Pratt recommends that under general anesthesia the vertebral artery be exposed as follows: Make a curved incision over the angle formed by the posterior border of the sternomastoid muscle and clavicle, and retract the muscle inward; it is often necessary to cut a few of the outer clavicular fibers of the sternomastoid. Incise the deep fascia; locate the carotid tubercle; displace inward the jugular vein; define the space between the inner border of the scalenus anticus and longes coli, and find the vertebral artery by its pulsation. The vertebral vein lies directly in front of it. Then pass the fine, slightly curved needle of the loaded syringe into the vessel upward and inject a relatively large dose of antitoxin slowly. Any oozing may be controlled by packing the wound. Should subsequent injections be indicated and it be impossible to give them into this artery, the opposite one should be exposed. Pratt points out that the method is no more difficult than trephining and injecting into the brain and is justified by the present hopelessness of the great majority of cases. It fulfills the theoretical pathologic physiological requirements of reaching the heretofore inaccessible toxin in the cord and medulla, and should be as safe as any other of the methods in vogue. The method was first applied by Major Charles F. Nassau, M.R.C., at the Frankford Hospital, Philadelphia, in February, 1918.

New York Medical Journal.

April 27, 1918.

1. The Liberty Loan and the Doctor. Abraham Jacobi.
2. Three Things Liberty Bonds Can Do. Robert T. Morris.
3. Morbid Impulses. Alfred Gordon.
4. The Genitourinary Clinic. Nathaniel P. Rathbun.
5. The Trend of Modern Dermatological Research and Its Bearing on General Medicine. Moses Scholtz.
6. Factors in the Causation of Tinnitus Aurium. J. L. Maybaum.
7. The Value of Chemical Tests on the Serum and Spinal Fluids of Syphilitics. Boris Mann and Anna I. Van Saun.
8. An Air Expansion Pipette Reagent Bottle. John I. Fanz.
9. Biological Law and Human Health. J. S. Lankford.
10. Remarks of Orthopedic Principles Applicable to War Cripples as an Aid to Vocational Occupation. J. Madison Taylor.
11. Neuropsychiatry and the Mobilization. Pearce Bailey.

3. Morbid Impulses.—Alfred Gordon points out the importance of the study of morbid impulses from the social and medicolegal standpoint. He shows that morbid impulses constitute episodic manifestations in the life of neuropathic individuals, that in the latter the most important characteristics are found in their psychological sphere, and that the best illustration of loss of psychical equilibrium is found in obsessions and morbid impulses, the latter the consequence of the first. He gives the characteristic feature of an obsession as, (1) lucidity as to the phenomenon; (2) energetic struggle against the invaded thought; and (3) moral torture. The elements of morbid impulses are, (1) sudden function of a center or of a group of isolated centers without participation of reason; (2) momentary impotence of will controlling the act. Obsessions and morbid impulses may develop in a neuropath who becomes fatigued, whose nervous system becomes exhausted. Depressive emotion, prolonged effort of any kind, excess of any sort, abundant hemorrhages, disturbance of

nutrition, intoxication (especially alcoholic), sight of capital punishment, recital of a murder, or news of suicide or homicide may all be provoking causes of morbid impulses, and the author illustrates this by an account of two cases. Such obsessions and impulses may also cause kleptomania, arson, assault, sexual perversion. The symptoms may be periodic and intermittent; they may be stationary for months or years; or they may disappear and recur from the least cause. Although morbid impulses for minor offenses are frequent in neuropathic individuals, irresistible impulses towards acts of graver nature are not frequent, and this should be borne in mind in making a diagnosis. Gordon points out that when a lunatic assassinates, he is under the control of a delusional conception; by which he is carried away toward the abnormal impulse. The latter has a special character, viz., unconsciousness of the act; automatism is the essential feature. In a neuropathic individual, on the other hand, the characteristic features of the act are lucidity of consciousness, mental torment, and realization of the horror of the act. The patient is in a state of anxiety, which is accompanied by cardiac palpitation, pulse acceleration, headache, tremor, perspiration, etc. In considering the question of responsibility of individuals presenting morbid impulses, Gordon points out that in primitive society punishment was always meted out, irrespective of any other consideration. The Romans were the first to distinguish between *compos* and *non compos mentis*. Pinel succeeded in convincing human minds that insanity was a disease. The new anthropological school arose and the criminal came to be considered as not fully responsible for his acts. Yet, notwithstanding the work of the psychiatrist and the student of psychology some jurists are still loath to accept the humane and scientific principles laid down by these workers. Jurists, alienists, and anthropologists differ as to the degree of responsibility of degenerates with morbid impulses during their lucid intervals. Gordon concludes with the following propositions: (a) The legal conception of responsibility is not in accordance with the principles of science and does not satisfy the practical exigencies of life. An alienist should be called upon to examine such a criminal. Administration of justice in such cases should be confided to a jurist and to an alienist. (b) Administration of houses of correction should be placed in the hands of alienists and pedagogues. (c) Youthful criminals should be placed, not in prisons, but in special institutions where they shall receive medical attention. (d) Conviction of criminals intellectually and morally defective is unjust and should be replaced by prophylactic measures which form a part of social hygiene.

Journal of the American Medical Association.

April 27, 1918.

1. Reconstructive Surgery in War Time. F. C. Kidner.
2. Treatment of Eclampsia. J. Clifton Edgar.
3. The Relation of Blood Pressure to Convulsions. D. M. Ervin.
4. A New Method for Estimating Total Blood Volume in Anemias: Preliminary Report. Edward Lindeman.
5. Tuberculosis and Syphilis. Edward von Adelung.
6. Anatomic Defects in the New Born Demanding Surgical Operation: Report of a Case of Uterine Tumor. E. M. Prince.
7. Dakin's Dichloramin-T Solution for Ocular Infections. A. S. Green and L. D. Green.
8. Incomplete Outward Dislocation of the Knee. Russell S. Ferguson.
9. Vegetable Powder as a Larvicide in the Fight against Mosquitoes: A Preliminary Note. James K. Thibault, Jr.
10. Progressive Muscular Dystrophy. Francis H. McCrudden.
11. The Immediate Operation for Perineal Lacerations. Henry A. Bernstein.
12. Training the Enlisted Personnel of a Base Hospital. Eugene S. Kilgore.

3. The Relation of Blood Pressure to Convulsions.—D. M. Ervin has reached the conclusion from detailed observations on four patients that a convulsion in all probability is precipitated when the blood pressure becomes lower than the intercranial pressure, and that measures taken to raise the peripheral pressure will stop a convulsion since the blood pressure is a function of the intercranial pressure. He points out that it logically follows that measures must be taken to reduce the intercranial pressure in order to accomplish any

permanent relief. He also points out that the fact that a convulsion stops is an argument in itself against the belief that a chemical substance reaches such a concentration as directly to produce the convulsion.

The Lancet.

April 6, 1918.

1. Two Studies in Cardiac Pathology. (1) Auricular Flutter. Frederick W. Price.
2. Army Nephritis. Captain C. F. Coombs.
3. Prophylactic Triple Inoculation against Typhoid and Paratyphoid Fevers. Major Georges Dreyer, A. Duncan Gardner, Major Alex. G. Gibson, and Captain E. W. Ainley Walker. (A Report to the Medical Research Committee.)
4. Persistent Carriers of *Entameba Histolytica*: Treatment with Chaparro Amargosa and Simaruba. Captain S. Shedheard and D. G. Lillie. (A Report to the Medical Research Committee from the Mont Dore Military Hospital, Bournemouth.)
5. The Emotive Response of a Class of 73 Students of Medicine Measured in Correlation with the Result of a Written Examination. Mary D. Waller.
6. A Case of Traumatic Rupture of Jejunum. Lieutenant J. D. Oliver.
7. Notes on Two Cases of Benign Tertian Malaria Treated by Disodo-Luargol. Louisa Hamilton and Morna Rawlins.
8. Note on an Outbreak Resembling Epidemic Catarrhal Jaundice in England. Captain G. C. Gray.

2. Army Nephritis.—Captain C. F. Coombs gives an account of 160 cases of nephritis which came under his personal observation in a base hospital in France during the period from January to July, 1917. He found the chief disposing factor to be the age of the patient, five-eighths of his patients being over thirty; the season appeared to make little difference. Of the whole series only six cases were officers. In sixteen cases there was a history of previous renal disease; in twelve of scarlet fever; and in five of diphtheria. Direct bacterial investigation was not made, but, arguing by the inferential method, Coombs has reached the conclusion that army nephritis is of infective origin, since the first stages of the disease are often marked by fever and frequently associated with influenza, bronchitis, trench fever, gastroenteritis, boils, tonsillitis, or other infective condition. In addition, there are symptoms of irritation of the urinary tract similar to those caused by the *B. coli communis* in infection of the renal pelvis and bladder; and the condition is very similar to scarlatinal nephritis. The author, however, does not believe that the disease can be ascribed to any special agent, and the absence of the epidemiology would seem to negative the assumption that it may be due to an infective agent as yet undiscovered. He explains its greater incidence in the army as compared with civil life by (a) sensitiveness of the renal tissues due to fatigue and exposure, (b) greater liability to the entrance of infective agents into the blood stream and thence into the kidneys. In short he regards the disease as provoked by the passage of microorganisms or their toxins, through the systemic circulation into a kidney that has been "sensitized" by the trying conditions of military service, especially in men of over thirty years of age. Army nephritis is characterized by, insidious onset, urinary irritation with hematuria in some cases, constipation, slow pulse, appetite good as a rule, fever, headache, dyspnea, and edema. Cardiac physical signs show certain alterations; the beat, which is slow and firm, is not displaced as a rule; it is the auscultatory signs that are altered. Coombs found that the diastolic interval was shortened in about 50 per cent. of cases, and the worse the case the more definite the shortening. More frequent still was a ringing accentuated second sound heard with greatest distinctness at or near the apex. Pulmonary physical signs may be bronchial or basal. Abdominal signs are not important. The output of urine is low at first but begins to rise on the third day, over 100 ounces being passed in some cases on the fourth or fifth day. In the present series, albumin was found in the urine in 153 cases, blood in 106 cases, and casts in 104. Twelve cases manifested uremic symptoms, four of which died; two of these deaths were, however, due to concurrent bronchitis. Death occurred in one out of eight cases which had convulsions. It was noted that uremia developed when the oliguria present on admission in severe cases had been replaced by an adequate output of urine. As a means of diag-

nosis, Coombs recommends the salicyl-sulphonic acid test. The mortality in this series was 3.75 per cent. The author points out that the most dangerous type of army nephritis is that in which intense nephritis occurs in conjunction with severe bronchitis. Next to these cases come those with intensely severe and ingravescent urinary changes associated with uremic symptoms, of which the most significant is free and persistent hematuria. A third danger to life lies in possible cardiac failure. The ultimate prognosis cannot yet be stated, but there is great likelihood of relapse. Early diagnosis is the first essential in treatment. The diet should be light at first but fish, potatoes, etc., should be allowed as soon as the symptoms begin to improve. (Coombs believes that a more generous diet might have stood off the fatal issue in one of his cases.) Hot air baths are indicated when edema is present. Coombs found drugs as a routine measure unnecessary. Caffeine was of no use; tartrate of potash was of possible value, but he adds the patients might have done as well without it. In the treatment of cases with bronchitis, the free administration of atropine sulphate may be of use; in one of the author's cases it apparently saved the man's life. Lumbar puncture was tried in two cases of uremia but did no good. The best line of treatment seemed to be venesection, with sedatives if fits were troublesome. Chloral and bromide, one dram of each, given per rectum, sufficed in several cases; chloroform was necessary in one instance. Venesection was also of benefit in cases of threatened cardiac failure, and in two cases it was followed by hypodermic injection of strophanthin in full doses—a treatment which apparently saved the life of both patients.

Berliner klinische Wochenschrift.

February 11, 1918.

Laparotomy During Pregnancy.—W. Nagel gives the details of four laparotomies performed during pregnancy, three of which did not interrupt gestation. In the fourth case the fetus died two months after the interference, but a paternal syphilis seemed more probably the cause of death. Two cases were ovarian tumors, one a subserous fibroid and one a pyosalpinx. The writer discusses the threadworn subject of the indications of ovariectomy during gestation and concludes that all tumors should be removed at the beginning of pregnancy and if discovered later on the operation should be deferred until the fetus is viable. He states that the abdominal route is preferable, and such a remark made in the year 1918 can only make one wonder at the "kultur" of the author. He also points out that double ovariectomy is not more serious than when the lesion is on one side only, a fact well known, at least in most countries, for a number of years. As to myomata, they can often be removed without causing interruption of gestation, and the writer opines to their removal when of the subserous variety and seated low down in the pelvis so that they would interfere with delivery, or when on account of a long pedicle they can drop into the small pelvis. The same applies to peritonitis occurring in the neighborhood of the fibroid.

Treatment of Tuberculous Peritonitis.—O. Heinemann refers to the favorable effect of laparotomy in tuberculous peritonitis, which has been known since the days of Sir Spencer Wells, and very correctly states that the mechanism is to him still obscure. The case which Heinemann reports offered a certain general reaction following the operation in the form of a bilateral pleural collection and ascitis. Strange to relate, repeated puncture did not arrest the onward progress of the process, but the laparotomy allowed the distinguished clinician to verify the tuberculous nature of the ascitis (tubercles on the peritoneum and intestine) and resulted in a "satisfactory" cure in a few months with disappearance of the exudates and an increase of 16 pounds in weight. If our memory fails us not, we believe we have heard similar results at the hands of other operators.

Münchener medizinische Wochenschrift.

February 12, 1918.

The Effect of Neosalvarsan on Malaria.—L. Mandoki and W. Maule state that Coci's method consists in the

provocation of blood parasitosis resulting from the exhibition of small doses of quinine. A daily dose of 5 centigrams of the hydrochlorates produces a paroxysm or at all events the entrance of the specific organism into the blood stream. The writers have been able to detect latent malaria in 50 per cent. of the cases thus treated. In 60 cases in which a negative result was obtained only 7 gave a positive reaction by other methods. On the other hand, Coci's method, which is very recommendable on account of its simplicity, will result in positive findings in cases where other provocative methods have failed. The test necessitates the exhibition of the quinine for four weeks. A mixed treatment should follow this test, namely, with quinine and neosalvarsan. Although the latter drug may not sterilize the patient, the paroxysm is delayed for from eleven to twenty-two days from the time of the injection, which represents the necessary lapse of time for the development of the generations of the organism sufficient to produce an attack. Neosalvarsan kills the asexual forms of the organism, but it seriously affects only the gametes of the tertian type, while on the tropical forms of the disease it seems to exert not only no lethal but even an irritating action. Likewise it appears that this is also the case for the quartan type.

Myositis Following Influenza.—H. Burger has observed three instances. The duration of the myositis was six weeks or more and manifested itself by pain in the muscular groups involved, spasms and rise in temperature. Recovery was complete and left no sequelae. In all three cases there was a lymphocytosis of about 40 per cent. This complication of influenza is probably more common than is generally supposed and Burger says it should be treated very energetically with aspirin, quinine, and novatophan. The parts shall also be treated locally with applications of ichthyol and aluminum acetate.

Deutsche medizinische Wochenschrift.

February 14, 1918.

The Treatment of Tuberculosis with Partial Antigens According to Deycke-Much's Method.—Kwasek and Tancre have experimented this procedure in out-patient practice on 47 cases of pulmonary tuberculosis, 4 cases of urogenital tuberculosis and 1 case of tuberculous lymph-nodes. With an average of six months' treatment in each case, the following results were obtained: 4 cures, in 2 of which the bacillus of tuberculosis disappeared completely; 10 cases in which the fever subsided; increase of weight in 9 patients; in 11 pulmonary and in the 4 genitourinary cases no result was obtained and, lastly, 24 patients were made worse by the treatment. The writers attribute these rather disastrous results, as compared to those more favorable ones obtained by other writers, to the gravity of the cases they subjected to this treatment.

The Bacteriology of Gas Edema.—L. Aschoff again affirms that between malignant edema and gas phlegmon there are many intermediary varieties. He recalls the difficulty of morphologically differentiating the various bacteria of gas edema. The ties existing between the bacilli of malignant edema and symptomatic anthrax are very vague. The question of the transformation from one form into another of the various types of bacteria of malignant edema cannot be denied by a mere negation as Fraenkel has done. Taking as a basis 2,356 cases treated with anti-gas edema serum, Aschoff estimates that the use of this serum reduces the mortality from 68.7 to 43.9 per cent. If these percentages are confirmed by future essays, it will mean the saving of life to the extent of 25 per cent. in cases of gas edema.

Milk Treatment.—H. Reiter is of the opinion that the results of treatment by subcutaneous injections of milk are as yet most uncertain. The procedure is not based on any really serious experimental work and the results obtained by various writers are contradictory. Lastly, this treatment may be nefarious, in as much as it excludes well-tried and efficacious methods from being resorted to.

Wiener medizinische Wochenschrift.

March 2, 1918

The Pathogenesis of the Pemphigus Bulla.—F. Samberger in this article, continued from the previous issue, states that adrenalin exercises a favorable action on acute attacks of vagotonic pemphigus but has no effect on the disease *per se*. This also applies to urticaria. Basing his remarks on the fact that the bullæ of pemphigus are bordered by erythematous spots, Samberger combats the theory of pemphigus from vascular paralysis and maintains that the primary cause of the bullæ is vasoconstriction. Besides vasoconstriction other factors may cause the formation of bullæ in pemphigus, and as proof of this the writer refers to three cases observed by Prokop in men dying from submersion in fine sand.

The Physicochemical Peculiarities of Weil-Felix Proteus X 19.—H. Mautner recalls the fact that nearly all bacteria can be precipitated by chemical or physical agents. He has observed that the concentrations of methylic or ethylic alcohol which are without effect on control bacilli, rapidly agglutinate the proteus vulgaris and still more rapidly the Weil-Felix organism. The writer questions whether these findings cannot find their explanation in the reaction of typhus fever. The serum in this case acquires agglutinating properties as far as the most labile bacteria are concerned. This agglutination should likewise be considered as non-specific. Agglutination by alcohol offers, like specific agglutination, the property of removing this faculty from the agglutinating liquid, once the reaction has commenced and centrifugation has been done.

Crónica Médico-Quirúrgica de la Habana.

March, 1918.

1. Successful Method of Extraction of Congenital and Traumatic Cataracts. J. Santos Fernandez.
2. Reflex Amyotrophies of Articular Origin. Julio Ortiz Cano.
3. Perirenal Abscess. A. Perez Miró.
4. Necessity of Enforced Hospitalization of Typhoid Patients. Mario Lebrede.
5. Benefits of the Congresses of the Medical Press. Vidal Sotolongo.
6. Preliminary Notice on the Treatment of Strabismus. F. M. Fernandez.
7. On the Right of the Pharmacist Not to Dispense a Prescription of a Medical Man. G. Fernandez Abreu.
8. Pan-American Medical Notices. J. E. Lopez Silvero.
9. Etiology of General Paralysis and Its Specific Treatment. C. Bambaren.
10. Biological Phenomena Viewed from a Philosophic Point of View. R. I. Abaytua.
11. Death of Dr. Flavel B. Tiffany. F. M. Fernandez.

1. Successful Method of Extraction of Congenital and Traumatic Cataracts.—J. Santos Fernandez gives his results in these cases; he is in favor of the needling operation and condemns the simple extraction method as liable to cause the loss of the eye. The dissection of the opaque lens can be repeated as many times as necessary, but the author has not had to do so more than twice, or in some very stubborn cases three times.

2. Reflex Amyotrophies of Articular Origin.—Julio Ortiz Cano declares that in every case of traumatism involving the large joints, the surgeon should advise the patient as to the possible occurrence of muscular atrophies and resulting functional loss. All the joint lesions either due to traumatism or spontaneous, cause a reflex action upon the corresponding trophic or motor center, which reflex action has been well described by Cajal. The author gives the histories of nine cases in which only the extensor groups of muscles were affected and the electric reaction shows that the atrophy was simple, as the reaction of degeneration was not present in any case. Treatment should be directed to rest the injured joint.

Il Policlinico.

February 10, 1918

Causalgia and Its Surgical Treatment.—Tenani writes at length on this subject. Burning pain in a definite nervous distribution is a symptom which has been mentioned off and on in medical literature but was first described by Weir-Mitchell in 1864 in connection with injuries to the nerves. In the course of the present war the subject has assumed new importance. The

affection is certainly rare and refractory to treatment, so that recourse to surgery is suggested and actually has been had in cases of causalgia of the arms and legs. Weir-Mitchell decided that causalgia was due to an ascending neuritis, but more recent studies seek to accuse the sensory and trophic nerves and blood vessels. The characteristic hyperesthetic zone transcends the boundaries of analgesic and paresthetic zones present when the given nerve trunk is compressed. The sensory component is a painful hyperesthesia. The claim has been made that osseous alterations may appear. Causalgia is not limited to the lower extremity, but may affect the hand and arm. As a matter of fact, studies have been made of causalgia due to lesions of all the large nerve trunks and apparently cases occur after lesions of vascular trunks. The painful parts feel as if on fire and there is no relief save from cold applications. In fact, in certain cases the hands or feet have to be kept constantly refrigerated. A latent interval of considerable length usually occurs between the date of the trauma and that of the first symptoms of causalgia. Considerable individual variation is seen in the different nerve areas—the median area is apt to be the seat of pain and trophic change, the radial of paralysis, the cubital of contractures, etc., etc. Meige and Benisty once studied the results of associated injuries of nerve and vascular trunks and found that a great number of symptoms were variously associated. According to the nature of the injuries of both trunks there could originate such dissimilar conditions as causalgia, Volkmann's syndrome, and Reynaud's disease. Later these authors saw in causalgia a neuritis of the sympathetic, having decided that vascular lesions could not give rise to this picture. In any wounds of the artery its sheath must be wounded, and in this sheath occur most of the fibers of the regional sympathetic. Leriche proposed to cure causalgia by simply excising its sheath from the artery. In August, 1916, he performed this operation on the brachial artery for causalgia of the arm and the patient recovered rapidly. During 1917 he saw a case of causalgia of the arm secondary to a resection of the clavicle with freeing of cicatricial tissue, done for a war wound. Although the seat of the lesion was much higher, he dissected off the sheath of the brachial artery to the extent of 12 cm. and cured the case. The vessel no longer pulsed and was shriveled. The various sensory vasomotor and trophic disturbances, however, promptly receded. The limb had been paralyzed since the injury but there was some return of motor power in the forearm. The author has also had two operative cases of causalgia, both in the lower extremity. The first patient had severe pain in the left foot, which he was forced to keep in ice water. The wound was in the middle of the thigh and seven days elapsed before the appearance of the causalgia. The muscles of the limb began to atrophy and there was marked hyperesthesia. The x-ray showed no skeletal alterations. The author cut down to the femoral artery near the injury and excised 12 cm. of its sheath. The artery and vein were normal. A mass of scar tissue was extirpated. There was immediate relief followed by complete restoration. The second case, which was somewhat similar to the first, was cured in the same manner. Necessarily this operation, which is a special type of sympathectomy, did not originate in connection with causalgia, for Jaboulay had originated and perfected it by 1899 in the treatment of perforating ulcer of the foot and other ailments.

Othematoma in Prisoners.—Doctor Pierre-Louis Marie, who spent 10 months in a prison camp at Zossen, saw many cases of othematoma, a condition sometimes cumulative in insane asylums. The collectivity in this camp was 15 cases per thousand prisoners. The cause was doubtless anemia from privations of all kinds. The prisoners were French and Belgian soldiers interned over 8 months. Other affections due to privation were hemeralopia (this seemed to be limited to Russians), eruptions, edema, nephritis and ordinary scorbutus. The diet consisted chiefly of cereals and dried legumes. Fresh meat, fresh vegetables and fruits were never on the menu. In othematoma violence could be excluded. The condition could be regarded only in the light of a localized scorbutus.—*Archives de Médecine Militaire*.

Book Reviews.

PROBLEMS OF MYSTICISM AND ITS SYMBOLISM. By Dr. HERBERT SILBERER of Vienna. Translated by SMITH ELY JELLIFFE, M.D., Ph.D. Price, \$3.00 net. New York: Moffat Yard & Co., 1917.

IN this book Drs. Jelliffe, Lay, and Stein have rendered accessible to the English-reading public the researches of Prof. Silberer into the subject of mysticism. An ancient parable, dating very probably back to the sixteenth century, is quoted entire and then analyzed by the psychoanalytic method. From this the author goes on to show the universal wish-fulfilling motive lying behind all the varieties of mysticism, hermeticism, alchemy, and the like. The connection is then shown between symbolism as the expression of a race or group and introversion as an individual reaction. The whole work is fashioned from a wealth of material and shows the pre-eminently Teutonic faculty of infinite pains. As an interesting example of the thoroughness with which the psychoanalytic school has extended its doctrines to embrace many departments of knowledge this book is well worthy of consideration; as a solid contribution to the study of psychology and psychiatry its value is less clear, and to the general practitioner, now busy beyond the imaginings of ante-bellum times, we find but little to commend it.

LES LÉSIONS DU CORPS THYROÏDE DANS LA MALADIE DE BASEDOW. Par GUSTAVE ROUSSY, Professeur Agrégé à la Faculté de Médecine de Paris. Médecin en Chef de l'Hospice de Villejuif. Price, 3 Francs. Paris: Masson & Cie., 1914.

AT the present time, when the neurologists regard the lore of the ductless glands as belonging exclusively to their province, we should not be surprised when a well known alienist writes a monograph on the subject of Graves' disease. The fact that this work has reached the market four years after date of publication is one which does not concern the reviewer. We may note in passing that this brochure of 137 pages is printed on heavy calendared paper, which may indicate its ante-bellum origin. The bibliography occupies twelve closely printed pages—nearly ten per cent. of the book. The ten text figures and seven colored plates are all microscopic representations. While the work is based on extensive first hand studies and diligent research into literature, it is very largely speculative in its general treatment.

HUMAN PHYSIOLOGY. By PROFESSOR LUIGI LUCIANI, Director of the Physiological Institute of the Royal University of Rome. Translated by FRANCES A. WELBY. With a preface by J. N. LANGLEY, F.R.S. Professor of Physiology in the University of Cambridge. In five volumes. Vol. IV. Edited by GORDON M. HOLMES, M.D. The Sense Organs. Price, \$5.25. London: Macmillan & Co., Ltd., 1914.

THE present instalment of Luciani's magnificent work will probably prove to be the most interesting volume of the whole series. It deals with the Sense Organs; and this is a part of physiology which is generally very briefly handled in the standard textbooks. These latter have, as a rule, adequate chapters on taste, smell, hearing, and vision; but they are apt to be deficient in their treatment of the internal sensations, muscular sense, the sensibility of muscles, tendons and joints, common sensation of the body (or coenesthesia), sexual desire, hunger and thirst, etc. In the first two chapters of this volume Luciani discusses these subjects thoroughly, as well as various philosophical points in connection with sensation in general. The editor has wisely added a note on Head, Rivers and Sherren's work on the mechanism of peripheral sensibility, and on protopathic and epicritic sensibility. The last chapter, on Psycho-physical Phenomena of Consciousness and Sleep, will also form attractive reading for those interested in these subjects. Not only physicians and physiologists will welcome this volume, but psychologists will find here a masterly discussion of that part of physiology which particularly interests them, and which, as a rule, they have to obtain from the general works on physiology. When this work is completed it will easily rank as the standard work on the subject in English. We have, on previous occasions, referred

to the skill with which the translation is done, and also to the value of the bibliographical references. We await the appearance of the remaining volume with interest.

TROUBLES LOCOMOTEURS CONSÉCUTIFS AUX PLAIES DE GUERRE. Par AUG. BROCA, Professeur à la Faculté de Médecine de Paris. Price, 4 Francs. Paris: Masson & Cie., 1918.

THIS volume differs from many of its fellows in being rather sparsely illustrated, there being a relatively small number of text figures and no plates. In the natural association of events one would expect to find a book of this sort well provided with pictures. The conditions described comprise chiefly ankylosis, true and spurious, cicatrices, muscular contractures and vicious union of bone. To avoid duplication of matter in the series, there is no section devoted especially to lesions of the nerves, although such are considered in connection with affections of the muscles, etc. The chief asset of the volume is the name and fame of the author.

THE ROAD TO A HEALTHY OLD AGE. By T. BODLEY SCOTT, M.R.C.S., Eng., L.R.C.P., Ed. Price, 4s. 6d. London: T. Fisher Unwin, 1917.

DR. SCOTT is an authority on how to attain to a healthy old age and how to lengthen one's life and live happily when that goal has been reached. The question of the prolongation of life, according to the author, depends largely upon the choice of food, as, in his opinion, age, with its lessened physical work and activity, needs less strong and stimulating food. The book deals with the value of foods, the prolongation of health, premature senility, and the treatment of chronic bronchitis and bronchial asthma, the two most frequent diseases of old age. He points out that during the past few years the knowledge gained of the properties of the internal glands and further knowledge of biological chemistry have enabled physicians to do much more for the prevention and cure of many of the morbid conditions of advancing years. The work is both interesting and instructive, displaying scientific knowledge and literary ability.

AN ADVENTURE IN PHILANTHROPY. New York Charity Organization Society, 1918.

"AN Adventure in Philanthropy" is a very interesting tale written with a purpose. The purpose is to emphasize the inadvisability, or rather the lack of wisdom in distributing charity indiscriminately, and shows that such a mode of endeavoring to assist those who need aid often defeats its own object.

DÉCOUVERTE DES VAISSEAUX PROFONDS PAR DES VOIES D'ACCÈS LARGES. Par J. FIOLE et J. DELMAS. Préface de M. PIERRE DUVAL. Price, 5 Francs. Paris: Masson et Cie., 1917.

IN this little manual of surgical dissections, which is said to be an outgrowth of war needs, the absence of all colors in the thirty-four plates and text figures strikes us as unusual, for the book is perfectly executed save for its temporary paper binding. While in many works which deal with operative surgery we find only uncolored illustrations, the use either of colors or explanatory figures seems indicated for a reference military manual. The subject matter is limited largely to wide exposure of the large vessels and their isolation from other structures preliminary to ligation or other vascular intervention, and the book doubtless fills a niche which has been unoccupied.

AN ACCOUNT OF THE PRINCIPAL WORKS OF THE ATREYA SCHOOL OF MEDICINE WITH THEIR CHRONOLOGY. By KAVIRA, BIRAJA, CHARAN GUPTA KAVIBHUSHANA, late Court Physician of Cooch Behar, etc. Calcutta: P. S. Gupta, 1917.

THIS little work hardly possesses any value to the American physician, for, while devoted to chronology, it does not give a solitary date or equivalent. Of many common and proper Sanskrit names, printed in English, but few are translated, and this state of affairs is aggravated by the presence of many passages in Sanskrit text, in such small type as to be almost undecipherable. It is to be hoped that some one may edit the volume in such a way that these disadvantages will disappear.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held April 4, 1918.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

Neuropsychiatry and the Mobilization.—Dr. PEARCE BAILEY, Lieutenant-Colonel, Medical Corps, N. A., delivered this address, in which he said, in part, that while medical men had been giving their services in providing care incidental to bursts of illness which seemed inevitable when men were gathered together in large numbers, they had also been laying the foundations of what was medicine's greatest goal and greatest future, the prevention of disability and disease. They had also, by determining the future of physical and mental fitness of American youth, by recommending disposition of those who were not fit for the full ardors of war, accumulated information which must be incorporated in the creation of new social and political policies after the war. The results of the examination of a million men by the most skilled diagnosticians in the world had proved beyond chance of denial that modern medicine, quite apart from its military significance, was an indispensable factor in practical matters and that no social theory could be true or enduring which failed to pay full heed to the facts that it proved concerning humanity. On the mental and social side it could, by means of its psychological branches, indicate certain causes of national weakness and point out means of development which had long been disregarded for the reason that the attacks they made on public health and efficiency were insidious, and also because they had never been systematically studied in large numbers. It was his privilege, Dr. Bailey said, to show some of the statistics that had been gathered in relation to nervous and mental disease, but before proceeding to the main subject he spoke of the stimulations and advantages which had accrued to workers in neurological medicine. New problems had developed in neurological medicine which opened up a field of usefulness in civil life hitherto undreamed of, new symptom groups had become manifest which, while not actual disease, handicapped those who suffered from them, so that they were unable to do the work of a normal man. These symptom groups constituted a field hitherto unexplored, groups which constituted a medical "No Man's Land," lying beyond the point where a man could be said to be actually ill, and yet not reaching the point of full adult efficiency. Of the new problems, some of which might be solved before the war was over, might be mentioned bed wetting, the frequency of which in healthy adults has astonished most of the newly appointed medical officers. It might have some physical basis but also seemed like a situation neurosis and to require a special study in terms of situation. Many of the other neuroses so common among troops, doubtless, had association with the physical causes. As an example of this general class might be mentioned hyperthyroidism. These cases, called by the English "effort syndrome," consisted in the general mild toxic symptoms of hyperthyroidism, but the individuals themselves were all highly neurotic and gave a history of inability to do more than temporary work and that only with uncertainty. They had rapid hearts and showed certain functional changes in the cardio-vascular apparatus. They were midway between health and disease and it seemed as though a remedy would be found for them, possibly in surgery. Another problem which has been opened up which linked various branches of medicine, and which offered opportunity for refined diagnosis with practical ends, came from the study of the types of personality of aviators. The high percentage of the initial accidents in aviation were reducible to the fact that the aviator was not physically fit. It was not, however, an ordinary unfitness. He might have successfully passed the most rigid routine, physical examination and still be found by newly devised tests to be unsafe under certain conditions in the air. To determine beforehand these conditions and thereby to eliminate unnecessary accidents, most ingenious methods of examination had been

devised by a Medical Research Board. They had found the means of determining to what altitudes and under what special conditions a certain aviator could be safe. These tests were based on the subjects receiving diminished supplies of oxygen to correspond with the oxygen content of the atmosphere at mounting altitudes. Various tests of the attention were made until it was found at what altitude an individual would begin to waiver in his attention. The ocular apparatus was tried out, especially in the ability to perceive luminosity, power of accommodation, and power of continuous fixation. By the simple withdrawal of oxygen, and noting the sequences in which various physical or mental faculties failed under the experiment, the estimation of individual efficiency seemed to have been reduced more closely to a physical basis. It seemed that this test which was bound to increase the efficiency of the flying corps was also destined to become of great value in medicine. A new psychological method had been developed as a result of the mobilization. The old method of determining mental defect by the man's behavior was under service conditions totally inadequate, and a method of individual examination for each man was also too slow to be effective in a military way. This situation was met by a group of psychologists headed by Major Yerkes who devised psychological tests by means of which the extent of mental deficiency in large groups of men could be determined in a short period of time. These psychological examinations had been of great help to medical officers and in so far as they gave an intelligent rating to all enlisted men examined were met by the hearty approval of line officers. Line officers had found it to their advantage to follow in their assignment to duty the intellectual ratings of enlisted men as furnished to them by psychologists. These examinations had also been extended to newly appointed officers.

A great practical advantage which had accrued to the medical profession as a whole in the present mobilization had been the closer cooperation of the different branches of medicine than any hitherto known. Throughout the cantonments, hospitals of one thousand or more beds had been manned by picked groups of specialists who by reason of the association of the common inspiration had lost much of the narrowness so long characteristic of specialism. As an instance of this, it had been arranged at the group of psychological examinations which were conducted by psychologists that two or more of the neuropsychiatric group were present for assisting and expediting the work as far as concerned mental deficiency. The early recognition of nervous and mental disease and types of personalities have been shown to be of extreme importance. Many of the purely physical disabilities which were noted and waived by mustering officers, or which disqualified recruits for service, were susceptible of cure or improvement by treatment, or here and there some might get well of themselves under the favorable conditions of military training. This was rarely the case for any nervous or mental disease. Probably 80 per cent. of these men treated for these causes in the camp hospitals were discharged from the service and the longer the training period was prolonged, the more pronounced these conditions became. A weighty responsibility had rested on the neurologists and psychiatrists of the Medical Department to safeguard the United States forces being sent to Europe from being crippled by nervous casualties. It was believed that much had been accomplished by their examination in this country directed toward the exclusion from active service of those strongly predisposed to nervous and mental disease. Examinations in this country had been systematically carried out since the beginning of the present mobilization, three methods having been employed, examination by boards, examinations by surveys, and examinations only of such cases as were referred by regimental surgeons, company commanders, etc. The same steps that were taken to prevent neurotics from becoming soldiers and officers in our army would result in a smaller proportion of casualties of nervous type as compared with other armies. The same efforts to prevent them which had been inaugurated in this country would have to be continued in whatever coun-

try the troops might be sent. A psychiatrist had been assigned to every tactical division. His duty would be to keep in close touch with the nervous stability of the troops in his division. Few of the nervous collapses which occurred at the front took place without giving some warning. For a few days or longer before finally going to pieces, the officer or soldier had given signs of not being able to endure the strain much longer. It was believed that if the individual thus threatened could be relieved of active duty for a few days and given proper treatment he might be returned to the front in a more stable condition.

Dr. Bailey then presented statistics showing the incidence of the various neuropsychiatric conditions in the National Guard and National Army cantonments. Mental deficiency was shown to be far more frequent than any other neuro-psychiatric condition. Then occurred in the order mentioned, epilepsy, psychoneuroses, constitutional psychopathic states, dementia precox, those due to alcoholism, and those due to syphilis of the central nervous system. Other neuropathic conditions occurred very infrequently. In commenting on these figures, Dr. Bailey said one could not contemplate them without asking the question, "What is to be done with, or for these individuals?" The question was not one of the reconstruction of injured soldiers, but the reconstruction of our own population whose defects existed quite independently of the war. The reconstruction thus considered was under two heads: (1) Reconstruction for the purpose of military service, and (2) reconstruction to meet the ordinary requirements of civil life. It had been the original intention of the Medical Department to reconstruct for the military service all those who could be reconstructed in a reasonable length of time, but the constant changes which were going on in this war made changes in this policy inevitable on short notice. It would, doubtless, do so ultimately, but could not promise to do it now. At the same time it was possible for the civil authorities to take over that part of the burden and to organize their activities that men rejected from the Army could be provided for in some way by their states pending such time as the Federal Government would be able to supervise the whole program. This action should come just now at the initiation of the states themselves and it was a very encouraging sign that one state, Arkansas, had already done this. It was to be hoped that the example of Arkansas would be followed by other states.

In concluding, Dr. Bailey expressed certain views reached as a result of the examinations being made of our young men. These, he said, looked toward the necessity of the reconstruction of our national policies as the result of this war to insure a high standard of national health. The conception of individual liberty would have to be changed in so far as it concerned individuals who were not physically or mentally entitled to the exercise of full liberty. Our laws, as they existed today, were extremely inadequate in providing control for mental defect which had been shown by the tables presented to be such a frequent disability. The laws would have to be made much more stringent to provide for the custodial care of mental defectives and to prevent absolutely the propagation of this distinctly hereditary condition. Furthermore, it would be imperative for the Government, after this, to have accurate knowledge of the health of the people. The examinations which had been made in the camps would have to become a part of our annual national program and there seemed no other way of providing for this except by universal military training. Young men would have to report for certain periods in their youth not only to be examined but to be tried out for a few months to test their physical and mental preparedness and endurance. The advantages of such an enforced service were not only physical, but would affect also the mental health and happiness of the whole people. No one could doubt this who had witnessed the individual members of the first draft coming to camp and who again saw them a few months later, trained as soldiers. For the creation of national feeling, community of life and purpose, the environment of military service seemed imperative. The general reconstructive program of

the country would have to be carried out by some agency which, while not interfering too much with individual states, would still be able to influence them to the adoption of a common health problem. The Federal Government must be put in possession of facts concerning its birth rate, its death rate, and the diseases in different localities; it must further have power so to influence individual states to take care of these problems that the result might be favorable to the nation as a whole. In our public Health Service we had the beginning of this, but its powers and functions must be greatly enlarged in order to obtain the end in view. Physicians must mix more in political and civic affairs and relinquish more than they had ever done their predilection for study and take on actual public service in the application of the principles of their art. Finally, Dr. Bailey made a plea for more physicians for the service, younger officers to take the places in the cantonments of those who were going with the Expeditionary Forces, and older men who, as instructors, would give of their ripe professional experience, and who would assist in the solution of the many new medical problems the war had brought to light.

Dr. CHARLES L. DANA, after expressing his appreciation of Colonel Bailey's interesting and stimulating address, said he wished very much that the address could be given before other audiences in other places. There was no doubt that such a vivid presentation of the Government's work would be most effective in arousing patriotic interest. Dr. Bailey had covered his subject so completely that the speaker wished simply to emphasize one phase of the problem which had been presented. The Surgeon General's office, and particularly that division over which Colonel Bailey presided, was very much in need of experienced medical men, and the question was to get more such men from civil life without crippling the activities at home. The doctors in New York City, aside from their regular practice, were working in colleges, hospitals, and dispensaries, in the Health Department, and in laboratories. Now there were five colleges in the city, with five sets of professors teaching the same branch. Was it not possible for these to combine so that one man or possibly two men could do the work instead of five? The problem was difficult, but it could be worked out if it had to be done. For instance, in regard to the hospital workers, there were 184 hospitals in Greater New York and the speaker would suggest that the hospital men might combine, so that one man could do special work in several hospitals and release the others, or the staffs could be enlarged by calling the consultants to active service again. There were over seventy general dispensaries in the city. A plan had already been suggested and successfully carried out in Boston of calling in some of the older men who were partly retired practitioners to assist in the work of the dispensaries. Besides this, nurses or special aides to nurses could assist in history taking and social work. Dr. Dana expressed the belief that a good deal of the health work could be done by trained men and women who were not physicians, and the same was true of work in the laboratories; women could be taught to become trained technicians, and thus could do work that would set free trained medical men. It was well known that after all that great obstacle which prevented many desirable medical men from joining the Army was an economic situation. A man with no financial resources, with a wife and children, felt that he could not enter a service in which he might be kept for years. This difficulty might be relieved in part by the men who were staying at home making regular contributions to assist the families of physicians who were at the front. There were many men who would be glad to contribute moderate sums monthly. Another possibility to be considered was that of utilizing men on long contracts and with definite rank. The plan suggested by Colonel Bailey for the organization of a Federal Health Service had for a long time received the approval and support of the Academy of Medicine and it was hoped that one of the outcomes of the war would be the organization of such a Federal service.

Dr. L. PIERCE CLARK congratulated Dr. Bailey on having said all there was to say on this general subject, and upon having indicated what rôle the work on

nervous and mental diseases should play in this whole scheme. There was an impression that army life produced and brought about epilepsy, yet it was generally accepted that the army was not instrumental in producing mental deficiency and that the men who were found to be mentally deficient had their defect before enlistment. The same was true of epilepsy. It might be possible that the excitement incident to a man's entering the army and adapting himself to the new conditions precipitated attacks, but the epilepsy had not been essentially produced by the army training and discipline. It was very obvious that feeble-mindedness, epilepsy, and ordinary nervous diseases should be excluded by the Boards of Examiners, and it therefore seemed essential that the men who undertook this work should be acquainted with the symptoms and detection of these disorders. He was interested to know that the neurologists and psychiatrists working in the camps had outlined a practical scheme for discovering the means of differentiating these conditions, and that such a rapid scheme had been evolved for sifting out the mental defectives. In emphasizing the fact that epileptics were not made by the army training, but that these individuals were potential epileptics before their enlistment, Dr. Clark expressed the opinion that many cases of epilepsy of this type might be restored by proper treatment. It was to be regretted that these men could not be screened out at the first examining boards. It had been found in many instances that even men known to be epileptic had been called up repeatedly for examination. A man with the type of epilepsy which manifested itself in very infrequent convulsions might easily be passed by an examining board, and it was a notable fact that these epileptics were likely to be very patriotic and anxious to enter the army. In this respect they were entirely different from the psychoneurotics, who were more apt to lack a desire for army service. It would be a great help if more pains were taken to sift out these epileptics before they reached the camps.

Dr. CHARLES W. PILGRIM, after expressing his deep appreciation of Dr. Bailey's paper, spoke of the relation of the problem of nervous and mental diseases in the army to the same problem in civil life. He said that for forty-four months preceding the war there were 27,311 inmates in the State hospitals, while during the forty-four months since the declaration of war there had been 33,000 patients in these hospitals. The increase in the number of inmates was largely in the dementia precox and manic-depressive insanity groups. A study of the situation led one to believe that the war was the reason of this increase. The recurrent cases and the readmissions also showed an increase. There were many cases in old people who had delusions, such as that the world was coming to an end, and these seemed to be traceable to the conditions brought about by the war. Again many people had gone into new employments and had been compelled to make readjustment of their lives, and many of them led very unnatural lives because of the conditions imposed by the war. The hospitals for the insane had been trying to do their share of war work. In England the hospitals for the insane had turned over 15,000 beds to the War Department. This had been done by dividing England and Wales into twelve departments and reorganizing and co-ordinating their work. They were not able to do that in this country, but they had on their service flag 331 stars, including medical officers, nurses, and other employees. The doctors, nurses, and other employees had purchased over half a million dollars' worth of Liberty bonds and they had made no fewer than 75,000 articles of clothing for the soldiers. They now expected to turn over 1000 beds on Ward's Island to the Government, so that while they were not doing what England had done, they were still doing what they could to make the world safe for themselves and for their children.

War and Childbirth.—Richter states that in Lower Austria the birth rate has been decreased by one-third in three years; boys are not more numerous than girls; the infant's weight is unaffected by the mother's privations. Eclampsia, so far from falling off, has never been as frequent.—*Zentralblatt für Gynäkologie*.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.

Annual Meeting Held March 29 and 30, 1918.

JOHN A. KOLMER, M.D., OF PHILADELPHIA, PRESIDENT.

The Role of Immunity in the Conduct of the Present War.—Dr. JOHN A. KOLMER of Philadelphia delivered the presidential address. He said that when the history of the present war is written, a notable victory over the common enemy, disease, will be recorded as one of the greatest triumphs of this immense conflict. This conquest of disease was probably the underlying explanation of the stamina and sustained man-power of the warring nations. Never before had so many combatants been engaged, and never had there been such freedom from disease both among the soldiers and the civil population. History records cessation of many wars, due to pestilence, but this had not had any influence in the present conflict. This freedom from disease was partly due to preventive sanitary measures, and partly to specific prophylactic immunization against various infections. The science of micro-parasitology and specific immunization could share equal honors with sanitation and the resistance of the individual to disease by proper hygiene. It could be said that without the initial step in immunization, that against smallpox, it would be impossible to maintain in health large armies and millions of the civil population. The prevention of typhoid and paratyphoid, though not so successful as smallpox vaccination, had largely reduced the prevalence of these diseases; and some check had been placed upon bubonic plague, bacillary dysentery, cholera, and rabies by active immunization. Diphtheria antitoxin treatment was a valuable measure, as was also treatment with tetanus antitoxin, especially when, as nowadays, the trench method of warfare caused wide dissemination of the virus, and practically every wound was an infected one. Epidemic cerebrospinal meningitis was now treated by potent antiserum. Even pneumonia, "The Captain of the Men of Death," was proving amenable to serological treatment. The treatment of syphilis, "The Third Great Plague" (a disease to which persons of all ages and both sexes were vulnerable), had received important aid by means of dioxyminoarsenobenzol, the chemotherapy of which was an important branch of immunization. This treatment gave hope that the disease might be curbed in the present and prevented in the future generations of mankind. Many practical problems lay before the immunologist. One was the discovery of a practical test, analogous to the Schick test, to ascertain the presence of a natural immunity to pneumonia and meningococcus meningitis (if such immunity exists). This might also obtain in the case of tetanus. Measles, anterior poliomyelitis, syphilis, and gonorrhea were diseases that must be combated by some means of active immunization, not forgetting that problem of problems, the question of immunization against tuberculosis. In the present crisis many members of the Association had offered their services to the government; all were directly working upon problems bearing upon the health and protection of armies abroad and camps at home. Viewing the accomplishments of the science of immunity, one would wish Godspeed to these workers in their toil for the present and future, for the health and happiness of mankind, for all time and everywhere.

Experiments on the Production of Antipoliomyelitic Serum in Rabbits.—Dr. E. T. TSEN of Columbia University, N. Y., presented this work. Experiments along this line, he said, were few and the results obtained thereby were contradictory. Various workers had arrived at different conclusions. The problem was, therefore, reexamined. Experiments were carried out on rabbits, and the attempt was made to neutralize poliomyelitis virus by the serum of animals injected with repeated doses of the virus. Control mixtures were prepared and used at the same time. The mixtures were tested on monkeys by intracerebral injections of 0.5 or 0.8 c.c. The result of the first experiment showed that paralysis and death were delayed in the monkey, although death finally occurred from effect of poliomyelitis virus. Experiment two was conducted on five monkeys and it was found that the antipoliomyelitic serum had no effect in delaying par-

alysis or death. These experiments may seem somewhat contradictory, but the discrepancy was slight in the results. It might be explained by differences of resistance in the monkeys. In conclusion it could be said that there was no protective effect in the serum from rabbits which had been injected with the poliomyelitis virus.

Active Immunity in Experimental Poliomyelitis.—Dr. H. L. ABRAHAMSON read this paper. This study, he said, began in 1909, when monkeys were first inoculated with the disease in the experiments of Landsteiner and Popper. Flexner and Lewis, in 1910, succeeded in immunizing monkeys by subcutaneous injections of suspension of the virus. The experiments of Roemer and Joseph who attempted to immunize by intracerebral injection of virus mixed with neutralizing serum were open to criticism. Monkeys thus treated could be reinfected. It could be said that conditions necessary for artificial immunization were: (1) That the method should protect against any reasonable exposure to the disease. (2) That the inoculation itself should be harmless. (3) That the method should not be too cumbersome or slow to be of practical value. In the experiments conducted by Dr. Abrahamson these points were borne in mind. Rabbits were found to be unsatisfactory experimental material and young Rhesus monkeys were chosen for the work. An attenuation of the poliomyelitis virus was aimed at, bearing in mind the analogy to the rabies virus. The virus was exposed (1) to heat, (2) to chemical action. In the latter modification, 0.5% formaldehyde was used. The monkeys sickened and died of what was termed "marantic" type of monkey paralysis. Modification by heat was then used, two methods of vaccine injection being tried. The first one consists of four successive daily injections of 5 c.c. of 10% emulsion in saline of brains and cords of recently infected monkeys. On the fifth day the animals received 5 c.c. of virus emulsion, unmodified by heat. The second type of vaccine was a 5 c.c. injection, on ten successive days of emulsion in saline of brains and cords of infected monkeys, heated to 55 C. for a half hour. This was really a killed virus. It was then sought to determine the amount of immunity possessed by the animals, and also the neutralizing properties of their blood serum. A number of well-controlled experiments on monkeys were carried out according to these methods and in all 11 monkeys were subjected to the 5-day injection series, without ill effect. This method, being short, would make it particularly applicable during an epidemic. It would seem to confer a strong degree of immunity. Persons having recovered from poliomyelitis contain in their blood neutralizing substances, and the same could be said of monkeys. These substances could be artificially produced, and in sufficient quantity to overcome infection of human poliomyelitis, which was far less virulent than the experimental disease.

Dr. A. F. COCA of New York said that he felt it important to emphasize the concluding remarks of Dr. Abrahamson. The conditions under which he was working to produce immunity were highly artificial and this defence was more than was necessary to constitute an absolute resistance to the natural infection as occurring in human beings. The natural resistance might need very much less than the artificial one. In the artificial experiments resistance was circumvented. The experimental resistance in guinea-pigs after immunization with toxin and antitoxin was not comparable with the successful active immunization of children against diphtheria. It would be hard to see from the guinea-pig experiments how little antitoxin was necessary in order to prevent effectively the infection in human beings.

Dr. W. H. PARK of New York said he would say one word in line with Dr. Coca's remarks. In testing animals, one might react, and one might not react. In regard to protective sera: the rabbit gives very feeble protective serum; the monkey gives better serum, but the horse gives as good, or even better serum than the monkey. Perhaps Dr. Abrahamson would say a word on that question. In his own experiments Dr. Park said he had first used virus from the brain, digested by trypsin, and then straight virus. Different animals showed a different period of development of antibodies and also a different degree.

Dr. JOHN KOLMER of Philadelphia asked if the serum had been used in the treatment of human infections.

Dr. H. ABRAHAMSON said he would add a word about rabbit poliomyelitis. He spent about six months inoculating animals to get signs of paralysis. He had not tested for immune bodies. He then subjected monkeys to injections of virus from rabbits. The virus of the 1916 epidemic was tested. The incubation period was variable. The control came down in six days. The animal injected with rabbit cord came down in fourteen days. One could not draw conclusions from these data. As regards horse injections horses had been used in two cases. The first injection was of brain and cord digested by trypsin; the second of emulsions of cords. The first injections were intravenous and then intraspinal. Later the serum from the first horse was found to neutralize virus one part to one. Monkeys were used to test how high the neutralizing power of the serum was. In his own work he had not had experience of horse serum in human cases. Dr. Neustaedter had used horse serum in three human cases and had got very bad reactions. It was very difficult to draw conclusions in poliomyelitis because some slight cases die and some serious cases get well. Rosenau's serum had been tested by them in their work and it was found to neutralize one to one. There must be some substance affecting the virus. It was killed every time with a 0.3 c.c. injection.

Types of Meningococci Concerned in Epidemic Infections.—Drs. A. PARKER HITCHENS and G. H. ROBINSON of Philadelphia presented this paper. The troops in this country were now undergoing the same conditions as the British troops at the beginning of the war. The work of English investigators was here of value, especially that of Gordon on the meningococci. He had typed the different strains, as had been done with the pneumococci, into four different groups. This work had been followed in the present experiments, and one hundred cultures, received from the first of the year, had been typed according to the Gordon method. The strains had been received from several concentration camps in this country. The cultures—from spinal fluids or from naso-pharyngeal swabs—were Gram negative cocci. They corresponded to a greater or less degree to Gordon's types, viz., I. parameningococcus; II. normal meningococcus; III. and IV. comparatively rarely found in this country. The grouping of the strains varied with different camps. Camp Jackson had one strain, type I; nine strains, type II; one strain, type III. Great Lakes camp showed: type I, one strain; type II, twenty-eight strains; two flavus; two undetermined. It was shown that each camp had a predominating type, but whether this was a true epidemic was not determined. The work was undertaken with the hope that specific sera might be evolved to counteract the types. Gordon had had excellent results with his specific strains. He found that if specific serum were given before the third day of the disease the mortality was only nine per cent.; if on the seventh day the mortality was fifty per cent. In testing the types the precipitin test had given valuable results, which were confirmed by cultural methods. Agglutination of strains seemed to give distinct differences which follow the types as laid down by specific sera, but what the relationship is was not yet conclusive. A rapid method of typing the meningococci was sought.

Influence of Active Normal Serum upon Meningococci.—Drs. JOHN A. KOLMER, I. TOYAMA, and T. MATSUNAMI gave this presentation. Fresh serum, it was stated, gave both normal and immune, had greater antibacterial properties than old serum, the latter having sustained a loss of antibodies as well as complement and opsonins. Antimeningitis serum, it was found, was rich in opsonins and had high phagocytic properties. Recovery from meningitis was in great measure due to this phagocytosis. The normal cerebrospinal fluid, it was found, was lacking in complement, and antibodies, such as agglutinins, hemolysins and antitoxins. It also lacks opsonins for meningococci. It was found, however, that fresh normal human and guinea-pig sera possess a well-defined amount of opsonin for virulent meningococci, the former possessing more than the latter. The amount was found to vary in different persons and in different guinea-pigs. Another conclusion was that the addition of fresh normal human or guinea-pig serum

to various antimenigitis sera, as prepared and marketed for administration, was found to increase definitely and uniformly the opsonic activity for various strains of meningococci. From studies of the opsonic activity, *in vitro*, of antimenigitis serum, as an index of curative power, one might conclude that fresh normal human and guinea-pig sera alone may possess curative properties when brought into direct relation with meningococci, and their addition increases opsonic value of stock sera on the market. A clinical test, the addition of 1 c.c. of fresh sterile human or guinea pig serum to each 9 c.c. of antimenigitis serum, before intraspinal injection, would be of value for the purposes of increasing phagocytosis of the microorganisms, especially in cases of severe and serum resistant meningococcus meningitis.

Influence of Active Normal Serum (Complement) upon Meningococci.—Drs. T. MATSUNAMI and J. A. KOLMER presented this paper. They found that the bactericidal activity *in vitro* of different antimenigitis sera was quite low. Fresh or active antimenigitis sera were somewhat more bactericidal than the same sera after inactivation by heating at 60 C. for thirty minutes. It was seen also that active normal human and guinea-pig sera are slightly bactericidal for meningococci. Horse-antimenigitis serum and normal human and guinea-pig sera were found to have a bactericidal activity, independent of complemental bacteriolysis. The test *in vitro* of normal and immune sera was best shown by a pipet method using small numbers of cocci and relatively large amounts of serum. The bactericidal activity of antimenigitis serum was increased by adding active normal human or guinea-pig serum. It was further found that the use of whole blood was of more effect than the use of sera alone. Agglutinations of meningococci occurred by using normal human and guinea-pig sera in dilutions up to 1:14, but not higher. The mouse test (Hitchens and Robinson) was of value for the determination of the protective and curative value of the serum. It was found that mice infected with virulent meningococci were not protected by normal active human and guinea-pig sera. The final conclusions from these experiments was that the addition of active normal human or guinea-pig serum (complement) to antimenigitis serum did not greatly add to bactericidal activity, as bacteriolysis was unimportant in antimenigitis serum; but it was found that opsonic activity (an important curative factor) was greatly increased by such addition. Moreover, it was considered worth while, in view of these findings, to use clinically an antimenigitis serum to which has been added active human or guinea-pig serum prior to intraspinal injections, especially in severe and serum resistant cases. In this respect human serum is superior to guinea-pig serum when proper aseptic precautions are maintained.

Dr. Wm. H. PARK of New York said he would like to ask a question as to the use of "specific therapy" in the treatment of cerebro-spinal meningitis. Could one get a serum for one type which would be stronger than the polyvalent serum? If one or two types could be injected into the horse at once and an antiserum produced, the advantage would be much greater than if one used two different horses for those types. Was there evidence that a polyvalent serum had been produced. If not, it would be advantageous to produce a serum for one or two types. In the pneumococcus serum it was necessary to make antisera against distinct types, but in this case a serum against one or two types would seem to be equally potent.

Dr. A. P. HITCHENS said Dr. Park's point was very well taken and he agreed up to a certain point. There might, however, be greater possibility of reducing the death rate through the use of specific sera. It was possible that there might be immunological variations of meningococci within the serological types. It was well known that with the best balanced sera obtainable one found cases of meningitis to resist their action. The meningococci isolated from spinal fluids in these cases were resistant in culture to the action of the polyvalent serum, although belonging to one of the well-known fixed types. These might be serum fast strains or not agglutinable strains. The Rockefeller Institute agglutination work would show that meningococci could not be accurately and sharply grouped within certain types,

but followed the order of a chromatic scale. There were an almost innumerable number of variations, although variations were slight. The problem of getting a polyvalent serum was therefore difficult. It was felt, however, that work should follow the lines of making a polyvalent type serum and find out if this would not confer more resistance in the refractory cases. It would be found necessary for this purpose to use many strains of meningococci. One could not select single strains of the four types and immunize a horse to these four strains, because there are an infinite number of variants within the types. In one case where the spinal fluid gave a specific reaction to the precipitin test the patient did not do well with the polyvalent serum. With a specific serum the case recovered. In regard to Dr. Matsunami's paper, those who were interested in active immunization against cerebrospinal fever would welcome the technique of Dr. Heiss. If even a low grade of immunity could be demonstrated this technique would be of considerable assistance.

Dr. PARK said that Dr. Hitchens had not exactly answered his question. Could not one horse be injected with two or three types, as well as with one type alone? In New York they were using the combined serum and had obtained reduction of mortality to 22 per cent. It would not do to take the time to type individual strains, as in pneumonia. Had it been proved that one could not produce a serum from a single horse that would answer to one or two strains? If not, there must be a horse for each strain. This would be very confusing from the laboratory standpoint.

Dr. HITCHENS said he thought he had replied to Dr. Park. If the number of antigens could be limited to four or five there would be no reason to think of specific sera. It was not possible to get sera equivalent to each four strains as high as for a single strain. In an antiserum for all strains it might be as high as against a single strain. If there were only five variants it would not be necessary to think of specific sera; but if, as had been suggested, there was a chromatic scale of variation—40 to 60 different varieties—one could not get sera as high for individual variants as if they were split into groups of four or five. There was, however, as yet no positive evidence in support of this theory.

Dr. C. KRUMWIEDE of New York said he was interested in the precipitin test diagnosis of type, but he was far from accepting its specificity. In his experience there would be reactions alike for types one and three and strain two would pick up strain four. Before progress could be made an easier way of differentiation must be found. The same agglutinations were found for strains one and three in 100 per cent. of cases. He felt a little hopeless about discovering a more specific test. The absorption tests showed no more than that the strains were either one or three. The question was, Which was it? The test would at least tell roughly whether it was one and three or two and four. As regards resistant cases, in one case that died they found that the serum was not agglutinated by the strain used in the case. They had been working on improvement of the opsonic index. They had found, as Dr. Kolmer had, that horse serum and human serum were both rich in normal opsonins and it was difficult to draw definite conclusions in this work.

Studies on So-called Cellular Anaphylaxis.—Drs. W. P. LARSON and E. T. BELL presented lantern slides illustrating experiments upon the livers of rabbits. The organs, after having been washed out to remove residual serum, were perfused with a solution of india ink, which clearly indicated the areas reached by the perfusing solution. The appearance of dark areas covered by the solution was extremely patchy; in some cases large areas had been covered, in others the perfusing experiment was very unsuccessful and only small spots had been touched. The slides were presented with the idea of showing that there was danger of making far-reaching conclusions upon the assumption of being able to wash out the organ fully before testing for the so-called cellular anaphylaxis.

Dr. J. F. ANDERSON, Brunswick, N. J., said that if the animal were sensitized to more than one protein there would be an inhibitory effect from the injection of a sublethal dose.

Dr. BRONFENBRENNER of Boston said if the injection was sufficient to hide the effect of the sublethal dose it

protects to one and a half to two doses of entire antigen.

Dr. J. F. ANDERSON said that was at variance with the results of Rosenau. They found that the protected case acted without the various sera. With various proteins, milk, etc., animals would respond within three hours. It was found that animals that recovered from the dosages would subsequently respond to a second or third injection. He would like to ask Dr. Bronfenbrenner if he tested out the sensitization of these animals by injections, following the injections in the intraperitoneal cavity.

Dr. A. P. HITCHENS asked if Dr. Anderson and Bronfenbrenner took into consideration the injection of the second antigen, during the anaphylactic period of the first dose.

Dr. A. F. COCA of New York said that Dr. Bronfenbrenner's experiments showed what had been called non-specific resistance and a non-specific anti-anaphylaxis. It had been shown that the resistance to anaphylaxis, if specific, was absolute. One could inject not only one-half, but many lethal doses in the desensitized animal. The animal becomes to the specific exactly as is the normal animal, but subsequently the animal could again become sensitized. For the purpose of Dr. Bronfenbrenner's argument it would be necessary to show that the desensitization was not non-specific but specific. Otherwise the experiment was in the same condition as that of Friedburger who obtained partial resistance by anaphylotoxin. That was what was called desensitization. The humeral theory was at a great disadvantage by not being able to explain the latent period after passive desensitization. Dr. Larson's paper, Dr. Coca said, was opposed to some of his own previous work. It would seem that this was conclusive proof that some of Dr. Coca's former conclusions were wrong, as far as they pertained to residual percentage of blood after perfusion. In defense of the whole argument he had showed that about one-half of the animals that are actively desensitized possess no antibodies that can be demonstrated in the blood. If half of the animal's blood is taken and injected into the normal animal, no passive desensitization can be obtained, nor enough antibodies left in the circulation to account for anaphylaxis that occurs after perfusion. Evidently in Dr. Larson's cases less than half the blood remained in the perfused animal, so that the experiments were conclusive and highly suggestive.

Mr. CHARLES WEISS of Philadelphia said that this was interesting in connection with some work on the effects of quinine. One series of guinea-pigs were treated with quinine to see if this drug would cause complement. It was found that the quinine evidently aided in saving nitrogen metabolism, as was seen after egg albumin injections.

Dr. G. H. A. CLOWES of Buffalo said he could substantiate Dr. Anderson's position. Eight years ago he had tried desensitization against hay fever in patients sensitive to spring and autumn fever. Timothy and ragweed were used and it was found that the skin test was strongly specific. Patients desensitized to timothy were not altered in their reaction to ragweed. Immunity developed only against the agent employed. The matter of antitryptic antitoxin was related to the matter of surface tension. The soaps, lecithins, calcium chloride and barium chloride played a part in this question. The non-specific interference was a matter of surface tension. He himself had obtained a marked desensitization to hay fever with a marked antitryptic index. This was followed up with care on account of its relation to the cancer question. The high antitryptic index was coincident with anaphylaxis and fell to normal after the hay fever period. The anaphylactic effects were due to increased permeability of the protein film.

Dr. J. BRONFENBRENNER said that he would begin by saying that calcium chloride and barium chloride did not produce specific anti-anaphylaxis. Dr. Coca was right when he said that Friedburger's effects were due to non-specific residue. What non-specific phenomena could effect anaphylaxis? There should be one single phenomenon underlying all this, because non-specific phenomena apparently affect specific phenomena. At least simultaneously there was seen to occur an antitryptic index and other causes that might prevent an

anaphylactic shock. An important point in the experiments would be to select a large dose of the specific antigen and the next lethal test injection would be simple. If that was not done there would be non-specific reactions. The exhaustion of the antibody, Friedburger's idea, was not proven yet, and further experiments would have to be made. Mr. Weiss' suggestion was valuable. It was interesting to see experiments showing that absolute perfusion was a very irregular thing. The speaker said he did not know what it depended upon. All the phenomena were not explained, but one could not exclude the fact of residual serum being there. In connection with surface tension most people would now be agreed upon that point and its connection with increased permeability of the cells.

Experimental Pollinosis in Guinea-Pigs.—Dr. HENRY ULRICH presented a summary of this work. The experimental animals were injected with pollen introduced into the nasal mucous membrane by means of a medicine dropper. A series of controls were kept, following the type of work by Sewall of Denver. The injected animals presented signs of hay fever, but never developed a real asthma. A certain periodicity was exhibited by a refractive stage and an irritable stage of the disease. Experiments in sensitization were begun with five animals using 5 grs. of pollen intraperitoneally. After this pollen was given in the nose. One group were not previously sensitized. A group of animals were injected with starch. It would appear from the experiments that the nasal mucous membrane has some digestive power for foreign proteins. In noting the results it was found that one group of animals were refractive to atoxic dose of serum. Three animals showed anaphylactic reaction. One control which received twice the dose that the sensitized animals received died within forty-five minutes from the toxic effects. It would seem that in hay fever the defensive mechanism in the nasal mucous membrane was in some way broken down.

Dr. G. H. A. CLOWES of Buffalo said he did not feel competent to discuss the paper as a whole, but he was interested in the results. In attempts made with human material it was tried to induce sensitization in individuals who were not sensitive, and it was unsuccessful. This would give a clue to the work upon this mysterious condition.

Dr. A. F. COCA of New York said that one must recognize this as a revolutionary piece of work. He had, with Dr. Cooke, carried out experiments of a similar nature. It could be said that thousands of people had received injections of horse serum, but no one had ever reported that such persons had become sensitive to horse serum. Dr. Cooke had injected human beings with pollen extracts to which they were not sensitive, but had never found them to be affected by hay fever due to the pollens injected. They had tried to sensitize guinea-pigs, in a large series of cases, and had not succeeded. All of the pollen was not used, but pollen extracts of high concentration. Human beings are naturally sensitive to those substances. Guinea-pigs can become sensitive to certain proteins. Pigs receiving injections of egg white, after previous injections, died in half an hour from anaphylaxis. Any antigen would kill artificially sensitized animals. This was different to natural sensitization, as the same systems were not affected in the two. Human beings might show certain kinds of sensitization, but not the symptoms of natural sensitization. In one case the muscular tissues are saturated with the antibodies; in the other the epithelial tissues which are affected are saturated with antibody like substances.

Dr. J. F. ANDERSON said a good many years ago it was demonstrated that animals could be sensitized by instillations in the nose so as to respond with symptoms of anaphylaxis. Had Dr. Ulrich confused the sensitization to protein with the sensitization to pollen. These were two entirely different propositions and opened a field for large experimentation.

Dr. A. P. HITCHENS said Dr. Smith had tried to sensitize both guinea-pigs and rabbits and was never successful. He wondered if Dr. Ulrich would tell what pollen was used and the method of extraction of the pollen. All pollen used was found by himself to be

very badly contaminated and had many bacteria of different kinds. Unless it had been cleaned (by means of which they were unable to devise) the bacterial contamination might play a large part in the phenomena which resulted.

Dr. G. H. A. CLOWES said they had found contamination by bacteria and minute insects. Reactions to these might be introduced. They had never succeeded in getting reactions in normal individuals.

Dr. G. SMITH of Philadelphia said that not only had they instilled pollen into the nose and mucous membranes of normal animals, but they had tried to injure the mucous membranes to see if they would respond more after injury. They were shut up in glass cages in which pollen was kept circulating by means of the electric fan. No sensitization was obtained.

Dr. H. ULRICH said that the pollen was washed in acetone and the sterile pollen was injected into the peritoneal cavity and never showed any growth. It was cleansed and kept dry in the powder form. One-fifth mg. in suspension was taken care of well by the guinea-pig. Pollen extracts were then introduced in the nose. In regard to whether this sensitization was to pollen or to protein, one should consider the mucous membranes in the nose. These contained defensive mechanism which was broken down in hay fever.

Influence of Arsenobenzol and Mercury upon Antibody Production.—Drs. JOHN A. KOLMER and I. TOYAMA of Philadelphia read this paper. The possibility of certain drugs acting as antigens had been the theme of several studies by different workers. The antigenic action of drugs might account for acquired drug tolerance and also aid in resistance to infection by stimulating antibody production against micro-parasites apart from direct action of the drug on the parasite. The latter phase of the subject was the one particularly dealt with by the authors. Considerable evidence would point to the conclusion that many drugs exerted a stimulating action on antibody production by the tissues. Such drugs as arsenous anhydrid, phosphoric acid and mercuric chlorid, administered by mouth, were found to act in this manner. Salvarsan appeared to stimulate agglutinin production, according to some workers. The present experiments were conducted on rabbits, to determine if small daily doses of arsenobenzol and mercuric chlorid tended to increase antibody response to alien erythrocytes or to typhoid bacilli. After a series of experiments, five in all, on a large number of rabbits, and control animals, it was found that no increase of antibody production was shown, after injections of arsenobenzol or mercuric chlorid. On the contrary, it would seem that there was a lowering of antibody production, probably due to lessening of resistance by toxic effects. Further experiments, however, were in progress, upon the action of these drugs in experimental trypanosome infections. It was felt that such work should be done upon human sera, as work upon the sera of lower animals might not be a true index in human cases. The importance of the subject would demand careful experimental work in this direction.

(To be continued.)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

WEST VIRGINIA STATE BOARD OF HEALTH.

Clarksburg, November 21, 1917.

(Concluded from page 750)

SURGERY.

1. Describe Potts' fracture of the lower extremity.
2. How does a carbuncle differ from a boil?
3. Describe a reduction of the inferior maxillary bone.
4. Give the treatment of fracture of the ribs.
5. What are the methods of controlling hemorrhage?
6. What is a sprain of the ankle joint? Symptoms and treatment?
7. What are the symptoms of strangulated hernia?
8. What is shock? And its cause?
9. How are burns classified? Give treatment.

10. State the distinction between antiseptic and aseptic wound treatment.

11. Describe an operation of circumcision.

12. What are the causes of intestinal obstruction?

SPECIAL MEDICINE.

1. Name the extrinsic muscles of the eye and give their motor nerve supply.
2. Give diagnosis and outline treatment for acute catarrhal conjunctivitis.
3. Give fully the prophylactic treatment of ophthalmia neonatorum.
4. Give care of an eye injured by a lime burn.
5. Describe paracentesis of the drum membrane and when should it be done?
6. Give treatment for chronic suppurative otitis media.
7. What is tinnitus aurium? And name five general causes.
8. Give treatment for acute coryza.
9. Give diagnosis and treatment for acute follicular tonsillitis.
10. How can you differentiate *positively* chancre from chancroid.
11. Treatment of cystitis in the female, and name the most common organism.
12. Differentiate between suppression and retention of urine. Give treatment of each.

ANSWERS.

SURGERY.

1. *Pott's fracture* is very common, and is due to indirect violence, such as turning over on the inside of the foot. The strain tears through the internal lateral ligament of the ankle or tears off the tip of the malleolus; then the astragalus is pressed against the inner side of the external malleolus by the continuation of the violence. The fibula is overbent, and breaks about three inches above the tip of the malleolus. At the same time the foot is displaced outward or outward and backward. In many cases, however, the displacement is slight.

Treatment.—"An anesthetic should always be given, and the fracture reduced by relaxing the calf muscles and applying traction to the foot. The limb must then be fixed on the back splint, with side splints in addition. The foot must be at right angles to the leg, the bony points in line, and the posterior displacement corrected. The surest way of maintaining the foot in good position is to at once apply plaster of Paris. Other splints used are Dupuytren's and Syme's horseshoe splint. Massage and passive movement at the end of ten days are advisable, the fragments being firmly grasped to prevent displacement."—(*Aids to Surgery.*)

2. "*Furuncles and carbuncles* result from infection with the *Staphylococcus aureus*, which enters the orifices of the ducts of the skin under the influence of friction and pressure. A *furuncle* results when the infection is located in a hair follicle or sebaceous gland. A hard, painful, conical swelling develops, to which, so long as the skin retains its normal appearance, the term 'blind boil' is applied. Usually, however, the skin becomes red, and after a time breaks, giving exit to a drop or two of thick pus. After an interval of from six to ten days a soft white slough is discharged; this is known as the 'core,' and consists of the necrosed hair follicle or sebaceous gland. After the separation of the core the boil heals rapidly, leaving a small depressed scar. *Carbuncle* may be looked upon as an aggregation of boils, and is characterized by a densely hard base and a brownish-red discoloration of the skin. A carbuncle is usually about the size of a dollar piece, but it may continue to enlarge until it attains the size of a dinner plate. As time goes on several points of suppuration appear, and when these burst there are formed a number of openings in the skin, giving it a cribriform appearance; these openings exude pus. The different openings ultimately fuse and a large adherent, grayish-white slough is exposed. The separation of this slough is a tedious process and the patient may become exhausted by pain, discharge, and septic absorption. When the slough is finally thrown off a deep gap is left, which takes a long time to heal."—(*Thomson and Miles' Surgery.*)

3. To reduce dislocation of inferior maxillary bone:

The surgeon places his thumbs, well protected by a towel, on the molar teeth or behind them, presses the angles of the jaw downward while he elevates the chin with his fingers; and by this manipulation the condyles of the jaw usually slip back into place with a snap. After reduction of the dislocation the jaw should be fixed for a week or ten days by a Barton's bandage or a four-tailed sling.

4. *Treatment of fracture of the ribs:* Strips of plaster reaching from the spine to the sternum should be placed over the injured side during deep expiration. The strips should overlap, and a bandage should be put on over the plaster. If the fracture is due to direct violence, no strapping should be used, but the patient kept still by placing sand bags on either side. Ribs always unite readily.

5. *METHODS OF CONTROLLING HEMORRHAGE.*—*Mechanical treatment* includes: Elevation, pressure, torsion, ligation, compression, aeupressure, and forced flexion of limb. *Therapeutic treatment* includes the use of: Heat, cold, styptics, and the cautery.

6. A sprain of the ankle joint is an ill-defined injury of that joint, in which the tendons, muscles and synovial membranes are more or less involved; sometimes there is a contusion as well. The symptoms are pain, tenderness, swelling, ecchymosis, impaired movement, and inability to walk. The treatment consists of massage and strapping by adhesive plaster. A treatment that, according to Gibney, "involves no loss of time, requires no crutches, and is not attended with any impairment of functions," is as follows: A number of strips of rubber adhesive plaster, about 9 to 12 inches in length and of appropriate width, are prepared. Beginning at the outer border of the foot, near the little toe, the first strip partially encircles the joint, and ends behind the foot. The second strip is begun on the inner side of the foot and is applied on the opposite side, nearly meeting the first strip behind. Other strips are applied in like manner, each one overlapping the last and crossing its fellow of the opposite side in front, so that the ankle is snugly and smoothly incased, care being taken not to encircle completely the joint with any one strip. After having bound the foot firmly, it is well to add one broad strip, running around the foot from the internal side of the leg down the internal side of the foot, across the plantar surface, and up the outside of the leg, "as much as possible to take the place of the middle fasciculus of the external lateral ligament, which is so often the one most injured." It is a good plan to place a pad of absorbent cotton over the external malleolus and in the fossa below, to prevent undue pressure and chafing. Any one of the injured ligaments may receive a similar reinforcement from an extra strip. Then apply a roller smoothly over the entire surface, allowing it to remain until the plaster takes firm hold.—(*Pocket Cyclopaedia*.)

7. *Symptoms of strangulated hernia: General.*—"Severe pain comes on suddenly after some effort, at first referred to the umbilicus, and subsequently to the site of the hernia. This is accompanied by some shock. The pulse is weak, and, though slow at first, becomes rapid; the skin is cold and clammy; vomiting occurs, and soon becomes frequent and fecal smelling. Constipation is complete, though both feces and flatus may be passed at first from the lower bowel. The patient generally becomes exhausted from the vomiting and inability to take food. When gangrene occurs the temperature becomes subnormal, the pulse very rapid and weak, and the patient dies of toxemia from the general peritonitis which follows gangrene. *Local.*—A tumor forms at one of the hernial sites; or more often the patient has been the subject of a hernia, which he now finds to be irreducible, tense, tender, and without impulse on coughing. If allowed to persist the sac and coverings become gangrenous."—(*Aids to Surgery*.)

8. *Shock* is the name given to a sudden and general depression of the vital powers, due to some strong stimulation (such as injury or emotion), acting on the vital centers in the medulla and producing vasomotor paralysis. Shock is *primary* when the symptoms appear promptly; it is *secondary* when the symptoms do not appear for several hours (often observed after railway accidents, intoxication, etc.)

"The explanation of shock usually accepted, largely on the authority of Crile and Mummery, is that the

paralysis or exhaustion of the vasomotor center in the medulla results in a lessening of the vascular tone, particularly that of the arteries, and a marked fall in the blood pressure. Most of the blood leaves the arteries and collects in the large venous trunks, especially those of the abdomen, and there is thus produced an anemia of the brain and of the superficial parts of the body. At the same time the right side of the heart becomes overloaded and impeded in its action. According to J. D. Malcolm the disturbance of the vasomotor center results, not in dilatation, but in contraction of the arteries. At first the superficial vessels are constricted, and if the exciting cause is kept up this condition spreads back to the larger vessels, so that the blood is driven out into the tissues and back into the abdominal veins."—(Thomson and Miles' *Surgery*.)

9. *Degrees of Burns.*—Dupuytren's classification: *First degree*, reddening of the skin. *Second degree*, blistering. *Third degree*, destruction of the epidermis, Malpighian layer, and papillae of the derma. The sensitive nerve terminals are exposed; consequently this is the most painful degree. The sweat and sebaceous glands and hair follicles are not destroyed, and from these epithelium spreads in healing, so that repair is rapid, and the scar is not a contracting one. *Fourth degree*, the whole thickness of skin and part of the subcutaneous tissues are destroyed. *Fifth degree*, the muscles are injured. *Sixth degree*, the whole limb is charred.

Treatment.—General: If carbonic-oxide poisoning is present, artificial respiration and administration of oxygen. For shock, opium and stimulants. Local.—For burns of the first degree, powder with boric acid. Puncture blisters, and cover the part with an antiseptic dressing. Burns of deeper degrees than the second must be made aseptic with 1 in 1,000 perchloride of mercury. Carbolic acid is absorbed readily, and must not be used. Antiseptic gauze dressings should then be used. Pieric acid (20 grains to 1 ounce of water) is used as a dressing. It lessens the pain, and can be left on two or three days. The continuous bath may be used. If the burn be of any size it should be skin grafted, as the scars of burns contract very much, and may produce deformities.—(*Aids to Surgery*.)

10. *The antiseptic system* aims at the destruction of bacteria, and relies largely upon the action of chemical bactericides, wounds themselves being treated with such chemicals. Instruments are prepared by soaking in, dressings by impregnation with, skin by scrubbing with, antiseptics. The air is treated by an antiseptic spray, and the wounds are constantly bathed in antiseptic solutions.

The aseptic system aims at the prevention of wound infection by excluding bacteria from the wound, relying almost entirely on heat for the destruction of germs, and using no chemicals in contact with wounded tissues. Instruments are boiled, dressings are steamed, skin surfaces are excluded from wound contact.—(*Synopsis of Surgery*.)

11. "*Circumcision* is performed by drawing the prepuce forward and then enclosing it in a pair of clamp forceps placed obliquely just in front of the glans. The prepuce is next divided with a straight bistoury, and the forceps removed, when the skin and mucous membrane retract. The mucous membrane, if adherent, is dissected loose from the glans; if redundant, it is trimmed with scissors to make it correspond to the line of skin incision; the cut edge of the mucous membrane is next fastened to the cut edge of the skin by a few sutures of silk or catgut."—(Wharton's *Minor Surgery*.)

12. *Causes of Intestinal Obstruction:* Strangulation, kinking, volvulus, intussusception, foreign bodies, tumors in the intestinal wall or pressure due to tumors outside the bowel, fecal accumulation, and stricture.

SPECIAL MEDICINE.

1. *The extrinsic muscles of the eye* are: Levator palpebrae superioris, superior rectus, inferior rectus, external rectus, internal rectus, superior oblique, and inferior oblique. The external rectus is supplied by the sixth cranial nerve (abducens); the superior oblique, by the fourth cranial nerve (trochlear); and the remaining five muscles, by the third cranial nerve (motor oculi).

2. *ACUTE CATARRHAL CONJUNCTIVITIS. Symptoms:* "Hyperemia, profuse lachrymation, epiphora, a profuse discharge, sensation of sand in the eye, and sometimes

photophobia. *Treatment:* Astringent and antiseptic washes are of value. Ascertain the underlying cause, if possible, and remove it. Anointing the lids with pure or medicated vaseline every evening is necessary. Alum, tannic acid, silver nitrate, and zinc sulphate are valuable as astringents. In intractable cases a 50 per cent. solution of boroglycerid in glycerin should be applied once daily.—(*Pocket Cyclopaedia*.)

3. **OPHTHALMIA NEONATORUM.** *Causes:* The gonococcus or some other pyogenic microorganism; the secretions of the mother contain the infecting agent, and transmission may occur directly during parturition, or indirectly by the fingers of physician or nurse, cloths, instruments, etc. *Symptoms:* Swollen eyelids, with copious purulent discharge; ulceration of the cornea may ensue. *Prophylaxis:* Whenever there is the possibility of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a 1 per cent. solution of nitrate of silver, immediately after birth. *Treatment:* Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a 2 per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burned.

4. *For chemical burns of the eyeball:* The treatment consists in the complete removal of the caustic substance as soon as possible. Solid particles are removed with cotton or forceps. Then the conjunctival sac is washed out with solutions which tend to neutralize the corrosive substance or render it insoluble. In the case of lime, mortar, or caustic alkalies, we flush out with a solution of boric acid, or we may wash out the eye with oil. Subsequently we use cold compresses, atropine, and sometimes a bandage. After the loosening of the eschars, we must separate the adhesions frequently. Symblepharon often occurs notwithstanding the greatest care.—(*May's Diseases of the Eye*.)

5. *Indications for paracentesis of the membrana tympani:* To evacuate pus in the tympanum (and so to relieve pain, limit the infection, shorten the disease, and prevent complications); for enlarging perforations which are too small to allow adequate drainage; it is employed also in certain catarrhal and inflammatory conditions of the ear.

The parts are to be sterilized, an anesthetic (local or general) given; and the incision is then made with a slender, sharp-pointed knife. A speculum and adequate illumination will be necessary. The particular quadrant which should be incised depends upon the condition calling for the operation. The incision should be made sufficiently long; a mere puncture is not sufficient. If possible the incision should be so placed that the opening will extend from near the floor of the canal upward and through the bulging portion of the membrane. The surgeon should avoid touching the auditory ossicles.

6. *Treatment of chronic purulent otitis media:* "Cotton must never be worn in the discharging ear. The discharge must be mopped out, but if very thick and copious, syringing by means of sterile water or sterile water containing salt (gr. 5-5 1) or carbolic acid (1:40), once or twice in 24 hours in bad cases is permissible. After mopping the ear, 10 drops of an antiseptic solution may be instilled. Formalin solution (1:1000-1:2000), carbolic acid solution (1:40), or, if granulations are present, absolute alcohol may be dropped in and allowed to remain for a few minutes, and then turned out into a towel. This treatment should be continued once or twice a day in very bad cases, and less often when the discharge decreases. If, after several months, improvement does not take place removal of the ossicles under general anesthesia may be necessary."

7. *Tinnitus aurium* is the name given to any subjective sounds heard in the ear. The chief causes are: Neurasthenia, impacted cerumen, otitis, and other ear diseases; Menière's disease, obstruction of the Eustachian tube, anemia, leukemia, cerebral hyperemia and anemia, arteriosclerosis, gout, digestive disorders, excessive use of alcohol or tobacco, and the use of certain drugs such as quinine or salicylic acid.

8. *Treatment of acute coryza:* Quinine sulphate (10

grains), with morphine sulphate ($\frac{1}{4}$ grain), or Dover powder (5 grains) will often abort an attack. A hot foot-bath, rest, and saline laxatives aid materially. Tincture of belladonna (2 minims every hour, until 6 doses are taken, then half this quantity until the physiological effects of the drug are manifest); if much fever is present tincture of aconite (5-minim doses) may be added; camphor is also serviceable. Cleaning the nose with Dobell's solution is of value.

9. *Acute follicular tonsillitis.* The onset is accompanied by chills, rigor, fever, severe pains in back, limbs and throat, dysphagia, and tenderness at the angle of the jaw. The tonsils are swollen and are studded with yellowish-white points; pain in the ear is common. Coated tongue, anorexia, depression, rapid respiration and pulse are also noted. The condition is to be diagnosed from diphtheria. In this latter condition the fever is not nearly so high, there is a white membrane which spreads to the pharynx uvula, and soft palate, which leaves bleeding points when it is removed, and which contains the bacillus diphtheriae; this membrane recurs after removal.

Treatment of follicular tonsillitis.—The patient should be in bed; calomel (followed by a saline) should be given to open his bowels; sodium salicylate, gr. x-xv, q. 3 h., may be given; hot fomentations externally are of service; potassium chlorate may be used as a gargle or sucked, in the form of tablets. Antiseptic sprays have been used; if an abscess forms it should be opened. Tonics and nourishing food are indicated during convalescence.

10.

CHANCRE.	CHANCROID.
Has a period of incubation; ten days to three weeks.	Has no period of incubation.
Looks like a superficial erosion.	Is "punched out" and excavated in appearance.
The edges are sloping.	The edges are undermined.
The floor is smooth, shining, and red in color.	The floor is uneven, "worm-eaten," and yellow in color.
The secretion is serous and profuse.	The secretion is purulent and autoinoculable.
The induration is cartilaginous and sharply limited.	There is no induration, but the sore may be surrounded by a zone of edematous infiltration, not sharply limited.
The neighboring lymphatic glands are indurated, painless, freely movable beneath the skin, not matted together, and do not suppurate unless infection of the chancre has occurred.	If the neighboring lymphatic glands are involved, they form an inflamed, painful mass, which usually suppurates; the overlying skin becomes red, tender, and hot.
The tissues around the lesion are purplish in color from venous congestion.	The tissues around the lesion are bright red in color from acute inflammation.
Spirochetæ are found in the discharge.	No spirochetæ are found in smears.

—(*Hayden's Venereal Diseases*.)

11. *Treatment of cystitis in the female:* Rest in bed, the imbibition of plenty of milk and water, and the avoidance of all highly seasoned food; laxatives; diuretics; sitz bath; irrigation of the bladder with an antiseptic solution; hot fomentation and vaginal douches are often helpful; sometimes intravesical medication is necessary.

The most common organisms are: *Bacillus coli communis*, gonococcus, and bacillus tuberculosis.

12. *Retention of urine* exists when the bladder contains urine which cannot be voluntarily expelled.

Suppression of urine exists when the kidneys fail to secrete urine.

Treatment of retention of urine: Hot baths, suppositories of morphine and belladonna, may first be tried. Failing these, a soft rubber catheter should be passed; if this fails a filiform catheter may be tried; if the prostate is enlarged, a metallic catheter (prostatic) should be tried; failing these methods, suprapubic aspi-

ration, or cystotomy (suprapubic or perineal) may be tried.

Treatment of suppression of urine: This depends upon the cause. Generally warm baths, pilocarpine, and measures to induce excretion from the skin should be employed. Diuretics should not be given, and laxatives must be employed cautiously. In cases of renal congestion, wet cupping over the loins, or venesection (in robust individuals) may be tried. If a calculus is present in the kidney or ureter, it must be removed.

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF EXAMINATION†
Alabama*	S. W. Welch, Montgomery	Montgomery, July 9
Arizona*	A. H. Williams, 219 Goodrich Building, Phoenix	Phoenix, July 2
Arkansas	T. J. Stout, Brinkley	Little Rock, May 14
California	C. B. Pinkham, Sacramento	San Francisco, June 25
Colorado	David A. Strickler, Empire Building, Denver	Denver, July 2
Connecticut*	Chas. A. Tuttle, New Haven	New Haven, July 9
Delaware	J. H. Wilson, Dover	Wilmington, June 18
Dist. of Col.*	F. P. Coneland, Washington	Washington, July 9
Florida*	W. M. Rowlett, Tampa	Jacksonville, June 18
Georgia	C. T. Nolan, Marietta	Atlanta, May 30
Idaho*	Charles A. Dettman, Burke	Pocatello, June 3
Illinois	F. C. Dodds, Springfield	Chicago, July 9
Indiana	W. T. Gott, Crawfordsville	Indianapolis, July 9
Iowa	G. H. Sumner, Des Moines	Des Moines, June 18
Kansas	H. A. Dykes, Lebanon	Topeka, June 18
Kentucky	J. N. McCormack, Bowling Green	Louisville, May 28
Louisiana	E. W. Mahler, New Orleans	New Orleans, June 6
Maine	F. W. Searle, Portland	Portland, July 2
Maryland	J. McP. Scott, Hagerstown	Baltimore, June 18
Massachusetts*	W. P. Bowers, 1 Beacon St., Boston	Boston, May 14
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor, June 11
Minnesota	T. McDavitt, St. Paul	Minneapolis, June 4
Mississippi	J. D. Gilgyley, Jackson	Jackson, June 17
Missouri	G. H. Jones, Jefferson City	St. Louis, Oct. 1
Montana*	S. A. Cooney, Helena	Helena, Oct. 1
Nebraska	J. J. Hompes, Lincoln	Lincoln, June 24
Nevada	S. L. Lee, Carson City	Carson City, June 18
N. Hampshire	Walter T. Crosby, Manchester	Concord, June 18
New Jersey	A. MacAlister, Trenton	Trenton, June 18
New Mexico	R. K. McClannahan, East Las Vegas	Santa Fe, New York, May 21
New York	G. M. Wiley, Univ. of State of New York, Albany	Albany, Syracuse, Buffalo, Raleigh, June 24, July 2, June 4, July 9, July 2, July 9
N. Carolina	H. A. Royster, Raleigh	Raleigh, June 24
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks, July 2
Ohio	H. M. Platter, Columbus	Columbus, June 4
Oklahoma	J. J. Williams, Wetherford	Oklahoma City, July 9
Oregon	B. E. Miller, Portland	Portland, July 2
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, July 9
Rhode Island	B. U. Richards, Pawtucket	Providence, July 4
S. Carolina	H. E. Boozer, Columbia	Columbia, June 11
S. Dakota	P. B. Jenkins, Waubay	Deadwood, July 9
Tennessee	A. B. DeLoach, Memphis	Memphis, Nashville, Knoxville, June 14, July 18
Texas	M. F. Bettencourt, Mart	Austin, June 18
Utah	G. F. Harding, Salt Lake City	Salt Lake City, July 1
Vermont	W. Scott Nav, Underhill	Burlington, July 9
Virginia	J. W. Preston, Roanoke	Richmond, June 18
Washington*	C. N. Suttner, Walla Walla	Tacoma, July 2
W. Virginia	S. L. Jepson, Charleston	Wheeling, July 9
Wisconsin	J. M. Dodd, Ashland	Milwaukee, June 25
Wyoming	H. E. McCollum, Laramie	Thermopolis, July 10
National Board	J. S. Rodman, Philadelphia	Fort Riley, Kan.

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

INTERNATIONAL CLINICS. Vol. I, 28th Series, 1918. By H. R. M. LANDIS. 298 pages. Illustrated. Price, \$2.00. Published by J. B. Lippincott Company, Philadelphia and London.

CANCER COMMISSION OF HARVARD UNIVERSITY. FIFTH ANNUAL REPORT OF THE COLLIS P. HUNTINGTON MEMORIAL HOSPITAL FOR CANCER RESEARCH AND OF THE LABORATORIES, 1916-1917. For the Year ending June 30, 1917. 63 pages. Boston, Mass.

Miscellany.

Items of Life in Germany.—In an issue of *La Presse Médicale* some time ago were given a number of items of daily existence in various parts of Germany. Thus at latest accounts the weekly ration for Hamburg remained at 4½ lb. of bread, 6½ lb. of potatoes, and 8 oz. of meat with bone. The excess of bran in the bread having been accused of causing gastroenteric disturbance (Leipzig), the bran was shot through fine sieves before its addition to bread. With the bran cells thus completely dissociated the disturbance ceased. Game killed by hunters still gravitates to the tables of the well-to-do. The arrival of milk in Berlin continues to diminish and children receive only a pint daily. Potatoes are plentiful but of poor quality because of the continued rains. Freight cars are stalled at the terminals (Munich), because of a lack of dump carts, and the potatoes are too soiled to be placed in cellars. The fruit crop was abundant, but owing to scarcity of labor much of it rotted on the trees. On account of the scarcity of leather, shoes were to have wooden soles and cloth uppers. All shoes will be low cut and without high heels. Those who gather fodder (nettles) now receive double pay (28 marks per 220 pounds of dry stalks). Hair combings must be saved and this order frightens the women who fear that the hair braids of the little girls will next be commandeered. Sewing thread is as hard to get as onions. Breweries get but 15 per cent of barley, one-third the amount before the war, and beer is becoming rare, especially for the civilian.

The Campaign Against Venereal Diseases in Great Britain.—In the course of a recent speech at Manchester Mr. Henry Fisher, president of the Local Government Board, referring to the recommendations of the Royal Commission on Venereal Diseases, said that the local authorities of the country had already made a magnificent start by putting them into operation. These recommendations were for the provision of laboratories, open freely to all local doctors for the making of tests, of clinics where the most modern treatment could be obtained free of cost, and of the best known remedies for use by all qualified doctors in the area. The regulations were only issued about fifteen months ago. Yet out of 145 county and county borough councils no fewer than 135 had already submitted schemes to the Local Government Board. Of those schemes 112 had been approved, and 111 were actually being administered. It was a little too early yet to give figures. These would be published soon. But in the next nine months ended September, 12,000 hitherto unknown cases were treated in the London center alone, and it was calculated that by the end of the year this number would be increased to 16,000. Manchester's contribution was the establishment of centers at all its principal hospitals with others to follow if necessary; twenty clinics for out-patients, and the coming provision of beds for out-patients who might need them, and in addition to this a capital laboratory in connection with the university, where splendid work was being done.

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Original Articles.

PROBING THE MIND.

SECOND REPORT.*

THE INTELLIGENCE AND ITS EXAMINATION.

By J. VICTOR HABERMAN, A.B., M.D., S.M.D.,

NEW YORK.

INSTRUCTOR IN PSYCHOTHERAPY AND CLINICAL PSYCHOLOGY,
COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY,
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VANDERBILT CLINIC, NEW YORK.

THE subject of the Intelligence Examination, though slowly fostered over a period of several decades and for the most part within the circle of medical science, stimulated, in fact, by its needs, has suddenly been popularized with us and boomed, so to speak, and, stripped to simplicity, made a "cinch course" in the curriculum of What Everyone Should Know.

Strange to say, in this popularizing movement the men who should have been most concerned, the physicians, took no interest whatsoever and had nothing to offer, criticise, or condemn. As a result, we now find the subject no longer within the circuit of our activities, no longer in the tradition of mental pathology, but fallen prize to the energy and enthusiasm of the psychologist—and only too often of the *psychologist* or "layman clinician" whose ardor has forced the thing into the limelight and whose mock heroics, if we do not call a halt, will soon do it to death. Incidentally, and as a result too, we awaken to the fact that we have trained few if any within our own ranks to supervise or guide this work, and that we are slowly coming to the inevitable conclusion that the present layman's methods and goal are not and cannot safely be our own.

There would be little as yet irreparable and no cause for alarm if it were not that this popularizing and laymanizing has taken on a most astounding momentum, and is not only sweeping conservatism and dignity from the *clinic*,¹ but in this branch of work is relegating its very fundamentals, namely, pathology, quite out of mind. At every turn you will hear the subject chatted of and find someone ready to make a Binet test and cull you a diagnosis in terms of feeblemind—but nowhere a *physician*, but really scarcely one, psychologically trained and with enough actual knowledge of the matter to weigh the facts or sift out the real from rubbish.

Is the physician really aware of how the problem stands? Does he ever stop to think of the profound

*For first report see MEDICAL RECORD, December 1, 1917.

difficulties on the one hand the neurologist and psychiatrist avers in fathoming mental pathology and in differential diagnosis of the same, the acknowledged perplexity in grasping the shifts and tangles of abnormal mind, and on the other the Binet-testing snugness of the present-day intelligence examination that every schoolgirl is urged to ply and that has become a five-minutes side-issue at our schools, clinics, and courts? To me it is amazing.

Whatever the need and problem of psychologist and pedagogue, that of the physician is not fulfilled by the Binet test² and the present popularized method of mental examination, and a rapid review of the facts will, I am sure, make this sufficiently clear.

There have been various methods of estimating the intelligence. The simplest has been the application of some single test, *i.e.* the testing of some single ability, the passing of which was presumed to parallel the general competence. Or, again, one tested such special capability, as *combination*, easily elected the criterion of mental endowment. The well-known Ebbinghaus completion test or the Möller fable interpretation are examples.³

Instead of the single test brief series in combination have been used as the De Sanctis set, or questionnaires and inventories of knowledge (facts gathered and remembered).

Another method has been that of testing separately the various mental traits or faculties, or constituent functions of intelligence (memory, comprehension, combination, etc.), and endeavoring to learn in just which the defect or deficiency, if present, existed. This is possibly the oldest, and most widely employed abroad, and the method in whose tradition and development the foremost of the continental neurologists and psychiatrists have had a hand. In this method a longer series of tests is used, the best known being that of Rieger, Kræpelin, Sommer, and especially the tests of Ziehen.

There is a third important method, that devised by Binet and Simon, in which a set of five or six questions is given, each group assumably corresponding to a definite pedagogical year, the results of examination showing not the deficiency or defect in any of the constituent functions, but the *age average of general intelligence* obtaining. The questions employed are "standardized" by presuming that if 75 per cent. of children of a certain age pass the test it must be normal for that age. This is the method of *age-average-gradation* of intelligence.

There is finally the "psychological profile" of Rossolimo,⁴ a highly interesting but oversystematization of the facultative test method (see below),

the "Point scale" of Yerkes and Bridges, the Meumann, Bobertag, and Terman arrangements of the Binet method, and other less important forms.

The fact that one method after the other is being evolved, that criticism of all has been sharp, that even within each camp there are differences and continued revisions, makes it decidedly ominous that the proper method has not yet been found, and that those enumerated do not suffice.

At the same time, a close scrutiny of the subject brings one soon to the conclusion that there is not only good and bad, and an essence of something similar in all of them—that is, elements of each in all—but certain significant essentials lacking in each.

The Facultative Test Method.—Let me first discuss the second mentioned method, that of testing the constituent function or faculties of intelligence. To some of our psychologists the mere mention of the word "faculty" connotes something analogous to phrenology—and at once an old time and discredited locality or "faculty psychology" is thought of in which each faculty was presumed a functioning entity. Personally I have never used the word in this absurd sense nor have any of the men mentioned above as sponsors for this test method ever given the least indication that they had any such conception. Empirically, however, we have learned that the mental make-up can be separated and sub-separated into components or faculties or elements—call them what you will—which, however interrelated and combined, can be separately discerned in individual after individual, normal and abnormal, and within certain measure readily appraised.

In the clinic work of years these components have been defined, circumscribed and compared, and have finally become part of the common language of neurology and psychopathology (and psychology for that matter), and later of remedial pedagogies besides. When therefore one speaks of memory, comprehension, combinational ability, feeling, attention, etc., one is not working with "assumed mental faculties," as F. N. Freeman puts it in his review (*Psychol. Bulletin*, July, 1917), but is employing the most legitimate of terms and such as our fellow scientists and colleagues trained in psychopathology avowedly understand.

Indeed abnormality of one or other of these elements is often the first danger signal of nervous or mental trouble to come, and where such abnormalities are more outspoken, become at times the very differentiae of diagnosis—the special tags of pathological pictures, as we clinically know them.

What, then, are these elements or trends of mind that we sunder out from the general mind make-up with the hope of thereby understanding mental life and unraveling its tangles in disease? First of all we must distinguish two large groupings, the one dealing with *ideas*, their formation, retention, comprehension, and combination; the other with the phenomena of feeling, affect, appetite, inhibition, thought tendencies, and impellants. The former are the factors comprising *intelligence*;^a the latter the levers of will, and consequently of action and deed. These latter, too, are the components that give color and quality to the individual—that constitute *character and personality*.

These two groups of factors, though they influ-

ence one another, must be kept clearly apart in our task of examination and evaluation. When abnormality is found in the former, we have the clinical pictures of mental deficiency, stupidity, defect or feeble-mindedness (this last being divided according to intensity into debility or morosity, imbecility, and idiocy). When abnormality occurs in the latter, we speak of *psychopathy*, and this very extensive domain is roughly rubriced into the clinical classification of psychoses, psychopathic constitutions, and the psychoneuroses or neuroses. (The subject of psychopathy will be taken up in a subsequent report.)

Normal intelligence, even of great excellence, may exist alongside of psychopathy, even of severest type. This must be distinctly remembered. On the other hand, psychopathy may influence the intelligence profoundly, especially such abnormalities as of the attention and feeling—pathological shyness, fright, anger, emotional confusion, or inhibition (inhibition of ideas, or of expression, katatonic perseveration, etc.), affective impulsions,* et cetera. Hence, every intelligence examination should be preceded (or controlled) by an investigation of these factors and a careful anamnestic inquiry, for failure in tests may depend wholly upon psychopathic trends (or momentary motor disequilibrium^b), the intelligence itself being intact.

Again, defective intelligence may occur without the slightest psychopathy; in such cases, however, if the intelligence defect is severe, the lack of the higher reasoning powers (analysis and combination) may occasion aberrancies of feeling, and so of will and action. I italicize "may" so as to intimate that this *need* not be the case; high, ethical feeling has even been noted in connection with severe intelligence defect.^c

Finally, both defective intelligence and psychopathy may occur in the same individual.[†]

Let us return to the first group of factors—that of the intelligence constituents—and the special problem of this report. Various synthetic interpretations of intelligence have been attempted in the form of definitions. Thus Ebbinghaus^a said that intelligence was combinational ability (*kombinationsgabe*); Stern,^b that it consists in "the general ability or capacity of an individual consciously to focus his thinking on new requirements; it is general mental adaptability to new problems and conditions of life"; Meumann,^c that it depended upon the capability of independent and productive thinking. He adds, "The more the ability evidences itself in our scholars (children) for synthetic thinking, for a systematic grasp of impressions or of acquired knowledge, the more intelligent do they appear, and indeed both their school attainments and the results of psychological ex-

*As we are speaking of psychopathy we have reactions in mind that are pathological in intensity or in the constancy with which they persist or recur. But it must be remembered that overamplitudes of normal reactions occur at times in normal individuals. These overamplitudes are then equal to pathological reactions.

†In the French literature, the Dégénérés (*i.e.* psychopathic constitutions) who have intelligence defect are termed "Dégénérés Inférieures"; those without defect "Dégénérés Supérieures." In the psychiatry of Ziehen, the psychoses are divided into such "with defect" (meaning intelligence defect) and those "without defect."

periments tallying in this; De Sanctis,¹⁰ that it consists in ability to judge, conceive, and reason—all involving abstraction and generalization; Warren,¹¹ that it means “‘fit’ reaction to environmental situations whether perceived or pictured”; Wundt,¹² that it is a combination of phantasie and understanding abilities (*Verstandesfähigkeiten*); Treves and Saffiotti,¹³ that it “consists in the greater or lesser ability of an individual to utilize the theoretical and practical worth of his ideas and acts in orienting and adapting himself to his environment by discerning that which is most advantageous for himself”; Binet¹⁴ that it “emphasizes three characteristics of the thought process—(1) its tendency to take and maintain a definite direction, (2) the capacity to make adaptations for the purpose of attaining a desired end, and (3) the power of autocriticism”; and finally Ziehen,¹⁵ that it is “essentially composed of memory, comprehension, and judgment or combinational ability.”

These definitions, however, with exception of the last, though interesting in showing that there are really no fundamental differences in the various opinions of what intelligence actually is, and though valuable as epitomizers in passing, scarcely serve the physician as working bases and in such synthetic forms interpret nothing and lend no insight into *pathology*, and not a clue to procedure where diagnosis is necessary or a therapy essential. Our science—all science—is superposed on analysis and on understanding of function, not through metaphysical intuition, but through comprehension of *parts* and their relations and interaction.

Just here, however, we get the usual interjection of the Binetist that intelligence cannot be crumpled into parts—that it is an entity, a biological indivisible *capacity*—not built up of functions or faculties (and once more the spooks of old “facultative psychology” are roused), and not examinable in fractions. Even Terman¹⁶ tells us that Binet succeeded where others failed (? !) because he got away from the old “structural” psychology method and laid hold of the *general level* of intelligence outright. “Binet’s psychology is dynamic. He conceives intelligence as the sum total of the thought processes which consist in mental adaptation”—and this is not explicable in terms of “faculties,” and the separate processes not accurately distinguishable.

If this were true, we as physicians would be compelled to eschew this method (of diagnosing generally without first estimating elemental parts) as highbrowism utterly unsuitable for our practice, for as we a moment ago owned—and this will be reiterated throughout this study—our method is that of analysis and segmentation. Only in this way do we grasp function—whether of the body as a whole, or the heart, kidney, a limb, or a joint. And to say one must fail to conceive the function because one tackles the thing anatomically or anato-physiologically is to aver the rankest absurdity. But not only is the point at issue untrue for the physician, it is just as untrue for the pedagogue¹⁷ and for the psychologist himself. Indeed, discussing this very problem, Ebbinghaus¹⁸ said:

In as far as these assertions concern the nature of mind (that it is a living totality and that the parts into which we analyze it have no real existence) they are unrestrictedly correct. The inferences, however,

deduced from this (that it cannot be split up and studied in parts) rest on a misunderstanding. A richly organized and intricate entity cannot as such be adequately represented at all or perspicuously described. One might contrive, howsoever one pleases, in order to acquire knowledge from or impart knowledge of it, one must resolve it into parts, otherwise for sheer totality one cannot discern the richness of its makeup. Only after one has viewed and considered the elements from different angles is it possible to construct a living notion of the whole, in which entity the latter, of course, alone has reality. There is indeed no other way whatever in which this entire encompassing and penetrant totality aspect can be methodically represented nor any other art of expression by which it can be simply communicated.

* * * * *

When the anatomist speaks of cells, muscle fibers, corpuscles, digestive organs, etc., as being parts of the organism, no one will misunderstand him to imply thereby that the individual is composed of an extrinsic aggregate of these elements, or that in the beginning the parts were present and that the organism was thereupon constructed from these parts, as a house from beams and stones. One also permits the physiologist to speak of circulation, breathing, metabolism, one after the other, as being various functions of the body; but one will not impute from this that he means these functions operate separately and independently in the sequence he enumerates them.

If one will only meet the psychologist on the same logical ground, the objection to the fractioning method will disappear.*

We may safely, therefore, ignore this criticism of the Binetist and proceed.

Raveling, then, the mental process involved in intelligence, we find something like the following: Consequent upon external stimulation we perceive, and the perceptions, if attended long enough, are cortically infixed—remembered. Where the attention does not hold nothing is retained (that is, not with any definiteness or clearness—not in a usable way).¹⁹ The things (perceptions) remembered are registered in association with other simultaneously perceived things (and in relation to time and place), and are furthermore bundled up—associated—in the brain with things of like kind already there. Nothing, in fact, is deposited isolated in our minds; always something is added to something else—and in such a way that things (concepts, ideas) belonging together are in some manner of means interrelated.¹⁹ This aggregate of memory-deposits comprises our *knowledge*. It increases as we grow older and naturally varies in different people. But as children for the most part are trained along similar lines, their knowledge is much the same and is augmented year by year at about the same speed.²⁰ Memory, however, not only implies the storing up of facts, but

*In connection with the consistency of this fractioning method, see also J. Schrenk’s most interesting and thorough study of schoolchildren’s ability to understand pictures. Schrenk concludes that the understanding of a picture cannot be considered a function as such nor examined as a uniform function, and that the *stages* in the development of such understanding set up as criterion of intelligence at definite ages did not, therefore, hold good, for such understanding had to be probed in terms of part-functions. His studies showed that certain part-functions develop at a different tempo from others and come to maturity at different ages. There were *stages*, therefore, for the part-functions, but not for picture understanding as a whole. He employed two very simple pictures and put forty-two test questions to each child. Über das Verständnis für bildliche Darstellungen bei Schulkindern. Wissens. Beiträge z. Pädog. u. Psychol., Heft 5, Leipzig, 1914.

the ability to hold them, and also to recall and reproduce. The better the mental arrangement of the matter the richer (and stronger) the associations, the better the recall.

In the process of sizing up and ordering the new incoming matter, the knowledge already possessed is exercised. The new is compared with former mental pictures, the precise patterns collated and contrasted. This takes place even in the very young child. As it grows older it not only compares grossly, it distinguishes parts from out the whole (as sweetness and whiteness of sugar) and compares these and also binds parts into larger complexes (as rain, lightning, and thunder into the concept storm) or, again, spies similarities in large numbers of varied objects, and so generalizes and later abstracts. This is the procedure we term *comprehension* or *understanding*. It is evident enough that the greater our knowledge the better of course our comprehension. On the other hand, through differentiating and remembering differences our knowledge grows.

Lastly—and this is the highest of our functions and matures late in the child—we are able to unloose associations already registered in mind, or break up concepts into parts and recombine them in new ways—even into relatively quite new forms. This is termed *combination*. Through this ability we can supply a fitting completion where but a part is given in a train of thought, or we span gaps where links are missing. Thus we orient ourselves in time and place, adequately meet new situations, bring about logical synthesis in our thinking, discern meaning and motive in the composite of picture, story, and action, sift cause and effect, exercise critique, judge and show judgment—and finally imagine, compose, and create.

Such is the intelligence *process*. It is found crystallized in Ziehen's simple definition. It is the substance of the conception of most of the authors, only one or other gives it in lesser or greater detail and one or other lays more or less stress here or there. But this process or functioning that we have itemized into several paragraphs, however interwoven and "entitized" in actual reality, must, when studied and investigated, be studied and investigated *in detail*.

Some authors (as noticed in several of our definitions) seek a teleological motive in intelligence, and thus require appropriateness or practicality or a fitness of reaction to the environment for their criterion of the matter. Such teleological motive, however, need not be separately considered, as the psychological functions with which fitness, practicality, etc., are attained are enumerated among the factors given above.²²

Two other mental *circumstances*, however, might be noted while we are still at this point of our study. The first is an *intensity* in the mind's activity which, though not a part of the intelligence as such, influences it decidedly. This may be a general metabolism phenomenon or more probably one of internal secretion. When its potency is low the mind is slow, difficult, laboring. Some children because of this straggle behind others of their age. They are not defective, but deficient. Thyroid sometimes whips up such brains to keener activity. Where the potency is high the individual is sharp, alert, quick, etc.

The second is that of mental *cohesion*. Even the layman speaks of "keeping one's wits together." There are individuals in whom the intelligence interplay is easily disequilibrated (instability in the long association fibers?)—through shyness, fear, "stage fright," stress, the unusual, nervousness of any cause, etc. The

vegetative system is frequently involved at the same time and such persons perspire, flush, or pale, have palpitation or vertigo, etc. The attention becomes "dispersed," and is either uncontrollable or only with great difficulty. Such individuals may be quite normal or even exceptionally intelligent, but show up badly on all tests, anything demanded of them before other people or in public—i.e. in the limelight. This abnormality in mental cohesion either belongs to psychopathy or is occasioned by it. Both phenomena may be hereditary—run in families—or occasionally noticed after illness.

Returning to our methods of examining intelligence, the second one noted, that of probing the various faculties or functions singly, is seen, in consideration of the above, to possess the requisites for a proper diagnostic method in contradistinction to Binet's in which a general average or totality quotient is directly sought. It is the method that fits in with medical procedure and science generally and lends itself, as we shall see, to the vicissitudes of pathology. On the other hand, it has defects, and one so grave as to annul all our praise if this cannot be overcome—namely, the lack of age norms, the very thing so conspicuous in Binet's work. Thus in testing comprehension or combination, for instance, it might continually be asked are the questions suitable for this or that age, are they not too easy or too difficult? This is the great shortcoming of the method. A lesser defect is its lack of system, there being no regular procedure and no uniform graphic evaluation.

This general criticism also applies to the single-test methods already mentioned—with the exception of Ebbinghaus' completion and Mikulski's picture test, both of which can be graphically evaluated. The age factor, however, is not considered in these.

Rossolimo's "profile," to which we shall return further on, evolved on the basis of the facultative test method, introduces an elaborate system of procedure and a quantitative evaluation (i.e. the "profile"), which may also be numerically expressed, but lacks the age factor. Three main groups of "psychic processes" are examined: A, attention and will; B, perception and memory; C, associative processes. All in all, nine processes are taken up (more exactly speaking, eleven), attention, will, perception, optical memory, memory for speech, for numbers, comprehension, combination, resourcefulness (mechanical sense), completion or imagination and observability. These are again subdivided so that the processes and subprocesses number thirty-eight, and each of these is examined with ten tests (380 tests in all, therefore). The quality of the tests is very uneven, there being some good and some very poor tests. One needs a tachistoscope and many charts of figures and designs and pictures to carry out this method. There are other objections, too, but these cannot be gone into here. That much, however, can be learned from this "profile" is taken up further on.

The point-scale method of Yerkes has some advantage (and elasticity) over the Binet method (though most of the Binet tests are used), escaping the "all or none" scoring, and admitting the age factor by computation of points. The facultative division is as completely missing as with Binet. Each test is "weighted" with "points," the enweightment varying with different tests. W. F. Dearborn²³ has recently proclaimed this weighting as purely arbitrary, asking, for instance, why (in response to the Binet picture) one point is credited for enumeration, two for description, three for interpretation, etc. A footnote of Dearborn's is interesting as an eye-opener to "statistics" as we get them these days. It reads: "Note the remarkable conclusions of M. T. Wolley with the point-scale as to the 'startlingly high' percentage of feeble-mindedness in eighteen-year-old industrial workers—40.5 per cent. of boys and 42.5 per cent. of girls, or by a more conservative standard 25.5 per cent."²⁴ As to the worthlessness of many of our psychoclinical "statistics," see our comment further on.

The Binet Method.—Vis-à-vis this facultative test series, Binet's, which pivots wholly on the age factor, the very thing so seriously missing from the former, looms up at first sight like a happy find. Better acquaintance, however, brings out several faults, two of which prove such immense drawbacks that the method becomes quite useless for the physician—and inutile enough for the pedagogue, I should judge, if these faults are admitted—the one being the failure to keep psychopathy in mind, the other the insistence on a *general age average*, that is, an averaging of the mental normality or abnormality (pathology), a thing that cannot rationally be done and which would be of little use for us in our profession if it could.

If, for instance, one looks over the tests employed by Binet one notices that they for the most part involve language efficiency,²⁵ and the knowledge of school trained facts. It just happens, however, that the largest class of cases coming to neurologist, psychiatrist, and courts (in whom an intelligence examination becomes an issue) are types of individuals designated "psychopathic constitutions," i.e. who evidence abnormal thought tendencies and trends, and these are deficient in school-trained ability because they shirk school or are truants, run-away children, or unmanageables, in short, individuals who spend little or no time in school and are unable to pay attention even when they do go. Yet careful study by Ziehen²⁶ and Stelzner²⁷ showed that such children might have quite normal intelligence. Still later F. Cramer²⁸ came to the same conclusions in connection with the examination of delinquent and criminal children. Such psychopathic trends, therefore, prove important levers in the mechanism of mind play and their presence or absence makes the profoundest difference when it comes to evaluating the intelligence performance. Yet Binet takes no cognizance of psychopathy.*

And as for language efficiency in itself, when one considers from what generally poor or at times even degenerate homes, such children often come, and that they copy the talk of the home and in large measure miss the correcting and developing influence of school, teacher, etc., one scarcely wonders that this efficiency is meager indeed.

The fact that the Binet testers have in so heedless a fashion splurged on without considering these abnormal character trends and impellents has introduced a spurious element into the entire test performance as a result of which the statistics, "curves and correlations" given us in such abundances by those "testing for feeble-mindedness" among institutional delinquents, among inmates of prisons, reformatories, etc., are most unreliable. And the constant citation of these figures only helps to obscure the issue.

In Terman's book, for instance (l.c. p. 8), one finds an entire page of such statistics. Here we read that Miss R. tested 100 girls of the Ohio State Reformatory and found 36 per cent. certainly feeble-minded. G. tested 100 juvenile court cases, chosen at random in Newark (!), and classified nearly half as feeble-minded. Of fifty-six delinquent girls between fourteen and twenty years of age, H. and G. found almost half to belong to the nine or ten year level. Miss D. found 28 per cent. subnormal at Lancaster. At the Joliet Prison, Illinois, Drs. G. and L. E. O. found 50 per cent. of the female prisoners

feeble-minded and 26 per cent. of the male prisoners, etc., etc.

The same sort of statistics were given in a dozen studies on delinquency at the meeting of the American Psychological Association a year ago. The method of acquiring these statistics was readily enough perceived in these papers. The Binet testing hysteria has written the word *feeble-mindedness* so large in the minds of all "testers" that nothing else is seen or sought for. One would almost think there was no other mental abnormality but feeble-mindedness. And if these examiners knew of any other causes of delinquency than feeble-mindedness they surely did not divulge the fact in their papers, for the word psychopathology was not mentioned and diagnosis had but one single meaning—something got to with Binet tests!²⁹ And yet it seems the consensus of opinion among Continental authors (among whom the Binet hysteria has haply not broken out) that feeble-mindedness has in itself nothing to do with delinquency, that psychopathy, environment, suggestion, poverty, etc., are the preponderant causes.³⁰

Terman also writes of the "stigmata" which Lombroso thought to be earmarks of criminality, as being rather the physical accompaniments of feeble-mindedness, and that "they have no diagnostic significance except in so far as they are indications of mental deficiency." This is as startlingly misleading as the above. There are stigmata of syphilis, of rickets, and so-called stigmata of degeneracy (more properly termed stigmata of hereditary taint). These latter occur singly here and there in normal individuals. They are more frequent in psychopathic constitutions, and especially in certain individuals who have a severe psychopathic or convergently psychopathic heredity ("degenerative psychopathic constitution"). But these stigmata have no connection with feeble-mindedness, though they may be found in such cases that are feeble-minded through vicious hereditary strain. Finally, they have been found even numerous in individuals who have little or no mental abnormality, and again they are often wanting in individuals who are most abjectly psychopathic.³¹

Similar criticism is applicable to studies of so-called "degenerate" family trees prepared by lay workers. In these the factors of heredity are badly muddled, and as for differential diagnosis, no thought is given to psychopathy, lack of schooling, bad environment, and execrable example. Whenever there is an apparent lack of knowledge feeble-mindedness is assumed. In several such studies I have seen, as well as in papers relating to feeble-mindedness, one constantly hears of the feeble-minded procreating feeble-minded—as if feeble-mindedness were hereditary.³² Do the authors get their facts from the above statistics? On this very point I have been able to find very little indeed that was reliable in the literature.³³

The second great drawback of the Binet method, mentioned above, is probably the superlative objection to its acceptance in medical science, namely, the evaluating of intelligence through an equation of the general ability. That such an averaging is possible with Binet tests is most improbable. But let us for the moment assume that this is so; of what value then is this equation to the diagnostician or therapist (or even the remedial pedagogue)? If the general ability is below the normal what are we told of the abnormal condition? *Is not that what we are specifically after?* It occurs but rarely if ever in medical science that one diagnostically appraises the amount of health remaining; one seeks to survey the abnormality, to estimate the disease process, and one accomplishes this through scrutiny of the parts, not the whole, of the organs separately, even the various elements of each organ. If a kidney is diseased, the urine is analyzed—and microscopically examined—and through the findings one determines the nature of the pathological condition obtaining. There are but a half dozen types of kidney abnormality, and

*Wishes in fact to exclude such cases from his problem. See *L'Année psychol.*, 1905, XI, p. 191, etc.

scores of different types of brain disorder. Are we to disregard the fact? Are we blindly to accept a patently false hypothesis to the effect that abnormality of mind is always one and the same, namely, *defect*, and that this is to be measured in quantitative gradations from a supposed norm (hence the everlasting "idiot, imbecile, or moron!") and furthermore that this defectivity is a homogeneous thing affecting the mind generally, like a saturation? The Binetist does, and because of it a decade of Binet testing has added not a whit to our knowledge of mental pathology, diagnosis, or therapy.

We must consider this supposed *generalization* of abnormality more carefully, for the whole Binet problem stands or falls with the truth or error of the matter. Few will assert that normal brains mature *generally* or have average abilities. Even the layman is aware that individuals excel in certain abilities and are lacking in others. And who does not know people in whom the most exceptional excellence is found alongside of general mediocrity? In this connection Meumann,³⁴ the foremost of pedagogues, emphasizes the fact that not only in adults, but especially in the intelligence examination of children does one find this great difference in abilities (*grosse leistungsdifferenzen*), high efficiency of performance in some subjects, low efficiency in others. Nor does the progress in various subjects throughout the school years go by general average; it is up here, down there, at a level elsewhere. Upon this important fact was based the suggestion of Raschke at the Dresden Pedagogical Congress of 1911 (*l.c.*) for a school system composed of norm-, sub- and super-classes, each child going for instruction in this or that subject to the class corresponding to his normal, subnormal, or supernormal ability in that particular subject.

So much for normality. Now, how about abnormality? Seashore objected to this mean evaluation got by the Binet tests on the ground that retardation does not follow a common flat level any more than growth does, and that a child could be at the mental age of six in one capacity and 12 in another.³⁵ In the matter of psychopathology, as we clinically are acquainted with it, *general* impairment or inefficiency is not come upon save possibly in very far gone states or in abject aments in whom differentiation, therapy, or aught else is profitless. As regards the majority of disease processes they involve the brain *electively*, and in a most astonishing way.³⁶ Let me only refer to the Korsakoff syndrome, malarial amnesia, the aphasias, congenital alexia, and other congenital aphasic forms,³⁷ and paresis.³⁸ It is similar with drugs and poisons; so characteristic is often their election that we differentially diagnose the conditions of poisoning from the typical clinical "picture." Again, and this is decidedly interesting, v. Monakow in his *Diaschisis* studies³⁹ claims this same *election* not only in the matter of actual traumata affecting the brain, but of *psychic insults* as well (as typical paralyses or blindness or speechlessness in hysteria).

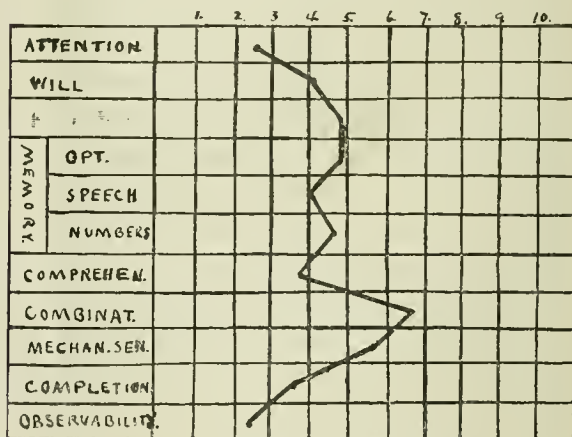
Finally, let me say an additional word about Rossolimo's *profile* as this author's work has not yet been aired in our literature,⁴⁰ and his contention fits in so ideally with these claims momentarily under discussion. Rossolimo, as already mentioned,

chose eleven mental processes as functions of intelligence and again subdivided these so as to have 38 part-functions to test, applying ten tests to each. On his *résumé* sheet he placed these headings one under the other and on the line for each rubriced ten spaces (corresponding to ten tests). If but six tests were passed, a mark was made in the sixth space; if on the next line eight were passed the mark was placed in the eighth space, etc. At the close of examination a line was drawn from mark to mark down the page.

And what did the result on normals and abnormals show? A straight line down the page? Why, no, not even a wobbly "almost straight" line, but a very irregular zigzaz, with zigzags differing in different persons, and especially—and *this is really important*—a definite, almost characteristic zigzag repeatedly showing itself in the various clinical entities. This zigzag line is what Rossolimo terms the *profile*.

Rossolimo examined not only normals, but retarded and defective children, such as were lazy, and such as had dispersed attention (*Zerstreute*), furthermore, cases of paresis, early and late stages, cerebral lues before and after treatment, arteriosclerotic dementia, chronic alcoholism, Korsakoff cases, traumatic neuroses, etc. In all the *profile* was distinct and rather *characteristic*.

Condensed such a profile would look as follows:



Average profile of traumatic neurosis.

Much else can be learned from Rossolimo's studies, but we haven't space for further details at present. His *profile*, however, must be remembered as a decidedly important substantiation of our premise, and as showing up the Binet error, as it were, in splendid *bas relief*.

Is this evidence enough? If so, we must emphatically insist that the examiner approach his task not with a quill, a thimble full of psychology, and a Binet sheet, not with a vision obscured by an hypertrophied feeble-mindedness notion, but with the broad conception that pathological processes are manifold and that when they affect the brain, and so the mind, whether because of hereditary or congenital factors, natal accidents, disease aberrancies whether engenic, or exotic, poisonings, intoxications, autointoxications, or traumata actual or psychic, (for these are the causes of abnormal mind), they do not make themselves manifest in a general way, but are variously, often

characteristically, selective. *And the fundamentals of our knowledge of neuro- and psychopathology are nothing more but the knowledge of these differentials.*

This issue cannot be magnified and indeliberized enough in the minds of physicians—this necessity of *differentiation* and a spacious background knowledge of pathology. It was this very lesson that Kraepelin brought out with such trenchant emphasis in his report on the psychological methods of examination at the Stuttgart Congress in 1911. All that we have learned of psychopathology has been learned in this way, he said, and to advance further this is the only method of choice—to divide, subdivide, and scrutinize, and ultimately balance up the dissimilarities of our findings.

Let us repeat, then, to progress we need finer differentiations, not generalizations, and any method of mental examination of abnormals—or even normals, as we have seen—that neglects this fact is a mockery of science as ours is plied to-day and from this viewpoint must be labeled worthless.

Some of the minor objections to the Binet scale are also important enough to merit special mention. To get an accurate range of an individual's mental standing with five questions is scarcely logical.* Any elasticity of adaptation is also precluded by so brief an examination. The paucity of the tests, then, is a real objection.

Again, looking over the groups of questions allotted to each pedagogical year, one finds that the functions tested in one year (memory or comprehension, for instance) are not the same as are tested by the questions allotted to the succeeding year, etc. Therefore, one cannot truthfully say one child tests a year in advance of another for you have not tested the same functions in each. This, for Meumann, was one of the greatest failings of the Binet method¹

In conclusion of our criticism of Binet, let us return to his *psychologist* devotees and point out something that belongs to the hysteria of the movement rather than to Binet. It is pathetic to hear the professional tester speak of this scale, as if it were something hallowed and its gage as stable as a yardstick. Thus the term "standardization" has come into use, these tests being "standardized"—and hence all others scabs. Yet how much actual backbone is there in this standardization? Binet himself, I believe, said it depends much upon the person making the test what the results will be, for he must judge the responses, and with a different examiner the results may be different. I noticed this so frequently some years ago that I even had the suspicion some examiners unconsciously size up a child and assume about what its pedagogical age should be and make the test-outcome approximate this.

The questionability of standardization is raised in still other ways. Binet applied his tests to the children of the poorer districts of Paris. His pedagogical age-average was based on these results. He found that the children of better schools graded one and one-half years higher (in one-quarter, even 4 or 5 years higher!). Decroly and Degand² in Brussels and Jeronutti³ in Rome found

*In Rossolimo's method 380 tests are put! while Schwenk gives 42 questions to bring out picture understanding alone.

that the children they examined tested almost two years in advance of the Paris norms, while Shubert⁴ at Moscow found that the children of that city tested, reversely, two years behind. Because of these results Meumann thought the Binet tests must, if anything, be *milieu* tests. Have we taken these facts into consideration when testing our own mixed population? Is one to make allowances for race, place, training?

The problem looked at from still another angle engenders the same doubt. If one goes over the "Binet sheets" used at Johns Hopkins, at Ann Arbor, such as seen in New York and elsewhere, one notices differences—certain questions being omitted, others placed at different age levels. One asks how or why is it done? How account for the move if each is "standardized?" (And one must bear in mind the considerable variation in the end results of evaluation when one or two shifts are made in a set of five or six questions.) And then compare these sheets with the Terman revision and additions (made in the right direction, I think) and note the decided changes!*. Add to this the very sound criticism meted to certain Binet tests by Bobertag⁵ and the changes which Meumann himself suggests at the end of his second volume, to say nothing of the individual testers' choice between the 1908 and 1911 revisions of Binet, or Goddard's form, some choosing one, others the other, or partly the tests of one and partly of the other,—and one begins to believe that if anything of exact standardization is left it is the opinion of certain enthusiasts for this method and their results.

How far we still are from accurate standardization may be surmised when we look over such studies as J. van der Torren's, who tried out the Heilbronner picture test on 180 children and found remarkable difference between the sexes, the boys being superior to the girls at all ages, the superiority increasing as the age level rose. Even at twelve the girls were only at the level of seven-year-old boys, a difference of five years! (J. van der Torren, "Über das Auffassungs- u. Unterscheidungsvermögen f. optische Bilder bei Kindern," *Z. f. Ang. Ps.*, I, 1908, p. 189, etc.). Are there such sex differences in other tests? Bobertag, for instance, noted a difference in connection with knowledge of colors, while Yerkes and Bridges also mention sex differences, especially between the ages of five and seven, writing that they "suspect that at certain ages serious injustice will be done to individuals by evaluating their scores in the light of norms which do not take account of sex differences" (*l. c.* p. 73). Bloch and Preiss on the other hand found differences at the ages of 8, 9 and 10, in their tryout of the B. S. tests, and in fact, in all the tests excepting three, showed the boys to give a far higher percentage of correct answers, *often double as high!* (*Z. Ang. Ps.* 6, 1912, pp. 539-547). Differences were also found by Torren in the observability of country and city children. (Ziehen also mentioned such a difference in connection with defining tests.) How shall we work these facts into the standardization scheme? How, besides, shall we account for the divergence of results of examiners in such tests as giving sixty words in three minutes, which one places in the tenth year, others in the fifteenth?

Furthermore, how shall we handle the difference between the lower and higher classes, the cultured and the uncultured? Binet found as much as one and a half years' difference between them. Both Bobertag and Gaupp noted differences in individual tests. Rossolimo in several of his series offered separate tests for cultured and uncultured, respectively. Then, too, we have among our normal children of every age, average, above

*I have heard orthodox Binetists strongly depreciate these changes. "Terman's method wasn't 'biological' as B.'s is," I was told—whatever that might mean.

and below average groups. How shall we work this into our tests? Treves and Saffioti (*l.c.*) arranged the Binet tests for three such divisions at each age, for weak, average and good—asking not five tests, however, but fifteen of the weak, twenty-two of the average, and twenty-nine of the good (at the age of six; at eight, nineteen, twenty-nine, and thirty-six tests, etc.).

Nor have we by any means as yet solved the problem of test values—the comparative value of tests—or how to use these values in reckoning our coefficients. Shall we call all tests equal, as Binet or Terman does, or shall we allow greater “function-value” or “diagnostic-value” to some tests, or deem some more really “intelligence tests” in contradistinction to such as are more decidedly school; psychological, or *milieu* tests? (Meumann, for instance, has arranged his tests into divisions of “Developmental, Endowment [Begabung], and Environment tests.”) And shall the better or the more really intelligence-tests be “weighted” and count more in the final evaluation? Stern (*l.c.*, p. 65), for instance, brings up the following: “Take two tests, a and b, both passed by 75 per cent. of the children at the age of nine, but when also given to the eight and ten year olds are passed thus: a, by 65 per cent. at eight and 80 per cent. at ten; b, by 45 per cent. at eight and 90 per cent. at ten. These two tests, though standardized for the ninth year, are nevertheless very different in their values.” Bobertag was the first to notice this and stated that such tests are the more valuable which show the greatest advance between successive ages. Test b, here, is therefore the more important.

Stern (*l.c.*, p. 74) also alludes to this difficulty in summing up: “If a child passes all the six-year-old-tests, two of the seventh year, three of the ninth and two of the tenth, and another who likewise passes all of the sixth, passes also three of the seventh, five of the eighth, and two of the ninth, but none of the tenth—each totaling two years’ additional credit according to Binet—shall we count the children equal or shall greater credit be given the child passing the two ten-year tests?”

Finally, shall we give part credit for tests partially passed, or must it be “all-or-none”? and shall we require one correct of two trials to pass, or 2 of 3, or 3 of 5, or, indeed, the majority of longer series—let’s say ten? (all of which methods appear to be in use at present).

When one considers the obviousness of the strictures thus far arrayed against the Binet method one is not only astonished and exasperated at the Binet invasion of our clinics and the lay appropriation of this field of work so decidedly a medical matter,* but mortified at the gullibility of our own profession that in so many instances has accepted these half-baked facts as bona fide data and given its votaries carte blanche to plunge ahead and with surpluse of assurance take possession of the place. In this connection W. B. Cornell, director of the New York City Children’s Hospital and School, has recently written:†

“In other words, we have a lay person examining diseased or abnormal mental states, and making diagnoses thereon. This is quite a departure from the legitimate field of psychology, so much so that these testers themselves appreciate it and have called themselves clinical psychologists. So self-satisfied have some members of this new hybrid genus become that, clinging to the Binet scale as a fetish, they have grown intolerant and have declared that no one shall use the scale except the *delecti*, and many of these self-anointed. In one of the mental clinics of New York the psychologist went to the medical director in great

*By which I do not mean to say that we cannot advantageously employ the nonmedical psychologist in our clinics and be greatly aided through their help. I have always had and very greatly appreciated this assistance. The *psychologet* and the *psychologet* movement, however, is to be strongly decried as a menace and a nuisance. But even here the fault is not theirs, but decidedly and entirely ours.

indignation because one of the physicians of the clinic had dared to use the Binet scale on a patient. The sanctum of the clinical psychologist had been violated! In some cities, particularly in New York, these clinical psychologists have private practices, are carrying on treatments, and it almost seems as if we would soon have a new cult, if indeed such is not already established. Many of the psychologists are doctors of philosophy, and they dearly love to be called ‘doctor’ on all occasions, and especially to be taken for doctors of medicine. Personally, I see no excuse or reason for calling anyone with the Ph.D. degree ‘doctor.’ If so, to be consistent, why not call the M.A.’s ‘master’ and the B.A.’s ‘bachelor,’ etc.? As long as the term ‘doctor’ is commonly used to indicate a person who treats diseased conditions with medicinal or surgical measures, we should avoid its use as a title for others not so engaged.

“As a rule, the ‘clinical psychologist’ is not concerned with the causes of feeble-mindedness. The whole matter is very simple! The scale is applied, the child is feeble-minded—and should be segregated—nothing easier!”

Looking over the ground covered we must admit, then, that the methods of examining the intelligence are wholly inadequate—for the purpose of diagnosis and therapy, in fact, almost useless. Is there not some way, we must ask ourselves, out of the quandary? Is there not at least a clue given in the methods considered which may, if followed up, eventually lead to a dependable procedure, rational and effective? We believe we have such a clue—and that we are sharp on its track.

It is now almost a decade ago since we inaugurated a “psychological room” at the Vanderbilt Clinic, College of Physicians and Surgeons (in the Department of Applied Therapy; three years ago taken over by the Department of Neurology) for psychological examination and therapy.* From the earliest, our intelligence examinations seemed unsatisfactory and little by little it dawned upon us that the positive elements of the various methods might somehow be combined and the negative elements thus eliminated. In this way the following scheme of procedure was evolved.

The intelligence *factors* were arranged on a “sheet” in a definite and systematized manner, factors and sub-factors, the purpose being to test every examinee in each. Not only were a sufficient number of questions given, but the arrangement allowed of the addition of still further tests when this seemed advisable (when there was doubt as to the results). Furthermore, both simple tests were presented and composite tests entailing various factors in combination. The age issue, neglected in all but the Binet method, was also introduced, each test given being approximately appropriate for a special pedagogical age.

The tests employed were not haphazard tests, but for the most part the more reliable of the tests of Ziehen, Binet, Meumann, De Sanctis, Rossolimo, and others, beside several that we ourselves have found applicable and trustworthy. In the present presentation several of the tests formerly employed have been dropped, and tests of Terman, Weigant, and others of our own added. In order to determine norms of age, the results of the findings of Binet, Bobertag, Terman, and Meumann were compared, as well as data gathered by Ziehen, Gaupp, and other writers, and finally our own try-outs of series of tests at certain

*This was possibly the first modern *psychological clinic* started in America.

schools. From these collations and studies it is found that many tests may safely be used as indices of intelligence (or special factors of intelligence) of a given pedagogical age. On the other hand, there are many tests for which, despite all talk of standardization, nothing positive has been determined and which cannot be used in a definite way to gage the intelligence of a specified year. It is not certain whether the test applies only to the year in question, or *also* to the next, or indeed *only* to the next. In such cases I have indicated the fact by putting the number of both ages in brackets after the test. Sometimes the uncertainty involves not only two but even three or more years.

In our "intelligence sheet" previously published the tests were awkwardly grouped, all the tests of knowledge, for instance (the tests for all the years) listed under Knowledge, those for memory under Memory, etc. This has been entirely changed. In the form now presented each year is taken separately and all the tests of the various functions to be tested are arranged under the caption of that particular year.*

The following is the test sheet for the sixth year, and this must suffice for the present to give an idea of the general scheme, our paper having grown too long to include all the tests for all the years with copies of the pictures and apparatus used. A complete review of all the tests and a detailed account as to their application will be reserved for a separate communication.

TESTS AT THE AGE OF SIX.†

Name:	Clinical diagnosis:
Age:	Psychological diagnosis:
School grade:	retarded years.
Senses: S. H. T. S.	Physical status:
Speech:	Mental attitude:
Sensory-motor:	Neuro-Psychopathy:
Understanding:	School report:
Agility, dexterity:	
Mechanical sense:	

1. Knowledge:

- (a) Things in a room: Chair, table, sofa, bed, picture, lamp.
(Point to, or show pictures of, or a picture in which all may be found.)
- (b) Things on the table: Knife, fork, spoon, plate, cup.
- (c) Things on the street: House, store, wagon, taxi; car, policeman, soldier, engines, trains, garden, flowers. (6-7.)
- (d) Animals: Horse, dog, cat, cow, sheep, pig, birds, fish.
- (e) Summer, winter, spring, fall, Christmas. (6-7.)
(Ask "When does the snow fall?" "the grass grow?" etc.)
- (f) Colors: Names R., B., G., Y. (5-6-7.)
Recognizes R., B., G., Y., W., Blk. (4-6.)
Go., Si., Br., Gr., V., P., Or. (5-6.)

2. Memory:

- I. Send child on make-believe errand to store for three things at 5, 15, and 8 cents.
- (a) II. Repeats four to five digits.
- (b) III. Recalls purchases under I.
- [(c) Recalls colors as at 5.]
- [(d) Remembers forms of wheel, box, top, stamp, coin, ball, chimney. (Use cardboard upon which variously shaped silhouettes are pasted.)]

*Possibly the arrangement of three years on one sheet will prove best in the end, thus the ages of 6-7-8, 9-10-11, 12-13-14.

†Our test sheets are procurable from the Fetzer Press, 62 Reade Street, New York; the pictures used, from J. T. Beals, 71 West Twenty-third Street, New York City.

- (e) Copies a triangle.
- (f) Repeats (14 to 18 syl.): "Let us all go for a walk in the park this afternoon." (14 syl.)
"How would you both like to go to the country for a picnic tomorrow?" (18 syl.)
(Note (I) No. of syl. (II) No. of sensible or senseless errors.)
- (g) Carries out three commissions. (5-6.)
3. Comprehension:
 - (a) Numbers: Counts 13 pennies or stones. (6-7.)
 - (b) Defines (per usage): Same as at 5.
(Fork, chair, pencil, cake, doll, wagon, horse, soldier, penny, rose.)
 - (c) Forms: Balls, cubes, pyramids, cones, parallelepipeds.
 - (d) Relations: Larger, smaller; nearest, most distant. (6-7.)
 - (e) Divides line (of 2 cm.) into longer and shorter parts; in half. (6-7.)
 - (f) Directions: Right, left (6-7); front, back, above, below.
 - (g) Weights: Arranges more than 2 (3? 4?).
 - (h) Pictures: Describes. (6-7.)
(Ask "What is the picture all about, what is happening?")
4. Combination:
 - (a) Orientation:
 - Time: (Morning or afternoon [day], season.)
 - Place:
 - (b) Picture lacking eyes, nose, etc. (6-7.)
 - (c) Completion of part pictures (or recognition of the whole by part shown).
 - (d) Grasps situation of very simple pictures.
 1. Boy caught in the rain. 2. Wind blowing boy's hat away. 3. Boy skating, falling on the ice and crying.
 - (e) Ask in each case "What should he have done?" (6-7.)
5. Attention:
 - (a) Attention paid to things pointed out in the room; in the pictures shown.
 - (b) Sticks to tests.
6. Feeling:
 - (a) Esthetic choosing 1, 2, 3. (5-6.)
 - (b) Reaction to story told and pictures shown.

NOTES AND REFERENCES.

1. See the very interesting paper, "Psychology vs. Psychiatry, etc., in Diagnosing Feeble-mindedness," by William B. Cornell, *N. Y. State Jour. of Med.*, November, 1917, which brings up this point in particular.
2. Many prominent psychologists and pedagogues seem also to come to this conclusion in their own fields—Meumann, Stern, Yerkes, Thorndike, Gault, etc.
3. Other single tests are the color-naming test of Warburg, the Bourdon attention test, the part-picture test of Mikulski, the logical-synthesis and cue-story tests of Meumann (tests of the intelligence quality rather than quantity, or quality-quantity tests), the picture-series tests of Henneberg and Heilbronner, the completion tests of Masselon, Finckh, Ziehen, etc.
4. Rossolimo, G.: "Die psychologischen Profile," etc. *Klinik f. psych. und nervöse Krankheiten*, VI Bd. 3 Heft. p. 249; 4 Heft. p. 295, Halle, 1911.
5. This approximates the opinion of most of the authoritative writers on the subject, Ziehen, Binswanger, Sommer, Kraepelin, Meumann, Stern, Ebbinghaus, Bechterew, De Sanctis, etc., and of Binet himself. The precise divisions and subdivisions read somewhat differently in each, but amount to much the same thing. See text further on.
6. There are examiners who are prone to produce such motor disequilibrium in the individuals being tested. As I have pointed out elsewhere, such persons ought not to undertake this work. The methods used at cross-examination in court actually tend to produce this abnormal condition and must be looked upon as most objectionable.
7. See Hermann's study, "Das Moralische Fühlen und Begreifen bei Imbezillen und bei Kriminellen Degenerierten." *Juristisch-psychiatrische Grenzfragen*, Marhold, Halle Bd. 8, Heft 4/5, 1912, p. 61 et seq.
- 7a. H. Ebbinghaus: *Zeit. f. Psychol. d. Sinne*, Bd. 13, 1897, p. 401, etc.
8. Stern, W.: *Intelligenzprüfung*, Leipzig, 1912, p. 3.
9. Meumann, E.: "Die Untersuchung der Denktätig-

keit als Methode der Intelligenzprüfung." Arbeiten des Bundes f. Schulreform, Teubner, Leipzig, 1912, Heft. 5, p. 20-21.

10. De Sanctis, Sante: "Mental Development and the Measurement of the Level of Intelligence." *J. of Ed. Ps.*, Vol. II, 1911, p. 499.

11. Warren, Howard C.: "The Mechanics of Intelligence." *Philosophical Review*, Vol. XXVI, No. 6, November, 1917.

12. Wundt: Grundzüge der physiol. Psychologie, 6 edit., Vol. III, p. 606, et seq.

13. Treves e Saffiotti: La Scala metrica dell' Intelligenza di Binet e Simon, Milan, 1910.

14. Binet et Simon: L'intelligence des imbeciles, L'année Psychologique, vol. 15, 1909. It is interesting to compare with this James' dictum: "The pursuance of future ends and the choice of means for their attainment are thus the mark and criterion of the presence of mentality in a phenomenon. We all use this test to discriminate between an intelligent and a mechanical performance." *Psychology*, Vol. I, 1910, p. 8.

15. Ziehen, Th.: "Die Erkennung des Schwachsinn im Kindesalter." Karger, Berlin, 1909, p. 1.

15a. L. M. Terman: The Measure of Intelligence, N. Y., 1916, p. 45.

16. See, for instance, Meumann's "Experimentelle Pädagogik," 2d Ed., Vol. II, 13th Lecture, pp. 714, et seq.

17. Ebbinghaus, H.: "Grundzüge der Psychologie," Leipzig, 1911, 13th Ed., Vol. I, p. 177, et seq.

18. Abnormality of attention does not fall to the intelligence, but to psychopathy. In other words, attention is not a fundamental of intelligence. It may be most dispersive and erratic in a highly intelligent neurotic—and excellent in a very stupid or deficient individual. One finds, however, that attention becomes poorer and poorer as one descends the scale of feeble-mindedness. Sollier set up a classification of feeble-mindedness according to the amount of attention still possible, the severer forms being quite devoid of any ability to attend.

19. It should be remembered that we possess anatomical evidence of this. Parts of the cortex, it is believed, are occupied in perception or innervation (both these also possibly in retaining memories) parts only in storing memories—the *mnestic* fields (Exner, Ziehen, Nothnagel, Liepmann, etc.) All memories of vision are stored in one locality, of hearing in another locality, of motor speech innervations in another, etc. Within each of these localities short intracortical associations (fibers) occur—can be microscopically demonstrated. Between such various localities there are long association fibers, these dipping into the white substances. The further the localities are apart, the deeper these associating fibers run in the white substance. (v. Monakow, Liepmann, etc.)

20. Hence the feasibility of measuring knowledge in children according to an age-norm standard. This is not possible in adults. For a full and detailed discussion of these facts see our "The intelligence Examination and Evaluation," *The Psychological Review*, Vol. XXIII, Nos. 5 and 6, October and November, 1916.

21. The associations are made stronger through tonal feeling and repetition (practice—i.e. habit). But the *quality* of the brain tissue has much to do with it. In some individuals there is a greater, in others a lesser, native plasticity.

22. For a discussion of this, especially in connection with Stern's definition and its criticism, see Meumann, No. 16, Vol. II, pp. 718-719.

23. *The Psychological Bulletin*, Vol. XIV, No. 6, June, 1917, p. 224.

24. *The Survey*, November 4, 1916.

25. For a fuller criticism of this point see L. P. Ayres, *Psych. Clin.*, 1911, v.; Mehnert, Dresden Congress, 1911; Report, Teubner, Leipzig, 1912; our own study, "The Intelligence Examination and Evaluation," second report, *Psychol. Revue*, Vol. XXIII, No. 5, p. 338, etc., and E. L. Thorndike's "The Significance of the Binet-Simon Tests," *The Psychol. Clinic*, October 15, 1916.

26. Ziehen, Th.: "Die Erkennung der psychopathischen Konstitutionen," etc., S. Karger, Berlin, 1912.

27. Stelzner, H.: "Die Psychopathischen Konstitutionen," Karger, Berlin, 1911.

28. Kramer, F.: "Arbeiten des Bundes für Schulreform," Arbeiten 5, p. 23, etc., Teubner, Leipzig, 1912.

29. Even Goddard, who read a paper on "Fifty Delinquent Girls Tested with the Binet Scale," when asked, "How about the delinquents who are not feeble-minded?" answered that he couldn't say anything on that score, as his work was among the feeble-minded—or something to that effect.

30. Ziehen, Pondojeff, Bechterew, Scholz, Gruhle, Gaup, Cimbäl, Hermann, Fürstenheim, etc., etc.

In the above implication I do not, however, mean to say that feeble-mindedness is not a good *soil* for delinquency to grow on it; it is such a soil, yet not *the* soil, just one of many, and decidedly less fertile than environment, psychopathy, etc. On the other hand, Hermann pointed out that even the severest defectives may have a splendid moral makeup. *l. c.*, p. 61, etc.

31. For literature see Th. Ziehen's "Die Geisteskrankheiten des Kindesalters," 3 Heft., Berlin, 1906, p. 31, and literature there cited; also Bruns-Cramer-Ziehen, "Nervenkrankheiten im Kindesalter," Berlin, 1912, p. 24.

32. Only recently again such a statement was made in passing by J. L. Herrick, in an article in the *N. Y. S. Jour. of Med.*, November, 1917; and in a Report of the N. Y. Committee on Feeble-mindedness, in the *J. of The A. M. A.*, December 1, 1917, p. 1905, one reads: "One of the great causes of feeble-mindedness is heredity, and the birth rate among the mental defectives is found to be approximately twice that of the normal population." The majority of cases of feeble-mindedness are congenital, or natively and postnatally occasioned—not hereditary—and according to Weismannism and the facts in general such feeble-minded *do not* reproduce their kind.

33. I have noted these facts (with full reference to the literature) in a study on "Heredity," *MEDICAL RECORD*, February 24, 1917, and on "The Degenerate: Born Delinquency and Criminologic Heredity," *Archives of Diagnosis*, New York, April, 1917.

34. In his criticism of Spearman's contention that by gauging certain tests—i. e. number-adding ability, pitch discrimination, rapidity of writing and text-completion, etc.—one finds a high correlation among them and can use this as an index to the general ability or intelligence. *l. c.* Vol. II, p. 721. See also Stern, *l. c.*, p. 65. Stern, by the way, also doubts Spearman's findings; *l. c.*, p. 78. See also Meumann's paper, No. 15a, p. 20.

35. Seashore, C. E.: "The Binet Tests," *J. of Ed. Psycho.*, 1912, III. Ziehen also called attention to the "partial intelligence defect" which he states has not been sufficiently considered, "Beitrag zur Beurteilung des sogenannten, Moral Insanity," etc. *Der Praktische Arzt.*, Nos. 19-20, Leipzig, 1915; see also p. 190 of the article mentioned under 37.

36. See Anton's "Uher Krankhafte moralische Arbartung im Kindesalter," etc., *Jurist und Psych. Gränzfragen Halle*, 1910, p. 5, etc.; Th. Ziehen, "Die Geisteskrankheiten des Kindesalters," Berlin, 1915, pp. 69-70.

37. See, for instance, the very instructive study of "Congenital Aphasia and Feeble-mindedness: A Clinical Diagnosis," by Lightner Witmer, *The Psychol. Clinic*, Vol. X, No. 7, December 15, 1916.

38. I find the following interesting and pertinent paragraph by S. T. Orton in the annual report (1917) of the Pennsylvania Hospital, p. 23: "In many cases of chronic course the mental deterioration is apparently not of the same degree in all of the mental fields. Thus one case may be able to express spontaneous thoughts better in writing than by speech; in another repetitive speech will be well retained, while propositional or spontaneous speech is much disturbed. A thorough study of these variations might serve to indicate the best methods for an attempt at reeducation, or might serve as a guide for the best form of occupation therapy, and would at the same time be of considerable scientific interest."

39. v. Monakow, C.: "Über Lokalisation der Hirnfunktionen," Wiesbaden, Bergman, 1910, p. 19. Discussing psychic shock, he writes: "It is interesting that already here one finds present an election of very special central 'somatic innervationpaths' (as the optic center) whose function here misgives."

40. Since writing the above I have come upon a notice

of B. Parker's "The Psychograph of Rossolimo," *Am. J. of Insanity*, 1916, 23, which deals with these tests.

41. Decroly, O., et Degand, Mlle. J.: "La mesure de l'intelligence chez des enfants normaux," etc., *Arch. de psychol.*, 1910, IX.

42. Jeronutti, A.: "Applications della Scala metrica dell' intelligenza di Binet e Simone," etc., *Rivista Pedagogica*, 3, III, Rome, 1909. The work on which this criticism was based took place in de Sanctis' laboratory at Rome.

43. Shubert, S.: "Vortrag auf dem ersten Russ. Kongress of exper. Padagog., 1910." Cited by Meumann, II, p. 251.

44. As, for instance, the *defining* test. See O. Bober-tag, "Über Intelligenzprüfungen," etc., Barth, Leipzig, 1914, pp. 50-58. See also *The Psychological Review*, Vol. XXIII, No. 6, p. 489, etc.

60 WEST EIGHTY-FIFTH STREET.

MASTOIDITIS.*

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HISTORICAL.—As early as 1656 we find Johann Riolan and Rolfinck advocating mastoidectomy for the relief of deafness and tinnitus. Their ideas were logical, in a degree, as they hoped to equalize the atmospheric pressure on both sides of the tympanic membrane.

Petit (1674-1760), the French surgeon, was probably the first to open the mastoid for a suppurative condition, but it was a Prussian (Jasser, 1776) who was credited with the first operation, although his work was done subsequent to Petit's. The operation came into disrepute largely through the death of Baron Berger, who was physician to the King of Denmark. He submitted to the operation for the relief of tinnitus and deafness. His death was no doubt due to meningitis as a result of poor technique.

Schwartz, in 1873, finally succeeded in establishing the mastoid operation upon a firm otological basis by applying anatomical knowledge to the procedure. His success was attained after such men as Pagenstecher, Follin, and others had attempted to revive the operation without success. The operation remains to-day, even with its many modifications, practically as Schwartz introduced it.

The operation again fell into disfavor, probably owing to poor results and deaths which were in turn the results of bad technique, not to be resurrected again until the latter half of the nineteenth century.

Anatomical.—The mastoid process varies in shape and form in different persons, being larger in the muscular than in the non-muscular. It is in this process that the mastoid cells are found lying between the cortex and the inner table. The cortex varies in thickness from .5 mm. to 10.00 mm.

The mastoid process is occupied by pneumatic cells which vary in number and size and which communicate with the mastoid antrum; this in turn communicates with the tympanum (Cunningham¹) through the aditus ad antrum (Ballenger²). Embryologically the mastoid antrum is part of the middle ear, while the cells are not. The antrum and cells are lined with ciliated epithelium. We

occasionally find very large cells behind the sigmoid sinus and sometimes extending into the pyramid of the temporal bone, encroaching on the semi-circular canals.

The antrum is found at birth practically fully developed in size and placed rather superficially. The inner table forms part of the wall of the middle fossa and presents at operation the convexity of the sigmoid fossa. Korner³ finds that the fossa on the right side is usually further forward than the left. There are many variations in the position and size of the sinus wall, varying from the superficial anterior position, often found in children, to the deeply placed posterior sinus occasionally found in adults. According to Schultze,⁴ the cranial fossa lies higher on the right than on the left side.

Etiology.—The common and usual causes of bacterial invasion of the mastoid with the accompanying subjective and clinical symptoms, which may or may not be pronounced in their severity, are some of the exanthemata of childhood and the various types of "head colds."

Adenoid hypertrophy is a large factor in the etiology, particularly if the mass is situated in and around the lateral folds and the eustachian orifice. There are several facts that make me think that adenoid hypertrophy is one of the greatest etiological factors in middle-ear trouble and subsequent mastoid invasion. We rarely see middle-ear infections in children who are not subject to repeated "head colds," unless the infection is a sequel to one of the acute infectious diseases, and in these same children an examination of the epipharynx will usually reveal a mass of adenoid tissue.

Mastoiditis as a primary condition or idiopathic, as it is called by some writers, is indeed a rare condition, yet it undoubtedly does occur at times, and the hypothesis offered is quite as logical as that offered to explain primary infection in other remote organs, as for instance the lodgment of the tubercle bacillus in the epiphysis of the femur in hip disease, and in the vertebræ in Pott's. Many cases of this condition are to be found in the literature, but the diagnosis in many instances has been questioned by competent otologists. Dabney⁵ of this city recently reported two undoubtedly authentic cases of primary mastoiditis, as has also Broder⁶ of New York; one of the latter's cases was traumatic. Compound fractures of the skull are rarely a factor in this disease, yet there are cases reported. A chronic suppurative otitis naturally is always a menace and liable at any time to cause an acute mastoiditis or some of its more grave complications, such as sinus thrombosis, brain abscess, or meningitis.

Symptomatology.—As a rule there is a sequence of events something like the following: An acute coryza, sudden pain in the ear, which becomes intense, spontaneous rupture of the membrane, followed by relief from the pain. Subsequently the discharge may become less and post-auricular pain manifests itself, sometimes with edema.

The subjective symptoms may be very vague indeed and will vary in intensity according to the temperament of the individual and certain bacteriological and pathological factors.

The objective symptoms, together with laboratory findings, may be classical, but they are more apt not to be. I do not know of any other one sur-

gical condition that can be so perverse and unreasonable.

One naturally expects to have a leucocytosis, but there may not be any. One naturally expects a pyrexia at some time during the preoperative period, yet one often sees cases with normal temperature and pulse.

It is futile to attempt to formulate any classical picture or group of symptoms, either objective or subjective, for our guidance as to operation in these cases, for many times we shall find our gravest cases without the textbook signs, and if we await their appearance we very likely will have the opportunity of watching the advent of a meningitis or sinus thrombosis.

Gorham Bacon⁶ reports the laboratory findings of Dixon on 5,496 cases in which smears had been made from the discharging ears. In 26.6 per cent. there was mixed infection; the majority of these were chronic; in 24.8 per cent. streptococcus was the predominating organism; in 12.2 per cent. pneumococcus; in 7.4 per cent. staphylococcus; in 4.8 per cent. *Streptococcus mucosus capsulatus*, and in 1.8 per cent. Vincent's spirillum. The remaining 22.4 per cent. were miscellaneous, negative, etc. Among them were placed the *B. pyocyaneus*, *B. diphtheria*, *B. tuberculosis*, *B. coli communis*, Friedlander's bacillus, etc.

Dixon finds that the pus in the external canal usually shows mixed infection, but the causative organism is found in the mastoid pus, sinus, or brain when these organs are involved. Bacon pays great respect to the *Streptococcus mucosus capsulatus*, and says he finds extensive bone necrosis when this organism is the invader.

Diagnosis and Aids to Same.—As a rule the general practitioner is the first consulted about the pain in the ear or the discharge. This is the time to devote serious attention and treatment to these cases, for the earlier we can see them and start treatment the more we can do toward the conservation of not only hearing but life.

The chief symptoms I rely upon to guide me as to operation are: The continuance of postauricular pain with or without edema, together with pulsating discharge from the ear, and possibly sagging of posterior and superior meatal wall. The presence or absence of pyrexia and a leucocytosis do not influence me if there is mastoid pain which continues with or without a discharging ear.

We must also be on our guard for the unusual, and differentiate a local from a reflex pain. Necrotic lesions in the molars, unerupted molars, and tonsillar and tubal inflammations will all give us at times typical mastoid pain. External otitis sometimes simulates mastoiditis, and the two may co-exist.

Rarefying osteitis of the mastoid bone is a rare condition, which will give continual local pain. The diagnosis of this condition is usually made under the microscope. C. W. Richardson¹² reports a case of this sort in the Transactions of the American Otological Society, 1911.

Material aid and information may be acquired from the roentgenologist, which will greatly assist in making one's diagnosis.

On the other hand, we often see cases which have neglected to seek advice or treatment, in which no

paracentesis has been done or, just as bad, only a pin point puncture made; or possibly a spontaneous rupture has occurred with only a small opening. This class of cases is seen early, even though they present a bulging of the membrane, if a thorough incision is made and they be watched carefully, will often go on to complete recovery.

In children we are much more apt to note the evidence of sepsis in the marked rise of temperature, and Kopetsky¹ says that convulsions are often observed when the membrane tympani remains imperforate.

Pulsation of the pus is considered as a valuable sign by some and as an indication for operation, but this must be considered along with the other evidence.

The roentgenologist may be of great aid to us, and it is surprising his assistance is not oftener sought. A comparative plate, showing both mastoids, taken by a competent man, is in inestimable value in obscure cases. Dixon, of the New York Eye and Ear Infirmary, and Law, of New York, have done a great deal of work along this line and have made themselves most proficient in their interpretation of plates. The sigmoid sinus may be outlined and in cases of necrosis of its wall the extent of the same may be observed prior to operation. Also remote cells in zygomatic root or in occipital bone may be shown and reached when operating. I wish to state here that it is quite essential that every pus-bearing cell be reached and opened if we desire a satisfactory termination, otherwise we will probably have the embarrassing misfortune of doing a secondary operation.

In a paper read by Dixon¹ before the Medical Association of Greater New York he says: "It is not to be understood that the blood count, the form of infection, or positive x-ray findings, alone can be relied upon to any considerable extent as determining the necessity for a mastoid operation. The clinical symptoms are all important; without them our modern aids are of little value. We may have a rather virulent streptococcus infection in the canal, or a pneumococcus infection which looks vicious in the smear, but both may recover after a myringotomy, though there may be considerable mastoid tenderness. In either streptococcus or pneumococcus cases (though we believe that more liberty can be taken with the latter as a rule), the danger signal may be a sudden rise in the polynuclear count, with or without an increased leucocytosis, especially the latter. A positive x-ray plate will again settle the diagnosis, though the clinical symptoms may not alone be sufficient to indicate the mastoid operation."

John J. Kyle⁸ in a recent article lays particular stress on the pulsation of the discharge from the middle ear as a guide to early operation. But even this valuable sign is often absent, and, indeed, in some cases that are most urgent and require immediate operative intervention, we may have no discharge to pulsate. Neither is it necessary that pus should fall in a spectacular cataract upon opening the cortical cells or the antrum to justify the procedure.

Cases of bilateral otitis media with possible mastoid involvement are indeed trying cases from the standpoint of both the surgeon and the patient and

they call for infinite care and patience, particularly if one is unfortunate enough to have some such complication as a sigmoid sinus thrombosis. One's judgment is taxed to the utmost in such a case. Here again is where the roentgenologist can lend us very material aid, particularly so if he can show us on which side the thrombosis is located.

The so-called latent mastoiditis is a condition one has to deal with occasionally. These cases are those in which the surgeon has temporized too long, or the patient has not sought advice until finally the acute symptoms have subsided, the patient has established a certain immunity to the toxemia, and to all apparent purposes the mastoid has cleared. We find a persistent suppurative otitis media which may vary in quantity and may be intermittent. The pyorrhea resisting all measures, operation will usually reveal a completely disintegrated mastoid process. These cases are particularly vicious, as they usually leave a certain amount of permanent impairment of hearing. Mithoefer,⁹ Hays,¹⁰ and others have reported many such cases in the literature.

Otitis externa or furunculosis of the external canal is not always the simple little "pimple" one often hears it spoken of. There very often is an acute suppurative otitis media concealed behind the edematous and painful canal, and the furuncle is merely the result of a secondary infection in the skin due to the discharge of pus.

Chronic discharging ears in children call for a deal of thoughtful treatment. Some cases will yield beautifully to local measures, possibly with vaccines. These are usually the cases with large central perforations and a chronic discharging middle ear and mastoid. One may have to resort to a simple mastoidectomy in these cases. Hypertrophied adenoid tissue and diseased tonsils should be removed if present, but the parents should be warned not to expect wonders following the procedure, as their removal will certainly not put an end to an otorrhea with accompanying necrosed bone.

Another class of cases will present a chronic discharging ear with adhesions in the tympanum, polyps, and detritus, with marginal perforations, or no membrane at all. Sometimes these cases will clear up nicely under local measures which provide good drainage and the cavity will dermatize and remain dry, nature having done a neat radical operation. More than likely, however, a radical operation will be necessary to clear up the discharge entirely. In children this should be kept as a last measure and be resorted to only after every other means has failed.

Too often indeed do we see children allowed to grow up with discharging ears, in the vain hope that at some time during their adolescence they will drop this burden; this is a delusion too often fostered by the medical profession, surprising as it may seem. Aside from the possibilities of intracranial complications, the autointoxication usually stamps itself upon the child in some unmistakable manner. Aural furuncles, impetigo, and eczema are among the list of ailments the pus gives rise to.

Our attention cannot be too strongly called to the care of the infants' and children's ears. From

a purely sociological standpoint we owe it to the community not to allow any more cases of acquired deaf-mutism. If a child loses its hearing before it learns to speak it will in all probability become a mute. John Dutton Wright¹¹ states there are approximately 50,000 deaf mutes in the United States.

It should indeed be a stimulus to better care of the children's ears when we reflect upon the tragedy of these lives, and the ostracism they not only have forced upon them, but inflict upon themselves rather than be subjected to the ridicule that is only too readily forthcoming from the average heartless youngster.

J. J. Kyle⁸ thinks, and rightly too, that a lumbar puncture and cell count should be made in all cases in which there is a suspicion of intracranial trouble, preceding an operation.

Cases of mastoiditis seen early should yield nearly 100 per cent. of cures, while temporizing too long and neglect yield a large mortality. Delay is less likely to prove serious in the young adult than in the infant and the aged. In the latter there is usually some otosclerotic change and the pus if not draining well is apt to seek outlet into the cranial cavity.

Kopetzky¹ thinks that in the usual uncomplicated cases it is wise to delay operation until after the first "hyperemic stage," as he calls it, has passed. His theory is that after the first 24 or 36 hours the blood in the smaller venous channels has become thrombosed, and that the chance of bacterial invasion of the sinuses is much lessened. Also the body resistance is better.

Some of the grave complications that may ensue are sinus thrombosis with possible metastases, brain or epidural abscess, and meningitis, either serous or purulent. The former type may recover; the latter rarely.

I would again urge early operation when mastoid symptoms continue rather than temporize and experience that hopeless feeling which one has when he sees the unmistakable signs of meningitis.

Comparative x-ray studies will be found to be of inestimable aid, particularly in the chronic suppurative cases and in the acute cases with unusual features.

Much may be accomplished by free and early paracentesis in suppuration of the middle ear and in many cases of acute catarrhal otitis, as this will often lead to spontaneous recovery.

I believe in the use of vaccines and local measures, though there is much for us to learn about vaccine-therapy.

Some Contraindications to Mastoidectomy.—Hemophilia, though rare, undoubtedly does exist, and should one encounter a hemophiliac who develops mastoiditis, he would, I think, be justified in delaying operation until all abortive measures have been tried.

Advanced tuberculosis and diabetes in a patient who is suffering with mastoiditis are considered contraindications to operation unless local anesthesia is resorted to. Even fairly well advanced tuberculosis may not prove a contraindication, as the operation can be done under local anesthesia or nitrous oxide and oxygen in certain cases.

Indications for Operation.—Summarizing the conditions which would indicate the simple mastoid operation, we find:

1. Cases of acute mastoiditis, with persistent pain on pressure over the tip, or antrum. Persistence of fever after a successful paracentesis has been done, or in which we find a sagging of the posterior superior meatal wall.

2. Cases of acute suppuration of the middle ear, with dizziness, vomiting, nausea, or beginning facial paralysis, or with signs of intracranial or labyrinthian involvement.

3. Cases of long standing middle-ear suppuration which resist all local measures, and because of good hearing and other reasons do not indicate a radical mastoid.

4. Cases of persistent mastoid pain either with or without other symptoms, which cannot be accounted for in other ways.

5. Cases of subperiosteal abscess.

In closing I would quote Whiting," who says: "As a life-saving measure few surgical procedures equal, and none surpass, in efficiency the modern mastoid operation."

REFERENCES.

1. Kopetsky: Surgery of the Ear.
2. Cunningham: Anatomy.
3. Ballenger: Diseases of the Nose, Throat and Ear.
4. Bokey: Ueber den Werth der Systematischen Lumbal-Punktion bei Behandlungen des Hydrocephalus chronicus internus bei Kinder, *Jahrbuch f. Kinderheilkunde*, 1903.
5. Pfandler: XVII. Naturforscher Versammlung, Düsseldorf, October, 1898.
6. Bacon, Gorham: Manual of Otology, New York and Philadelphia, 1913.
7. Dixon: The Combined Laboratory and X-ray Indications for the Mastoid Operation. Read before the Med. Assn. Greater New York, July, 1914.
8. Kyle, J. J.: The Early Diagnosis of Mastoiditis, *Jour. A. M. A.*, Aug. 7, 1915. Some Observations Upon the Modern Mastoid Operation, *Annals of Otology, Rhinology and Laryngology*, March, 1915.
9. Hays: Latent Mastoiditis, *Amer. Jour. of Surgery*, July, 1914.
10. Mithoefer: Latent Mastoiditis, *Lancet-Clinic*, May 9, 1914.
11. Wertheimer: *Münchener medizinische Wochenschrift*, June, 1904.
12. Wright, J. D.: Address to the New York Association of Physicians, *Volta Review*.
13. Richardson, C. W.: Case of Rarefying Osteitis of the Mastoid Bone. Trans. Amer. Otological Society, 1911.
14. Dabney, V.: Idiopathic Mastoid Abscess, *Jour. A. M. A.*, Aug. 7, 1915.
15. Broder, Charles B.: Primary Mastoiditis, *MEDICAL RECORD*, September 18, 1915.

1624 I STREET, N. W.

TIMELY REMARKS ABOUT THE TREATMENT OF MALARIA.

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IN view of the large number of cases of malaria at the present time, in our cantonments and in the allied armies abroad, I wish to direct special attention now to two remedies, which I consider to be of the highest value, when quinine fails to cure the patients.

The treatment of malaria with quinine is time honored and general. No other remedy takes its place efficiently, it is now stated by our highest authorities. Methylen blue, salvarsan, and a few other remedies are spoken of when the case is protracted, or recurs; or when, as happens in some instances, quinine is badly borne and produces un-

pleasant and sometimes even seriously disquieting symptoms.

In pernicious forms of fever, intravenous or intramuscular injections of quinine are utilized, but they are not without drawbacks. They are painful and, unless given with great care, and a solution is made of certain salts, they are apt to cause swelling or even abscess at the site of injection.

In former years, Warburg's tincture or Warburg's extract was frequently given in obstinate or threatening cases of malaria, with the happiest results. Now it is scarcely ever used and, indeed, the textbooks either mention it only casually or do not refer to it at all. This, to me, is lamentable. In certain forms of malaria, and especially those contracted in South America, on the Isthmus, or in the Far East, nothing remedial equals or approaches the value of Warburg's tincture or extract. The latter should be given in five grain capsules, three to six times in the twenty-four hours, with or without aloes, depending upon the effect on the bowels. If they become too loose, the second should be given.

Sometimes, when we prefer not to give Warburg's extract, we can recur very advantageously to the use of Huxham's tincture of bark. To be effective this should be given in frequently repeated teaspoonful doses, as often as every two or three hours, in a little sherry wine or in water.

In the last edition of Dieulafoy's "Practice of Medicine," the author speaks of the great value of cinchona bark, when quinine fails utterly to cure the patient. Dieulafoy prescribes the powder of cinchona, but to me the tincture is preferable, as a less objectionable dose.

I cannot speak too strongly in behalf of Warburg's extract and the compound tincture of bark in the treatment of chronic, recurring, or even pernicious malaria. In looking back over my practice of a few decades, I can recall not a few instances where quinine failed me and where, fortunately, Warburg or cinchona helped cure the patient in a remarkable and very satisfactory manner.

I do not agree with Osler, therefore, when he states that one who can not cure malaria with quinine should abandon the practice of medicine. Rather, I am in accord with Prof. MacLean, Loomis's Practical Medicine, 8th Ed., p. 887, who says that "he has seen the most hopeless cases—those manifesting a degree of severity which seemed to preclude the possibility of recovery—commence to convalesce as soon as the patient was brought under the influence of this remedy," *i. e.* Warburg's tincture.

Anyone who reads the treatise of Huxham, written over one hundred years ago, and uses the formula for bark which he there so strongly emphasizes, will have his convictions strengthened by what he reads, as mine have been.

I was stimulated to write this brief article by reading the editorials in the March and April, 1918, issues of the *Therapeutic Gazette*, by Dr. H. A. Hare of Philadelphia. In these editorials Dr. Hare dwells particularly upon a valuable paper, published by Captain David Thomson in June and July, 1917, issues of *Journal of the Royal Army Medical Corps*, entitled "The Diagnosis and Treatment of Malarial Fever."

OPPORTUNITIES FOR PREVENTIVE MEDICAL WORK IN THE DISPENSARY CLINIC.

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NEW YORK.

THE work in a hospital is limited by the number of its beds, but the cases coming to a dispensary are limited only by the standing room in the building, and even on the street. During one year 3500 new patients came to the General Medical Clinic at Cornell University Dispensary for treatment. There have been approximately 11,000 revisits, making a total attendance at the clinic of 14,500 patients for the year, or between 50 and 100 patients a day in this one department. The clinic lasts two hours. Four to seven doctors are in attendance, who give undivided attention to the patients during the clinic hours, but who are not free to devote further time to the work. Thus patients who need medical care only and general hygiene directions can receive adequate treatment in the clinic; but the cases of more chronic condition, where the patient needs instruction in methods of living and readjustment of his work in addition to medical care, require a different plan of organization from our present dispensary system.

The first step in bringing about a reorganization is to realize the opportunity. During 1916 I interviewed 500 patients coming to the Cornell University General Medical Clinic. They were selected at random, with the only requirement that they be wage-earners, as we were anxious to obtain information regarding the hazards of industry. This was done as part of an inquiry into the effects of sickness among wage-earners carried on by the Russell Sage Foundation.

Of these 500 patients, 8 per cent. were suffering from mild conditions of short duration, such as colds, acute indigestion or tonsillitis, from which they would probably recover in two weeks or less, with medical care. About 26 per cent. were more seriously afflicted, having conditions like acute bronchitis, pleurisy, whooping-cough, influenza, etc., for which the prognosis for recovery with care and treatment would be two months or less. Four per cent. of the patients required operations, as appendicitis, gallstones, varicose veins, hernia, and gastric ulcers.*

The remaining 61 per cent., or 303 patients, needed careful regulation of their lives and adaptation to their environment to gain in health. A small number of these, 19 in all, were suffering from diseases that would grow steadily worse, as inoperable cancer, advanced Bright's disease, renal tuberculosis, Paget's disease, etc. One hundred and twenty-three patients had conditions from which they might absolutely recover, as gastritis and many forms of indigestion, enteroptosis, neurasthenia, and some of the rheumatic conditions. The remaining 161 patients were suffering from diseases which would always cripple them more or less, and for which they needed to modify their lives. They could be comfortable and reasonably efficient, but they would never be free from some slight handicap. I have classed tuberculous and thyroid cases,

nephritis, and valvular cardiac lesions all in this group.

We see from this that about two out of every five patients coming to the clinic could have their needs met in the clinic, or possibly by hospital care, as in the surgical cases; while the other three patients needed a readjustment to their environment, either to regain their health fully, or to live comfortably with a permanent physical handicap.

Beside medical care, two elements are essential in treating the more chronic cases: First, the re-education of the patient; and second, the removal of strains from without. The following case illustrates the possibility of meeting both these needs:

Mr. H., a night watchman in a downtown office building, came to the clinic, complaining of dizziness, pain in the legs, nervous apprehension, occasional headaches, and loss of weight. He was a well developed man, fifty-eight years old. His physical examination showed a systolic blood pressure of 200, a slightly hypertrophied heart, and a mild nephritis. He worked twelve hours seven nights a week, with one night off a month. Every hour he was obliged to punch a time-clock and occasionally had to tend the furnace.

The employer of this man appreciated his services and wanted him to regain his health and maintain his ability to work. He therefore gave him a week's vacation, and planned to readjust the work so that he might have one night off every week.

A visit to the home showed that the man acted as janitor and had first floor rooms, with poor air and constant noise from the halls and street. His wife agreed to move to more quiet and sunny rooms. The man himself did not like to eat alone at night, so neglected to do so. After explaining to him the need and advantage of taking nourishment during the night, and suggesting things to eat at that time, he became interested to carry out the directions.

In this case, aside from the medical care, which was followed carefully, the employer relieved the industrial strain, the wife became interested to adjust the home situation, and the man did his share by eating at night. These three elements were all essential to his cure.

Night Work.—The above case is not unusual. Seven other night watchmen were interviewed. All worked seven nights a week; all had various duties, as dusting, cleaning, punching timeclocks or fire signals; all but one worked eleven to fourteen hours a night. This one exception was an employee in the City Dock Department, who worked on a lighter eight hours each night and received \$17.50, the highest pay for any man in the group. One of these men needed an operation, but the other seven had developed chronic conditions for which they needed re-education.

We found 64 men working at night. Some were on shift, working nights every other week; some as waiters and elevator men worked until 1 a. m. every night; marine firemen and sailors worked four hours in the night and four hours in the day time; some men were employed on trolley cars or sold tickets in elevated railroad stations. The difficulty in all these cases is with the industrial situation. Forty of these 64 men worked seven days in the week. Of these 40, 12 worked 56 hours, while the remaining 28 worked anywhere from 60 to 112 hours. The hours are beyond the men's control, and while in all cases they are not directly harmful, we know that the continual fatigue of long hours predisposes to degenerative changes. The exact difference in strain between day work and night work

*Seven cases, or 1.4 per cent, had not been sufficiently diagnosed to form a prognosis.

has not been demonstrated, but we find that instead of a ratio of two curable to three needing re-education among all those interviewed, the ratio among night workers is two to five.

The ages are not unlike those of the general group. Among night workers 46 per cent. were under thirty-six years of age, while in the general group 47.8 per cent. were under thirty-six.

We can eliminate age as a factor and return to the fact that the number of seriously crippled men among night workers is nearly twice as great as among sick people in general. The figures are few and suggestive, rather than conclusive, but the point is that night work in itself is a special hazard, that at the present time it is not so recognized, for night workers are given longer hours than day workers, even on the same job. Night work is a hazard imposed on workers by the industrial system and one which they can in no way control.

One more case of night work, the one with the longest hour schedule—112 hours a week—shows how the individual is a helpless tool in the hands of the industrial system.

Mr. M. is employed on a railroad in New Jersey, running as freight brakeman from Elizabeth to Camden. He works from 11 P. M. until 3 P. M. the following day, seven days a week. The run takes these hours. He has to have a home at each end of the line. His family lives in New York and he visits them the three or four times a week he is in Elizabeth. He spends about six hours with them, all the time he should be sleeping. The duties of the freight brakeman are to help load and unload cars at stations, and between stations to ride on the outside of the cars. Sleep is impossible from the constant danger of falling off. Meals are carried in a dinner pail and eaten at odd moments and in all weather.

Will it be possible ever to keep this man well doing that work?

To improve permanently the health of men working at night we shall have to demonstrate this special hazard, and interest employers so to adjust their work that this strain shall be lightened by shorter hours and by one day off each week.

Alcoholism.—Another hazard for which public opinion is largely responsible is the temptation to take stimulants. This comes to men in various forms. The cause given most among the men coming to the clinic is that it helps them to sleep when fatigued beyond their endurance. This fatigue may be from work, but is also frequently from lack of interest in life and opportunity for recreation.

The case of Hans J. is of this latter type. He is a Norwegian, an expert on skis, and has also won silver cups for running in his native land. He is blond and splendidly built, but came to the clinic intoxicated. A few days later he came again to the clinic and told of his struggles with alcohol. He came to America eight years ago and soon established himself in his trade of house painting. He married and settled down in a small apartment in the Bronx. His wife, a very excellent housekeeper, found all the field she needed for self-expression in her small apartment and her little daughter. She never cared to go out with her husband or to entertain his friends. They disturbed the exquisite order of her home. Mr. J., used to activity in the open air, with friends and social life, found himself restless and unable to sleep. He started with beer, increasing the amount gradually, but finally found that whiskey would more effectively control his restlessness. This continued six or seven years, when his wife and daughter returned to her people, leaving him to live alone in furnished rooms.

In this case the restlessness for which he sought

relief in drink was the normal revolt of his muscles at their enforced idleness. Surely he could have found friends and companions with whom to exercise, but he was a stranger in a strange land and did not happen to meet with anyone who could direct him in right lines. He was suffering from tuberculosis and was sent to Sea View Hospital.

In the group of 383 men reporting on alcoholic indulgence, we found 249, or 65 per cent., had been addicted to the use of alcohol in some form. In the Cornell Clinic the doctors inquire the exact number of glasses of beer or whiskey consumed a day, so that our figures are not based upon the judgment of the patient. Ninety-four of the men claimed to take an occasional glass of beer, but only for social purposes with their friends; 77 were in the habit of having beer daily and occasionally whiskey. The remaining 58 took both beer and whiskey to excess, so that they were markedly affected by its use. Four of this group were periodic drinkers. They absolutely abstained from alcohol in any form for a week or two at a time, and sometimes even for months, but when they did drink they would completely lose themselves for days or even weeks. We found this habit of periodic drinking to excess among men working continuous hours without sleep. The case of a marine painter will illustrate this point:

Mr. T. paints the bottoms of boats when on dry dock. Since it is important for these boats to return to the water as soon as possible, while they are in dock the painters work unceasingly. The work is casual, so that when it is to be had the painters like to work steadily every minute. The method of pay also stimulates the desire for overtime. The usual rate of 50 cents an hour is paid between the hours of 6 A. M. and 5 P. M.; for all other hours 75 cents is paid, and on holidays and Sundays the men receive \$1 an hour. This man has found as a matter of practical experience that after 20 hours of steady work he cannot sleep. Experience has also taught him that beer helps him to sleep. After he had worked 20 hours for three or four consecutive days beer would lose its effect, but whiskey would bring the dulling of the senses he longed for. After several years he lost his ability to stop drinking and would usually be dead to the world for from three to six weeks after a long stretch of work. After one of these periods he would have a horror and distaste for whiskey which would last until he again became "over" fatigued. The temptation to start drinking after a period of work is increased by the fact that the men are paid by checks and, in the ever present saloons, they can get these checks cashed if they buy something.

Marine firemen are a group of workers much addicted to alcohol. One man told me he was given four ounces of gin every time he went on duty, claiming that this was essential in order to tolerate the heat and fatigue of the work. Boiler repairers and longshoremen have the same type of temptation as the marine painter, the long continuous hours followed by inability to sleep.

Waiters, bartenders, and saloon porters are tempted by the constant presence of drink. Six out of the 58 men drinking to excess were employed in this way. The most hopeless fight was being put up by a young man employed as a rectifier of spirits. His duties require that he taste the whiskey as he sweetens and colors it. This man tried many ways to master the temptation. Finally he got a job as waiter at Brighton Beach for the summer and went for six months without stimulants. On his return to the city, his old employer urged him to come back to the work, and, believing himself cured, he re-

turned, to find in two months that the desire was again his master.

The occupations of the 58 men addicted to the use of alcohol in excess, although varied, have certain common characteristics. The list follows:

Drivers and shippers	9
Longshoremen, marine firemen and painter.....	7
Boiler makers	2
Workers in saloons and handling liquors.....	6
Masons and roofers	6
Stationary firemen and engineers.....	6
Painters	5
Caring for horses	4
Machinists	4
Plumbers	2
Miscellaneous*	7
Total	58

*One each of the following: cook, elevator man, butcher, caretaker, oyster opener, milk-man, and carpenter.

The men frequently blamed their work as the cause of their intemperance. The firemen drank to keep cool, the butcher, working in an ice house, drank to keep warm, the masons drank to overcome the dryness in their throats, and the oyster opener, to overcome the effects of the water in which he was obliged to work.

None of these men had sedantary occupations. The absence of garment workers, who composed 7 per cent. of the entire group, suggests another element. Practically all the garment workers were Hebrews. Looking at the nationality of the excessive alcoholic group, we find only one Hebrew, who was the owner of a saloon and felt his drinking a business necessity. The predominant nationality among the heavy drinkers was Irish. Fifty per cent. of these 58 men were Irish, while in the entire group of 412 men only 23 per cent. were Irish. Hebrews composed 22 per cent. of the entire group, but among the excessive users of alcohol were less than 2 per cent.

Whether the cause of the alcoholic indulgence is the strain of the work, the early training of the individual, or his heredity, does not relieve the clinic of the responsibility of assisting individuals in overcoming its temptations and of educating the community in sane and scientific methods of meeting this problem.

Exercise and Recreation.—One of the most vital ways to help solve the problem is to develop opportunities for wholesome recreation and exercise. The responsibility of industries in which overfatigue is an essential to obtain a living wage must not be minimized, but the lack of exercise and recreation among these 500 men and women is one of the major strains of their lives. Of 440 patients who reported on this subject, only 14 took any form of systematic exercise outside of their work. Fifty-six other patients walked sometimes solely for air and exercise, but with no regularity or aim.

The type of exercise that the 14 patients were following was somewhat varied. Three danced, four were learning prize fighting, one was a member of the National Guard, who drilled each week and spent two weeks in camp every summer, three attended gymnasium regularly, two did special exercises prescribed by the clinic, and one, a paranoiac, had developed a system of auto-cheiropneumatic ad-

justments performed suspended from his doorway, believing that he could straighten a kyphosis he had had all his life.

The answers regarding recreation were, for the most part, free from all semblance of real recreation. We asked, "What do you do to enjoy yourself when not working?" Most of the patients replied: "Enjoy my family," "Help my wife around," "Read newspapers or novels." A small number attended evening school, and a still smaller number went often to the movies, while three attended dances.

This lack of exercise and recreation has several causes. One hundred and thirty of the patients are doing heavy work, and are fatigued beyond the possibility of enjoyment in their free time. None of these people were in normal health. Probably in a group of the same size in the general community we should find a far greater variety in the forms of exercise and recreation and a larger proportion of individuals participating in them. In our dispensary group we found many men who had begun work when only nine or ten years old. They had had no experience in recreation as we understand it, and there was no exercise they could do with sufficient skill to find recreation in performing it.

I was deeply impressed by this result of early work in the many victims of the foreign apprenticeship system that are included in our group. This system develops wonderful skill in its workers, but at the cost of the ability to relax and enjoy life, when work is begun before the age of fourteen. One man told of taking out bastings at the age of three. He cannot remember when he did not know how to sew, and was daily required to do this. One surprisingly serious Irish cook started in at the age of nine to assist his father, who owned a slaughter house. He reports: "I did the lighter work, like killing the sheep." Fortunately, in this city the employment of such young children is almost a thing of the past, but we still lack resources for wholesome recreation.

Diet Instruction.—To return for a moment to alcoholism, one essential element in its relief is diet regulation. In this essential a clinic has special opportunities to educate not only its alcoholics but all its patients. To prescribe a diet requires a more intimate knowledge of the patient's habits of life and his physical condition than is needed to prescribe a drug. This is especially true in this city, where in our small group we found patients of 25 nationalities and four races. Two incidents which occurred at the Cornell General Medical Clinic, where special attention has been paid to preparing diet lists for the more common conditions, show the need of more individual attention than the crowded clinic hours permit.

A man suffering from psoriasis had been given a diet list in the Skin Clinic. After two months' care he was losing weight, and doing so poorly, although the skin condition was improving, that he was referred to the General Medical Clinic. Aside from the skin condition his physical examination was negative except for the marked undernutrition. He showed his diet list, and said he had not violated its rules. Further conversation showed that bread and milk were the only articles on the list with

which he was familiar, and that were within his reach financially. In response to a question about the quantity of milk the doctor had said about a quart a day. So this faithful soul had been living for two months on a quart of milk and a five-cent loaf of white bread a day.

The second instance occurred in the Thyroid Clinic. A poorly nourished patient was told to eat plenty of food, and bring a list of just what she ate to the doctor next day. The list follows: Breakfast, ham and eggs; dinner, two eggs, supper, six chops. The majority of the clinic patients would not have been able to afford this menu. Both these cases illustrate the need of knowing the patient's habits and financial resources if a successful diet is to be prescribed.

Industrial Cases.—This year a special effort was made at the Cornell Clinic to care for industrial cases. Men who had obviously been injured by their work, as painters with lead poisoning, and stone cutters with phthisis, were given special attention. An essential element in the care of these cases is change of employment. Here a dispensary is dependent on making employers and employment agencies recognize that if a man is crippled in one direction he may still be a most useful worker in other lines.

The chief hardship in this change of occupation comes on the patient who must usually face a reduction of wages, for the change is almost always from a skilled to an unskilled trade. The case of a young Jewish boy earning \$8.00 a week shipping wrapping paper shows this. He had a mitral regurgitation, so that it was necessary to change his job. An opportunity to learn to be a switchboard operator and earn \$5.00 a week he scorned because of the small pay, and remained idle for several months. Painters, also, who are in the habit of earning \$4.00 a day, must be driven to the most dire necessity before they will consent to accept a job delivering for a grocer for \$10 or \$12 a week.

One exception to this experience is noteworthy. Mr. S. was a foreman in a room where woolen braids were woven. He earned \$30 a week, had a good home, with a wife and one child. He developed asthma and suffered intensely from it for two years. At the Cornell Clinic he was told he must do outside work. He gave up his job and went to peddling bananas from a push cart. If he had a fortunate week he could earn about \$8. Even cheaper rooms could not make up his weekly deficit. After his savings were exhausted his wife went to work at her former trade of making shirtwaists, leaving their little child at a nursery each day.

When such a lowering of the standards of living is necessitated through a change of work, we sympathize with the men who prefer to risk lead poisoning rather than to subject their families to such hardships. It is taking an unknown risk in preference to accepting a known hardship. One Indian who refused to accept inferior wages had been out of work a full year, his father sending him money regularly. This man was an expert horseman, and had performed in Buffalo Bill's show from earliest infancy. Four years ago he served two years at the Hippodrome; for a year after this he did movie acts. In these war times Indian movies are unpopular, and he has had no work. In his usual line he earned \$50 to \$100 a week, and resented as an insult the suggestion of smaller pay.

These are a few of the many complications surrounding the problem of change of work. It is a problem which dispensaries should assist in solving by reporting to employment agencies the type of work a person can do efficiently without injury to his physical condition. The cardiac, tuberculous, and lead-poison patients all need change of work; few find it. The majority do as Mr. C., a lead smelter, did. He attended clinic, and stayed away from his work until the acute attack had subsided. He then tried for four days to find other work. As he was not successful, he returned to his old job, and in ten days was back in the clinic with a new attack more serious than the first. Of course, the removal of the hazard is a better way to cure the patient, and has the additional advantage of removing the danger from other workers who are possibly not yet affected. The clinic can do efficient work along these lines if so organized that one of its doctors has time to visit employers and interest them in removing these serious hazards. With the assistance of the Board of Health the Cornell Clinic has this year been able to relieve several cases of this type.

Home Life.—That a knowledge of a man's home is essential at times in directing his treatment is shown in the case of Mr. D.

This man was sadly undernourished. He had been unemployed eight months, but, as he had two grown sons earning good wages, it did not at first occur to us that there were difficulties in his home. A home visit was made subsequently and Mr. D. was found eating dry bread and tea in the kitchen while the rest of the family were enjoying chops and salad in the dining room. His wife explained that if a man was not bringing anything in he surely ought not to expect to eat. This man was too miserable and sick to work. He had an old tuberculous lesion but regained his health to a great extent in the Riverside Hospital.

Another home in which the illness of the man was not appreciated by his wife was that of Mr. B. Mr. B. developed tuberculosis and was sent to Bedford. He gained splendidly, but before he was fit to leave his wife insisted that he return home, threatening to commit the children if he did not do so. After his return, he worked in the special workroom of the Joint Tuberculosis Committee and was carefully watched. His tuberculosis began to increase and in addition he developed appendicitis. The surgeon at Cornell agreed to operate with local anesthesia, so he entered Bellevue. The night before the operation his wife called upon him and filled him with such apprehension that he declined operation and returned home suffering intensely. We can understand Mrs. B.'s distress and can sympathize with her in her anxiety for her husband, but we realize that it is ignorance rather than wilfulness that prompted her to interfere so materially with his welfare. With careful instruction and interested assistance in meeting the many problems her husband's absence gave rise to, she could be stimulated to aid rather than hinder her husband in his recovery.

Conclusions.—I submit these few rather scattered illustrations of fields of activity in which a dispensary has special responsibility. The dispensary has first-hand information on conditions that are hazards to health. It has an opportunity to instruct patients in avoiding such hazards. It has the opportunity of knowing just which factory or workshop is imposing needless hardships on its workers and of what the hardship consists. It knows the long hours of industry, the struggle to maintain life on pay below a minimum living wage, the temptation to take stimulants, and it can judge of the sufferings caused by lockouts and seasonal

unemployment. It frequently learns of failings of private doctors, for the majority of clinic patients have been first to a private doctor but have had to come to a clinic because they were not gaining or their money was gone.

With the possibility of obtaining first-hand information on all these vital questions a dispensary should be an essential force in remedying conditions. It has two unique advantages in rendering this service to the community: First, patients come to a clinic in a state of mind eager to receive instruction. Second, a clinic can be absolutely impersonal; its sole interest is to gain improved conditions for its patients.

To live up to its many opportunities, and fulfill its obligations to the community, a dispensary should be so organized that it can do the following things:

1. Inform the public by various forms of publicity, written and spoken, just what things are injurious to health and how to avoid and remedy them.

2. Visit factories with known hazards, and interest employers in improving conditions so that the health of the workers may be maintained.

3. Stimulate public interest in the importance of recreation and exercise, and devise wholesome forms of both.

4. Educate patients individually in all matters pertaining to diet, bathing, work, exercise and rest.

5. Join with the Board of Health in an active campaign to eliminate industrial poisons.

6. Acquaint itself with the home life, struggles, and ambitions of its patients so that its directions may be individual.

7. Hold clinics at hours when workers are free to attend.

8. Devise means of finding employment for workers crippled in some one way.

9. Educate private doctors by giving them opportunity to know of their successes and failures.

This may sound complex, but in reality it is much that is usually done, only it has not been coordinated. The majority of dispensary patients are suffering from conditions that can be entirely cured. With work on the broad lines outlined above a dispensary could become a vital force in the field of preventive medicine, and justify the object of its existence, viz.: to cure the sick before they require hospital care.

CONSERVATISM IN ROENTGEN DIAGNOSIS OF DISEASE OF THE STOMACH.*

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So much has been written concerning the roentgen diagnosis of gastrointestinal disease, the viewpoint of the various authors so certain, the professed findings so positive as to lead one to wonder whether any means other than the x-ray were really necessary for diagnosis.

In the light of over ten years' experience, it

*Read in part, with lantern slide demonstration, before the Washington Heights Medical Society, Jan. 15, 1918.

seems rather far fetched that, for instance, over 90 per cent. of duodenal ulcers should be positively diagnosed by the roentgen rays. Backed by a proper history, clinical and laboratory findings, these figures may not be greatly exaggerated, but when one considers that pathology in the gall-bladder region or in the right iliac fossa, to say nothing of the rest of the intestinal tract, may produce a symptom complex practically identical with that of a duodenal ulcer, then, from a roentgen standpoint alone would this high percentage receive a serious cut. If it were always possible to identify an ulcer defect or to outrule disease in the cecal region, or to diagnose as high as 85 per cent. of the gall-bladder cases, as is professed by a certain author, then again this high percentage of correct diagnosis of duodenal ulcer might be attained; but granting the necessary time and expense of special attention and technique devoted to the gall-bladder region; even then the anatomical position of the gall-bladder, its pathology, and the chemical composition of biliary calculi preclude the possibility of such a high percentage.

Roentgen evidence of gastrointestinal pathology can be inferred by direct or positive and by indirect findings. By positive evidence is meant the visualization of the exact seat of pathological invasion, by defect in outline, such as irregularity in contour, contraction, niche, or bud. Such defect is conclusive providing that pseudo-defects, local spasm (inherent and reflex), as well as the extrinsic causes simulating true defects can be excluded.

The class of cases offering positive roentgen evidence include the infiltrations, saddle, penetrating, and perforating ulcers, both gastric and duodenal, of course, the defects produced by carcinoma or other new growth, malignant or benign, and syphilis as well as congenital defects and malpositions. This does not mean that each of these has a typical appearance at once distinguished from any other. As a matter of fact, at first glance, a pylorospasm, a syphilitic infiltration of the pylorus, a fibrosis, or a scirrhus carcinoma of the pylorus may give a picture very similar in appearance.

It is not at all rare to have a fair-sized carcinoma of the pylorus with active peristalsis in the balance of the stomach, with evidence of hypersecretion, hyperacidity, and free HCl. I saw three such cases in one week operatively proven; and they occur with sufficient frequency to sound a note of warning, not to bank too strongly upon certain preconceived ideas; it being quite generally accepted that with carcinoma should go diminished or absent peristalsis, as well as diminished secretion and anacidity.

Many a spasm has proven rebellious to anti-spasmodics, often refusing to relax with a second and third reexamination. With syphilis there may be nothing but the history and physical condition of the patient, clinical and laboratory findings to distinguish the case from one of carcinoma. Every case will not give the typical show-plate picture. Thus it will be seen that even some of the so-called positive evidence may be enshrouded in not a little doubt unless viewed from every possible angle.

True defect, pseudo-defect, reflex spasm, extrinsic defects, and adhesions are up to the roentgenologist to differentiate.

A large infiltrating or perforating ulcer, a small carcinoma, or benign tumor, a scirrhus, a fibrosis, or syphilis will occasionally require the combined aid of all diagnostic methods for differential diagnosis, and even then the surgeon may pose as the final judge and refute the preoperative opinion. However, for positive roentgen findings, in the hands of the conservative roentgenologist, I do not hesitate to say that, excepting exploratory laparotomy, no other single diagnostic procedure can compete therewith.

Under positive evidence I have not included certain contributory signs, leaving these for consideration under indirect evidence.

By indirect roentgen evidence of gastric pathology is meant the visualization of disturbances of normal gastric functions. This necessitates the study of the status habitus in relation to the type, filling, tone, size, shape, position, and mobility, peristalsis and motility, i.e. evacuation and abnormal retention.

There is really no cause for a controversy as to the relative value of fluoroscopy or radiography, serial or otherwise; suffice it to say that both should be used, each in its proper sphere. The fluoroscope for the study of the organ in motion, motility and mobility in various postures; the plate for visualizing small defects and finer detail which are frequently overlooked by simple fluoroscopy; besides, the plates have the advantage of permanent record and affording prolonged and more careful study and review.

A careful study of the normal physiological gastric and intestinal function by various observers has given us a reasonable standard of gastrointestinal motility, etc., under varying conditions with various foods.

The grouping together of certain abnormal findings into a so-called symptom complex is indicative of abnormal gastric function, but many of these complices may not only be the expression of intrinsic pathology, but may also be produced by reflex cause. Thus, hypertonus, hyperperistalsis, rapid evacuation, and intestinal hypermotility may indicate a duodenal irritation due to ulcer, but again this same symptom complex may also mean an appendicitis, a gall-bladder disease, a diarrhea and colitis, or other intraabdominal pathology, not to mention hysteria, fright, and the influence of narcotic poisons in producing disturbances of gastric function.

A spastic incisure, a pylorospasm, or spastic duodenal defect may even be added to the above complex and still have the seat of disease in the right iliac fossa or elsewhere, not at all due to gastric or duodenal pathology. On the other hand, a spastic contracture on the greater curvature, a more or less persistent hour-glass with a tender point opposite on the lesser curvature and nothing more, may be indicative of a small ulcer; yet this complex requires a defect or niche for positive roentgen evidence of ulcer.

A six-hour residue may be due to new growth, ulcer, adhesions, spasm, appendicitis, or cholecystitis; yet a residue with hypertonus, hyperperi-

stalsis, and hypermotility, is nine times out of ten (says Carmen) due to duodenal ulcer of the obstructive type. In this connection it is to be remembered that a residue and hypermotility may be indicative of morphinism, though, as a rule, peristalsis is diminished.

Fright, anger, and disgust are also likely to be accompanied by hypomotility and abnormal retention.

A residue with atony, diminished peristalsis, and hypomotility may indicate a pyloric or duodenal obstruction, due to ulcer, adhesions, extrinsic or intrinsic new growth, kink, or paralysis. Delayed motility with six-hour retention and hypotonus may also be due to enteroptotic habitus. A large residue, however, beyond a period of eight or nine hours is quite conclusive of organic obstruction.

Contraction, fixation, pyloric insufficiency, and diminished or absent peristalsis combined are supposedly suggestive of carcinoma. Yet, as has been mentioned before, fibrosis and water-bottle stomach, as well as syphilis, may be responsible for the same complex. In consideration of all this the importance of searching for and demonstrating a defect when true gastric pathology is suspected requires no further discussion.

There are certain more or less characteristic signs that the expert roentgenologist has learned to heed, which often assist in more accurately localizing the type and seat of disease, but indirect roentgen findings are, as a rule, of value only when taken in conjunction with the history, laboratory, and other clinical evidence.

In conclusion the author will state without fear of grave contradiction that in the routine examination of the stomach, in the least number of cases should the x-rays alone be relied upon for a positive diagnosis. On the other hand, we have in the x-ray a visual aid to correct deduction and diagnosis, the value of which cannot be refuted and the use of which in conjunction with other methods should not be denied the patient.

558 WEST 189TH STREET.

Gold Therapy of Tuberculosis.—Lydia De Witt, of Chicago, summarizes in the September number of the *American Review of Tuberculosis* results obtained by treating tuberculous guinea-pigs with the three gold cyanides, AuK(CN)₂, Au(CN), and AuCN. She also details a method developed by her colleague, Cadwell, by which she was able to estimate the minute quantities of gold taken up by the various tissues. About 40 to 50 per cent. of the gold is excreted in the urine and feces in one week after injection. The gold retained in the body is very widely distributed, only the brain containing none, and there is no marked difference between the amounts contained in tuberculous and non-tuberculous tissues. The gold found in liver, spleen and lungs is many times the concentration necessary to prevent the growth of tubercle bacilli in the test tube. Nevertheless under these conditions tubercles grow luxuriantly in such gold-containing organs. De Witt suggests that the gold may be so combined with cell proteins or be in such an inert colloidal form as to be powerless to act on the tubercle bacillus; or the bacilli may be protected by their position in the cell or by their membrane; or the bacilli may acquire a tolerance to gold. It seems very improbable that any gold preparation yet used can be efficient against invasion of the tubercle bacillus. Gold, moreover, promotes a tendency to hemorrhage and frequently hastens the progress of the disease.

Military Medicine.

THE DOCTOR AND DISCIPLINE.

BY FREDERICK CHRISTOPHER, M.D.,

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FIRST LIEUTENANT, M.R.C., U.S.A.

Is strict discipline necessary for the medical man? Are doctors as a class particularly poorly amenable to discipline? Does military discipline applied to the physician stifle his free attitude toward medical progress? These questions occupied the mind of the writer with a very personal emphasis during the early part of a recent profitable sojourn at a medical training camp. After recovering from the first icy plunge of changed environment, it is usual for each newcomer to ask himself, "What is this all about? And is it necessary?" Of course he knows that his country is involved in a great war and that he intends to do his part. He has left his practice and his dear ones, and, from a respected man in his community has become a private in a training camp company. He wears no insignia of rank, even though the President himself had indicated on his commission that he was a major, perhaps, or a captain. Instead of his comfortable bed, there is the army cot in a cold barracks crowded with men coughing and snoring. His teeth chattering with the cold, he steals through the grim grey dawn to the latrine to fight among a crowd of others for the privilege of shaving with cold water. His little old Ford at home looms in his thoughts as a palatial limousine as he drags his wet aching feet through miles of snow covered underbrush or seas of mud. His dignity is startled by such commands as, "Hurry, and get those cigarette butts picked up!" or, "It's your turn to black the stove." So it is quite natural for all newcomers at training camps to become introspective. "My part in this war is to alleviate suffering," he says, "to minister to the sick and wounded; can I not do that just as well if I don't know the meaning of 'right by fours' or am not able to lead the setting up exercises?"

The importance of the application of discipline to the men of the line is questioned by no one. Particularly in the present war has this been demonstrated in the many cases where intensive discipline and training have transformed the unreliable into the staunchest and bravest of men. Now the medical man must never forget that he is a component of a branch of the Army. The commanding general looks on the supply train, the engineers, the quartermaster department, the medical and sanitary detachments as supporting arms of his fighting men. Their disposition must be such as to secure that quick coordination which is necessary to win battles. To secure this coordination, the medical commanding officer must have his orders carried out as promptly and efficiently as those of any other branch of the army. To insure hearty and prompt obedience in every detail, he must have thorough discipline, which is the oil of every part of the military machine.

But in the strictly professional field discipline has come to assume an importance that it never did in previous wars. Army medicine on a scientific basis

has become the most useful agent of all times for the development of better methods of prevention and treatment. The larger the number of carefully worked up cases, the more accurate can be the guide for therapy. But the results can never be classified and interpreted unless the handling of the individual cases is as nearly as possible uniform. The Surgeon General is issuing a series of war manuals prepared by the leaders of the profession. These are to serve as the standards of treatment to be used by all until better methods are from time to time demonstrated. So discipline in the purely professional matters themselves has become necessary for the most efficient care of our soldiers.

Is the doctor himself less amenable to discipline than the engineer, the sanitarian, etc.? The foundation of the doctor's philosophy is the search for truth—he shall maintain an attitude of questioning skepticism toward all innovations until their worth has been proved. Every new proposal in medicine quite properly is subjected to the closest scrutiny before it is accepted as a truth. Apparently this research point of view comes into violent conflict with the doctrine of authority. To solve this dilemma the doctor must forget his identity as an individual and remember that he is a part of the great body of the State, whose life, as that of the body in reference to the hand, is essential to his own. Considerations that governed his course as an individual no longer can influence him now that the State is in danger. It becomes evident that to perpetuate those very rights of independent thought which he cherishes, he must subordinate his own opinions and welfare to the welfare of the nation when the latter is imperiled. The body that urgently needs blood is but poorly helped by the heart that has such component individuality that it goes into fibrillary twitching. So, step by step, the reasoning of explanation carries us from the "policing" of the company street to the great principles themselves for the sake of which we have entered the war.

Our ideal medical officer then must be thoroughly versed in discipline. His obedience must be prompt and complete. His commands shall be reasonable and compel action. Only by maintaining the high standard of discipline and efficiency, that it has established, can the Medical Department play its role in the winning of this war. Of the many lessons so ably taught at the medical training camp, the greatest and most valuable seems to be that of discipline.

44 EAST SCHILLER STREET

Shock.—In the *New Orleans Medical and Surgical Journal*, F. W. Parham discusses the literature of shock. He says in part, that the treatment of shock resolves itself into measures intended to raise the blood pressure and restore the animal heat. W. T. Porter (*Boston Medical and Surgical Journal*, May 17, 1917) found a remarkable absence of nervous shock in the midst of the most horrible carnage, so that the psychic factor seemed to play a very small role. In the badly wounded he found the blood pressure a most valuable guide, especially the diastolic. When the

disastolic pressure fell below 50 mm. the condition was very grave and resuscitation was doubtful, but when reaction could be brought about recovery was often rapid. Elevation of the lower limbs and head lowered just below the abdomen was the best position. A special table was devised, which enabled the patient to be kept warm in the proper position. Saline infusion was given for temporary effect and sometimes adrenalin, given in weak solution continuously, was advantageous, but the saline solution was temporary in its effect unless the blood pressure could be raised. Porter speaks highly of respiratory suction, or the thoracic pump. By introducing carbon dioxide into the air breathed the chest was expanded and a powerful traction force exerted on the blood in the liver, drawing it through and establishing reaction in some very bad cases. Cannon (*Boston Medical and Surgical Journal*, June 21, 1917) recognizing that the retention of the blood in the splanchnic area was due to the obstruction in the liver, tried pituitrin diffused over the portal vein, with the intention of producing contraction of the smooth muscle and forcing the blood through. Adrenalin was contraindicated, because it contracted the portal terminal vessels in the liver. It is doubtful if the action of pituitrin can be limited to the portal vessels in the abdomen. Cannon's recommendation would necessitate a certain amount of manipulation in order to deposit the pituitrin, and in any but an abdominal operative case would require a special incision. For this reason then, and also because it would be impossible to confine its action to the portal radicles, it would seem an impracticable procedure. The suggestion of Porter is simple and worthy of trial, because so easy to apply.

Finally, as the alkali reserve is probably reduced in all these cases, the administration of bicarbonate of soda might be tried with advantage. Dawbarn's suggestion of bandaging the limbs is to be employed in conjunction with the respiratory suction. This would have the effect of drawing the blood to the right heart, not only from the vena cava but also from the portal capillaries. There is one danger suggested by Simonds (*Jour. Amer. Med. Assoc.*, September 15, 1917): the suction might, in fat embolism, draw the fatty globules from the lung to the left auricle, and be there sent with fatal effect to the brain. Shock, Parham says, must be considered a disordered condition of the higher nerve centers, due to the centripetally carried impulses of irritation resulting from traumatism, the lowered blood pressure, diminished sensibility, pallor, cold skin, and feeble pulse are to be explained by the diminished volume of blood sent out by the heart owing to its being locked up principally in the splanchnic area. In operative work it may be prevented by local analgesia, whenever it can be applied, and in the traumatisms of accident and war is to be treated by quieting by morphia the irritation of the nervous centers by favoring the flow of blood from the stagnant splanchnic area to the heart and brain and by the application of heat to the surface. The flow of blood to the heart is favored by elevating the lower part of the body and by utilizing the thoracic pump, by

the stimulating effect on respiration of carbon dioxide. Stimulants seem to have no place in the treatment of shock, but the use of saline infusion, of the transfusion of blood with the aid of such agents as pituitrin to raise the blood pressure, may be of temporary benefit. Hypertonic salt solution, with the addition of the calcium salts, will be better retained in the vessels than normal salt solution. Hogan's or Bayliss' addition of acacia to the fluid seems to offer some advantages over the simple physiologic salt solution, but since the escape from the vessels of the blood plasma is a prominent feature in pronounced shock, as shown by the British Research Committee, it can hardly be expected that any of these solutions, even blood itself by transfusion, will remain in the vessels under aggravated conditions of shock unless reaction can first be brought about by other measures, such as suggested by Porter. Such a condition of shock is practically hopeless.

Information Bureau Concerning Nation's Hospitals.—Information concerning the hospitals of the United States has been collated and indexed in the medical section of the Council on National Defense. A central bureau of information concerning the hospital facilities of the country under war conditions is thus provided. The data will be kept up to date from month to month. The bureau has the details of over 1,000 active hospitals and is gathering full data concerning 8,000 other institutions, which include sanatoria, infirmaries, homes, asylums, and dispensaries. What each hospital has contributed in the way of medical men and nurses for war service has been entered on the cards.

American Women Doctors in Foreign Service.—The American Red Cross has sent forty-three women physicians into foreign medical service. These women have not gone as a unit but as individuals and are serving in other countries as well as in France. A list of the names shows that they have come from all parts of the United States.

The Army Nurse Corps.—The strength of the Army Nurse Corps on May 6, 1918, was 9,824, and of this number 3,488 are in service in France or awaiting transportation. These nurses are all women and are all on active duty. On the basis of the present size of the United States Army, the Surgeon General's office computes that at least 24,000 nurses will be needed by January, 1919. If the rate of enrollment since January 1, 1918, continues through the year it will furnish only 21,338 nurses. The Surgeon General's office estimates that the rate of enrollment should be increased in order to meet the additional needs which will result from the large increase in the size of the American Army.

Staten Island Base Hospital Completed.—The United States Base Hospital at Fox Hills, Staten Island, is practically completed, and if necessary injured soldiers can be cared for at the present time. This hospital is said to be the largest on the Atlantic Coast and was built in ninety days, two thousand men having been employed in its construction. The plant comprises seventy-five buildings; among these there are three hospital structures, each accommodating 1,000 patients. Plans have been drawn for more buildings, which will

greatly increase the capacity of the hospital. Major C. A. Simons is in charge of the hospital.

Deaths in Air Camps.—The War Department has issued a report stating that there have been 192 deaths in flying accidents in the aviation schools and camps in this country and at Camp Borden, Toronto, from the date of the establishment of the camps to April 24, 1918. Ellington Field, at Houston, Texas, reports the largest number of deaths, 17, and Camp Taliaferro at Fort Worth, Texas, reports 15 deaths. Most of the remainder of the nineteen camps report only one, two, or three deaths.

The Roosevelt Unit in France.—The forty-sixth annual report of The Roosevelt Hospital, New York, recently made public, states that the Mackay Unit of Roosevelt Hospital in France has recently had under treatment 3,200 patients. Dr. Charles H. Peck, Major M. R. C., is the Director of the unit; Dr. James I. Russell, Major M. R. C., is Chief of the Surgical Division, and Dr. Rolfe F. Floyd, Major M. R. C., is Chief of the Medical Division. The unit includes twenty picked physicians from the visiting and house staff, sixty-five nurses, and high class picked men from other professions and trades, bringing the personnel of the unit up to 150 members.

Germans Destroy Dr. Carrel's Hospital.—The hospital established near the front by Dr. Alexis Carrel of the Rockefeller Institute has been persistently bombed by German aviators and almost demolished. The hospital constantly flew a flag bearing a large red cross and an immense white cross on the lawn served as a further mark of identification. Dr. Carrel will install his hospital in Paris or the suburbs.

Legislation Providing for Vocational Rehabilitation of Disabled Soldiers and Sailors.—A bill providing for the vocational re-education of disabled soldiers and sailors has been introduced in the Senate by Senator Hoke Smith and in the House of Representatives by Representative William J. Sears. The bill includes in its scope only men disabled in military or naval service. Under this bill the Bureau of War Risk Insurance shall have power, and it shall be its duty, to order the person included in this section to follow suitable courses of vocational rehabilitation to be prescribed and provided by the Federal Board for Vocational Education, and every person so ordered to follow a course of vocational rehabilitation while following the same shall receive monthly compensation in a sum equal to the amount of his monthly pay for the last month of his active service. Among the various provisions of the bill is one that all medical and surgical work or other treatment necessary to give functional and mental restoration to disabled persons prior to their discharge from the Army or Navy shall be under the control of the War Department and the Navy Department respectively. There is also pending an amendment to this bill which would include within the benefits of the bill men crippled or disabled in industry. Provision is made for the additional expenditure that this extension of the plan for rehabilitation would entail by which for each dollar of Federal money expended the State shall expend an equal amount for the same purpose.

Deaths in the Service.—MAJOR JAMES CHEW JOHNSON, M. R. C., died of heart disease, following a general physical breakdown caused by overexertion in pathological and research work in a base hospital in France, at his home in New York City, on May 11, aged 48 years. He was a graduate of Johns Hopkins University in 1890.

CAPTAIN HENRY CLEMENT WELKER, M. R. C., of Norristown, Pa., died at Walter Reed Hospital, Washington, D. C., on May 1. He was a member of Base Hospital Unit No. 34 from the Episcopal Hospital, Philadelphia. He was graduated from the medical department of the University of Pennsylvania in the class of 1906. He was a member of the Montgomery County Medical Society, the Medical Society of Pennsylvania, and the American Medical Association.

Dr. D. J. MOONEY, a recent graduate, attached to the house staff of the Post-Graduate Hospital, who went to France with the unit organized by that institution, was killed during the present season, according to a cablegram received at the hospital. No details are reported except that he lost his life during the early days of April.

Jewish Homes Offered to Government.—The trustees of the Montefiore Home and the Hebrew Infant Asylum have outlined plans for extending the work of their institutions to aid the Government in caring for wounded soldiers. The offer of 100 beds made by the Montefiore Home has been accepted by the Government, though as yet it has not been found necessary to use these facilities. An offer has also been made of the newly erected private hospital for the treatment of returning incapacitated officers, which is now under consideration by the Medical Department.

Offer of Long Island Home for Hospital.—Mrs. J. Elliott Langstaff has offered her country seat at Stony Brook, L. I., in the name of the Imperial Order of Daughters of the British Empire in the United States, to the Government for a convalescent hospital for officers.

Preparations for Red Cross Drive.—The organization of the Red Cross for the second war fund drive is completed. The drive, the aim of which is to raise \$100,000,000, will be known as the Second Red Cross War Fund Campaign. It will begin on Monday, May 20, and will continue one week. New York City's allotment is \$25,000,000.

In German Prison Camps.—LIEUT. ABRAHAM STRAUSS, M. R. C., of New York, who has been in France with English troops since last July, was captured by the Germans in the Peronne center on March 21. He is a son of Major Alexander S. Strauss of the National Guard of Rhode Island and a brother of Dr. Israel Strauss of this city.

LIEUTENANT ABRAHAM J. GORDON, M. R. C., of Newark, who went to France several months ago and was reported missing during the early part of April, has been located in a German prison camp.

Work for War Cripples in Pennsylvania.—A recent estimate, made by the Bureau of Employment of the Pennsylvania Department of Labor and Industry, indicates that 42,111 soldiers, sailors, and marines, crippled or permanently disabled in war service, may obtain in that State suitable employment there. A system of card files shows just where these men can be placed.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE PATHOLOGY OF THE TYPHOID MYELITIDES.

THE typhoid myelitides result from the various reactions and changes arising in the cord due to the specific bacillus or its toxins. Reproduced experimentally, the pathogenic rôle played by the bacillus and its soluble products has now been amply demonstrated and the medullary lesions are those found in other types of infectious myelitis. Macroscopically, the lesions are commonly grouped in foci involving one or several segments of the cord, but in some instances the foci may be scattered in a disorderly way throughout the medullary parenchyma. The lesions consist above all in foci of softening, ordinarily hemorrhagic in character, which may even reach a complete disfluence of the nerve tissue.

The cerebrospinal fluid is abundant, the brain pale, and the pia mater infiltrated by a mild edema. Microscopically, the pia offers a slight infiltration of round cells which invade the white matter in small foci. There is a mild degeneration of the posterior columns, the lesions attaining their greatest intensity in the second lumbar segment and sacral region. What is quite striking, besides the perivascular distribution of the embryonal-cell infiltration, is this same infiltration around the central canal. The gray matter is more involved in the anterior than in the posterior horns. The radicular cells likewise are frequently involved, presenting a marked chromatolysis or undergoing complete disappearance. The posterolateral and posterior cell groups are relatively intact; the neuroglia is in intense proliferation, slightly more evident in the anterior horns. The white matter is more particularly involved in the anterolateral columns; the majority of the cylinder axes are tumefied and their myelin sheaths are fragmented. No bacteria can be discovered. The anterior roots contain a certain number of fibers undergoing degeneration.

The importance of the vascular lesions is striking. The intramedullary vessels are gorged, their walls dilated and thickened, and surrounded by a ring of leucocytes, sometimes forming true pericapillary nodules. The nerve elements are involved, particularly the radicular cells, which are tumefied, their chromatophilous elements being disorganized,

undergoing fragmentation, and finally disappearing. The white matter also degenerates, the myelin sheath disappears from around the axis cylinder, a condition which gives a lacunar aspect to the cord. On the other hand the neuroglia proliferates.

It is hard to estimate to what extent repair can take place, but there are authentic instances of complete clinical recovery. Therefore, it is manifest that the elements of the medullary parenchyma are not death struck from the start and that if the action of the causative agent becomes exhausted a complete functional recovery is, at least, possible. Regeneration of the destroyed nervous elements is, of course, impossible, at least for the cells. A neuroglia sclerosis ensues at the spots where the nervous tissue has disappeared and the myelitis passes to a chronic state.

Long since, Voinot made systematic studies of typhoid cords and constantly found the lesion of the cells in dissolution to be limited to the chromatophilous elements, with migration of the nucleus, liquefaction, and disappearance of the myelin in the nerve tubules, a tumefied axis cylinder, which might be vacuolated or even suppressed in certain areas.

PYROGENIC THERAPY.

THE history of mental disease, from Hippocrates to Freud, is full of empiricism, of groping in the dark, of seeking mental effects in physical causes and in general of casting about for anything which offers the least ray of hope in an admittedly gloomy subject. Many of the old-time therapeutic methods are ludicrous enough, some of them seem impossible, and not a few were absolutely cruel. All were ineffectual. But it would seem that the height of empiricism was reached when the artificial production of fever was used to cure mental disease.

The method sprang out of the observations of the old clinicians who had noted a marked improvement or apparent cure in psychoses following a severe physical illness with pyrexia. Thus a depressed manic might have an attack of pneumonia and, following the crisis, come back to a cheerful and agreeable mental state. Or a paretic might get an infected wound with profuse pus-production; following recovery from which his mental state would clear up remarkably, he might even go on to a remission. From the observation of these phenomena it was but a step to the deduction of a cause and effect relation between them, and the next step was the artificial production of these states as a therapeutic measure in the psychoses.

Some believed that it was the accompanying leucocytosis which had the beneficent effect, so that the production of leucocytosis in one way or another was attempted. From this theory arose the administration of sodium nucleinate in mental disorder, especially in precox and paresis. Other observers held that the physical illness was the essential thing and favored such treatment as the administration of thyroid extract in manic-depressive states in large enough doses to cause the patient to

become ill in bed. The drug would then be withdrawn and the patient recover from both his physical and mental illness.

In a recent issue of the *British Medical Journal** Dr. Auld reports several cases in which he experimented with a bottle of colloidal platinum which was about a year old and which had apparently undergone some change on standing. A small dose of this substance caused a chill and fever much resembling the malarial paroxysm, followed by the subsidence of temperature and improvement in the patient's general condition. Dr. Auld tried this treatment in cases of empyema and pleurisy with good results. It is contraindicated, he said, by high fever, heart disease, high blood pressure, and arteriosclerosis. It is especially adapted to sluggish cases of localized infection with low fever.

Just what causes the alleged favorable effect of such a procedure as the above is a little difficult to say, although theories are not far to seek. Perhaps the intensification of leucocytosis, the rapid mobilization of antibodies, stimulation of protease and lipase, or alteration of the ferment-antiferment titre may all play a part in the process. Dr. Auld suggests that for routine use typhoid vaccine will probably be found to be the best pyrogen. The method is of course only in the experimental stage, but there seems to be no valid reason why it should not be tried in carefully selected cases, provided we heed its sponsor's warning as to contraindications and the avoidance of an overdose or anything like production of "shock."

WHEAT BREAD AND BERIBERI.

IN *Tropical Diseases Bulletin*, Vol. 11, 1918, No. 6, is a résumé by P. W. Bassett Smith of experiments made by Harriette Chick and Margaret Hume concerning the relation of diet to beriberi and polyneuritis avium. The occurrence of cases of beriberi among the military forces in the Dardanelles and Mesopotamia whose diet consisted largely of canned foods and white bread or biscuit made from white flour, directed attention to the examination of these foods as causative agents. The foods, by the heat sterilization they receive, are well known to be deprived of their anti-beriberi constituent. Chick and Hume, therefore, by a number of well-considered experiments, determined the nutritive properties of cereals generally, and wheat in particular. Two methods of experimentation are applicable—preventive and curative. The former was the most satisfactory method for determining the vitamine content of the foodstuffs, since it gives more regular results, but long and careful research is required so that curative experiments were also carried out. It was proved that in both the rice and wheat grain the anti-neuritic vitamine is concentrated mainly in the germ or embryo, a small amount only being present in the bran, all of which is absent in white

flour. Therefore, the importance is evident of including the germ in the flour from which the bread is made, especially when the diet consists largely of canned foods. It was found that "the daily ration of wheat germ required to be added to a diet of polished rice to prevent the onset of polyneuritis is the amount which, administered by the mouth, will cure a pigeon acutely ill with polyneuritis brought on by an exclusive diet of polished rice." It was also determined that the addition of wheat germ to a diet of polished rice sufficient to prevent polyneuritis also maintained the weight and general health of the birds. Rations in excess of this led to an increase of body weight and in the general well-being and vitality of the birds, whereas extracts of the rice, bran, or yeast, although sufficient to prevent polyneuritis, did not maintain weight.

A further series of experiments was made to determine the influence of exposure to high temperatures on the vitamins in the different foodstuffs, the deficiency of which causes polyneuritis in birds and beriberi in man. Although many observations on this point have been made, no accurate readings have been systematically taken before of the real temperature reached and maintained in the interior of the substances heated. Chick and Hume describe in detail the method employed, and from the tests curves were constructed from which accurate estimates could be made of the temperatures actually experienced by the materials exposed. From these they drew the following conclusions: (1) Exposure of wheat embryo to a temperature of about 100° C. for two hours resulted in no significant loss in anti-neuritic vitamine. If, therefore, the embryo is included in the flour from which the bread or biscuit is made, it can be relied upon to retain its anti-neuritic properties after baking. (2) At temperatures of about 120° C., however, there was a swift destruction of anti-neuritic properties. When soluble yeast extracts containing about 35 per cent. of solids were similarly treated, slight loss of vitamine was evident, after one hour's exposure to 100° C., relatively rather more than with wheat embryo; but at 120° C. destruction of the vitamine was rapid.

As regards the distribution among foodstuffs, especially those suitable for the rationing of armies, of the substances required for the prevention of beriberi and scurvy, they found that in the preparation of extracts there was always a large amount of loss in the active principle; for example, 10 grams of dried peas was curative in beriberi or scurvy, whereas it took an extract of 40 grams to give the same result. They showed that the anti-beriberi vitamine is very widely spread, being present in a greater or lesser degree in almost every natural foodstuff, but that the principal source is found in the seeds of plants and the eggs of animals. They demonstrated that the vitamine is fairly resistant to heat, and that it is most abundant in the germ of the cereals.

An interesting object lesson was given by the conditions of the British troops during the siege of

*Pyrogenic Therapy, with Remarks on Colloidal Metals. By A. G. Auld, MD. *Brit. Med. Jour.*, Feb. 16, 1916.

Kut. In the early stage, beriberi occurred among the British troops, but it then disappeared. During the first two months they received a ration of wheat flour, but after that from one-third to one-half of the flour was replaced by barley flour and coarse milled wheat flour. These men were also protected from scurvy by receiving an ample ration of horse meat. On the other hand, the Indian soldiers were supplied with cereals and beans, containing an abundance of anti-beriberi vitamins; these had no antiscorbutic properties, and as they did not eat meat, and fresh fruit and vegetables were not procurable, scurvy was very prevalent among them. The deduction was therefore drawn: For the prevention of beriberi it is in the highest degree desirable that the germ and the bran of the wheat should not be excluded from the flour destined for manufacture of bread and biscuit for troops on active service. This is the more necessary when the troops are separated from fresh-food supplies and the rest of the ration consists largely of canned foods, seeing that these articles are deficient in all vitamins owing to their previous sterilization at high temperature. To prevent scurvy, if a supply of fresh fruit or vegetables is not procurable, germinating pulses should be added to the diet.

CANCER IN PORTO RICO.

PORTO RICO is a geographically small, homogeneous community with good vital statistics, and a study of cancer as affecting its inhabitants should be of interest. From figures published by del Toro in the *Boletín de la Asociación Médica* for March it does not appear that the malady is on the increase, although the death rate was above the average during 1914-16. For 1916-17 it agrees quite closely with the figures for 1912-14, being around 1.13, while in 1914-16 the average was 1.345. The figures for San Juan show a similar variation. The average for the five years for the city is 2.45 cancer deaths in one month. No figures are given before 1912, but the author states that the death rate has increased in the past twenty years. Of 141 cancer deaths in San Juan in the past five years, 77, or over one half, the disease was seated in the uterus and breast (59 in the uterus alone). In only one other locality, the penis, were two figures reached (10 cases). There were but 5 cases of gastric localization and but 2 of the bowel. In contrast with these low figures we see 8 cases of cancer of the liver and 7 of the tongue. Of 141 cases but 17 were subjected to the knife in the strictly operable stage, while 84 interventions were practised at an advanced stage. Twenty-six hospital cases of sarcoma are not enumerated under cancer.

If this small material were to be studied by a statistician not familiar with the great variability of cancer, he would doubtless be impressed with the fact that in 91 of 141 cases a sexual organ was the seat of the disease (including scattered cases of the vulva, prostate and testicle), and might hastily conclude that cancer was largely a malady

of such organs—a conclusion which would be controverted by statistics of other countries, Scandinavia, for example, where one could well regard it as a malady of the digestive organs. Next to the 91 cases in sexual parts come 31 cases in which some locality in the head or neck was the site of the disease. These could be explained by the inevitable contingent of epithelioma about the head and face and in the buccal cavity and throat. The digestive organs, with the exception of the liver, show a relative immunity, and there is not a single case of cancer of the colon.

In a second article on cancer in the same journal by Aviles, attention is called to the fact that in 1916 and 1917 one cancer death occurred daily in Porto Rico. The author contrasts this with the calculation that in the United States a cancer death occurs every six minutes. The ratio is 240 to 1, while the population ratio of the two countries is somewhat over 100 to 1. In other words the cancer death rate in the island is less than half that of the United States.

NECROPHAGIC INSECTS.

THAT certain insects at times feed on the dead human body, and may even prey upon it before death, is known to medical jurists even in temperate climates because the resulting disfigurement has caused suspicion of foul play. The chief offenders in this respect have been ants. That such happenings may occur with much greater frequency in hot climates is borne out by an article from the pen of Freire of Bahia (*Brazil-Médico*, January 5) on necrophagic ants. In the Nina Rodrigues Institute in that city it is not uncommon to see in cadavers, including those of stillborn and abandoned infants, lesions of the lips, ears, fingers, etc., due to some species of ant. There appears to be a species of the latter, the *Camponotus abdominalis*, subspecies *atriceps*, which merits the distinction of necrophagic and which conceivably can in sufficient numbers destroy an entire cadaver so far as its soft tissues are concerned. They may be found in association with cadaveric flies, but when present in sufficient numbers can destroy the small cadavers of newly-born children in a surprisingly short time, leaving only the bony and cartilaginous structures. The voracity displayed by these insects is incredible. Unlike cadaveric flies, moreover, the ants prefer a recent cadaver and do not molest one which is in full putrefaction—at least this is true of the *Camponotus*. A comprehensive survey of the ants in the vicinity of Bahia shows that species from other genera are also necrophagic, a large number being described.

News of the Week.

Conservation of Sugar, Glycerin, and Alcohol in Medicines.—Because of the discussion throughout medical and pharmaceutical circles relative to the need of conserving alcohol, glycerin, and sugar, as applied to medicinal products the governmental and other authorities have met and debated the advisability and necessity of conservation measures

from the standpoint of medical needs. As a result of this conference it was deemed advisable to refrain at this time from recommending conservation of sugar and alcohol in so far as their use in pharmaceutical preparations is concerned. The amount of glycerin used in medicine when compared to the available supply was found to be relatively large, and a committee was appointed to investigate formulae, manufacturing processes, etc., requiring glycerin, and to submit plans for the curtailment of the quantity now used in case future developments should make it necessary to adopt conservation measures in relation to medicines.

The American Red Cross has allotted \$25,000 to the Henry Street Settlement for the purpose of speeding up the training of public health nurses needed here and for reconstruction work in France. The course will be open to three-year undergraduate nurses and the term will be from June 1 to September 30.

German Hospital Changes Name.—The directors of the German Hospital, Jersey City, have unanimously voted to change the name of this institution to the Greenville Hospital.

Classes for Clinic Assistants.—In order to supplement the shortage of nurses a new course for hospital clinic assistants has been begun at Teachers College in co-operation with the Bellevue Hospital Social Service, the Federation for Child Study, and the Peoples Institute. Attention will be directed more particularly to child hygiene, nutrition, and related topics that will prepare students to work in the child clinics and social service departments of hospitals. The course aims to train applicants to be clinical secretaries so that they may not only supplement the nursing service but may be useful in assisting to conserve the time of doctors.

Columbia University Lengthens Medical Course.—A resolution presented by the Faculty of Medicine, providing for the addition of a fifth year to the medical curriculum, has been adopted and will become effective for the class entering in September, 1918. The plan adopted involves a redistribution of the clinical subjects taught during the earlier years of the course so that they will be co-ordinated with the fifth clinical year, which will be conducted under college discipline.

Another Hospital for New York.—A campaign has been launched to secure a fund for the erection of a new building on the site of the People's Hospital at 201 Third Avenue, New York. The need of such a hospital is said to be demonstrated by the marked increase in the number of physical defects among the poor in that locality. The plans proposed call for a ten-story structure with full modern hospital equipment. Of the \$250,000 that is needed \$50,000 has been subscribed.

Civil Service Examinations.—The Civil Service Commission of the State of New York announces an examination for the position of Physical and Mental Diagnostician, open to men or women. Applicants must have had experience in the study and treatment of tuberculosis and special training in abnormal psychology, together with experience in the diagnosis and treatment of nervous and mental diseases, and must also be familiar with institutional methods in dealing with mental defectives and psychopathic children. The position carries a

salary of \$4,000. An examination is also announced to fill the position of Instructor in Hygiene. Applicants for this position must be college graduates licensed to practice medicine in the State of New York and must have had broad experience in lecturing on sanitation and hygiene.

Another Pre-natal Clinic for New York.—The Bowling Green Neighborhood Association announces the opening of a pre-natal clinic in the home of that organization, 45 West Street, Manhattan. Pre-natal care was first made a part of the work of this organization when the New York Milk Committee introduced it in 1914. The work was turned over to the Bowling Green Association last year, so that the opening of this clinic is but a step in the expansion of pre-natal work at this center.

In Honor of Dr. Samuel D. Risley.—A testimonial dinner was given at Philadelphia on May 2 on the occasion of the retirement from hospital practice of Dr. Samuel D. Risley, after forty years of continuous service, and he was presented with a silver loving cup. Dr. G. Oram Ring presided and acted as toastmaster, and the speakers included Dr. E. E. Montgomery, Ex-Governor Edwin S. Stuart, Dr. Charles K. Mills, Dr. Howard Forde Hansell, Dr. Peter N. K. Schwenk, Dr. B. Alexander Randall, Dr. William Campbell Posey and Dr. John B. Deaver.

Medical Society Elections.—THE ASSOCIATION OF AMERICAN PHYSICIANS, which met in Atlantic City, N. J., on May 7 and 8, elected the following officers for the ensuing year: *President*, Dr. Alexander McPhedran of Toronto; *Vice-President*, Dr. Herman M. Biggs of New York; *Secretary*, Dr. Thomas McCrae of Philadelphia; *Treasurer*, Dr. J. A. Capps of Chicago; *Councillors*, Dr. Theobald Smith of Princeton and Dr. C. F. Martin of Montreal.

THE AMERICAN SOCIETY FOR CLINICAL INVESTIGATION at its annual meeting in Atlantic City, N. J., on May 5 and 6 elected the following officers: *President*, Dr. H. A. Christian of Boston; *Vice-President*, G. Canby Robinson of St. Louis; *Treasurer*, Dr. Alfred F. Hess of New York; *Secretary*, Dr. Walter W. Palmer of New York; *Councillor*, Dr. George Blumer of New Haven.

THE STATE HOMEOPATHIC SOCIETY and the ECLECTIC STATE MEDICAL SOCIETY OF SOUTH DAKOTA, at their joint meeting held in Sioux Falls on April 24, elected the following officers: *President*, Dr. J. W. Elis of Elk Point; *Vice-President*, Dr. C. Clark of Woonsocket; *Secretary and Treasurer*, Dr. E. W. Fiege of Huron.

THE MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS, at its annual meeting held in Boston on April 27, elected the following officers: *President*, Dr. Frank J. Schubmahl; *Vice-Presidents*, Dr. H. H. Howard, Dr. C. S. Benson and Dr. John E. McCartin; *Secretary*, Dr. J. H. Stevens; *Treasurer*, Dr. John Phelps.

Maternity Center Opened.—The Women's City Club of New York, which is co-operating in the work of Baby Year, has opened a maternity center at 218 East 74th Street. The work of the center includes the securing of expert treatment for those who develop symptoms of abnormalities and aiding mothers and babies who need special care. Mothers are shown the proper outfits for babies and how to make the necessary clothing from ma-

terial supplied to them at cost. The committee is working on plans for supplying proper food to expectant mothers at cost.

Public Health Service Combating Pellagra.—The United States Public Health Service is making an effort to reduce the prevalence of pellagra in certain sections of the country and thereby increase the efficiency of labor at this crucial time. According to estimates made by the Public Health Service there are 125,000 persons who had this disease last year and of these more than 6,000 died. The campaign will consist in educational propaganda teaching that the disease may be prevented by a well-balanced diet, including sufficient quantities of milk, lean meat, beans, peas, and green vegetables. The literature of the Public Health Service contains bills of fare which are recommended to prevent or cure the disease.

Death Rate from Tuberculosis in the Principal Cities of the United States.—According to a bulletin published by the Health Department of Chicago, among the ten principal cities of the United States Pittsburgh has the lowest death rate from tuberculosis, for the year 1917, the rate being 147.05 per 100,000 population. Chicago is a close second with a rate of 148.67 per 100,000. The rates of other cities in this group are: Detroit, 160.66; Boston, 170.87; Cleveland, 174.7; New York, 176.75; Philadelphia, 194.81; Los Angeles, 199.42; St. Louis, 202.95, and Baltimore, 236.61.

Obituary Notes.—Dr. ISAAC ADLER of New York died at his home in this city on May 4, aged 69 years. He was born in Alzey, Germany, in 1849, and was a graduate of Heidelberg in 1871. He had been Professor of Clinical Pathology at the New York Polyclinic Medical School and consulting physician to the Polyclinic, German, and Beth Israel Hospitals, and to the Montefiore Home. Dr. Adler was a member of the American Medical Association, the Association of American Physicians, the American Pathological and Bacteriological Society, the American Society for Clinical Investigation, the Gastroenterological Association, and the New York Academy of Medicine.

Dr. CHARLES ORVILLE BECHTOL, a graduate of the University of Illinois College of Medicine, in 1901, died at his home in Marion, Ohio, on April 21, aged 44 years.

Dr. WILLIAM HENRY HARRISON VARNEY of Charlotte, a graduate of the Berkshire Medical College, Pittsfield, Mass., in 1862, died at a hospital in Burlington on April 22, aged 78 years. Dr. Varney practised medicine in Vermont for fifty-five years and served as representative from Charlotte to the State Legislature in 1888. He also served as health officer of Charlotte, and was a member of the board of pension examiners.

Dr. JAMES RUNDLETT MAY, a graduate of Jefferson Medical College, in 1866, died at his home in Portsmouth, on April 22, aged 77 years. He was an assistant surgeon in the Civil War and later served on the Board of Pension Examiners. Dr. May was Director of the New Hampshire Society for the Prevention of Cruelty to Animals.

Dr. JOHN N. HELMKE, a graduate of the University of Louisville, Medical Department, in 1875, and a surgeon during the Civil War, died of bronchopneumonia, on April 19, aged 83 years.

Dr. PAUL NATHAN LITCHFIELD died at Camden, N. J., on May 1 at the age of 44 years. He was graduated from Jefferson Medical College in the class of 1895. He was a member of the New Jersey House of Assembly and he was connected with the staffs of the Tuberculosis Hospital at Ancona, N. J., and with the County Hospital at Blackmoor, N. J.

Dr. AUBREY J. RICHARDSON, formerly of Philadelphia, died at Pasadena, Calif., on May 4 at the age of 59 years. He was graduated from Hahnemann Medical College and Hospital of Pennsylvania in the class of 1882.

SURGEON WILLIAM H. RUSH, U. S. N. Lieutenant Commander, retired, died recently at Ardmore, Pa., at the age of 66 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1873. He was for many years surgeon of the old training ship, "Saratoga." He was commissioned assistant surgeon in the Navy in 1877. Three years later he became a passed assistant surgeon and in 1894 surgeon.

Dr. HENRY MERRIMAN WILSON died at his home in Baltimore on May 8 at the age of 90 years. He was graduated from the University of Maryland Medical Department in 1850 and for many years was president of the medical faculty of that institution. He was also a former president of the Gynecological Society of Baltimore.

Dr. EPHRAIM MORRISON, a graduate of Bellevue Hospital Medical College in 1875, died at his home in Newton, N. J., at the age of 66 years.

Dr. GEORGE W. BLISS of Valley Springs, So. Dak., died of pneumonia in a local hospital on April 29, aged 50 years. He was a graduate of the College of Physicians and Surgeons, Minneapolis, in 1895.

Correspondence

THE RED CROSS AND ANIMAL RESEARCH WORK; A PROTEST BY THE BUFFALO ACADEMY OF MEDICINE.

A SPECIAL meeting of the Buffalo Academy of Medicine was called on April 24 to consider the recent action of the American Red Cross in revoking its decision to appropriate money for animal research work, and allowing individual generosity to refund that already expended and also to supply funds for the continuance of the work. The attention of the Buffalo Academy of Medicine was called to this matter by a statement for publication issued by Harvey D. Gibson, general manager of the American Red Cross in Washington, which statement appeared in the *New York Times* on April 11, 1918. Mr. Gibson explained briefly why the Red Cross first decided to undertake animal experimentation which was done "upon the recommendation of army medical officers and a number of eminent scientists in this country." He also stated that prompt action was necessary; that the use of money in this way was proper from the Red Cross point of view, because it would be difficult to imagine any more important duty upon the Red Cross than to seek for any means of prevention and remedy for sickness among soldiers." He further stated that "the Red

Cross does not believe it should take action either for or against animal experimentation."

After a careful consideration and thorough discussion of this action of the American Red Cross, the Buffalo Academy of Medicine by unanimous vote appointed and instructed a committee to prepare a strong protest against what it believes to be an ill-advised procedure, which is contrary to the policy adopted by the military authorities. If the original decision of the Red Cross to appropriate money for animal research was wise, the reasons for its change of policy are weak and unconvincing. The committee submits the following report, which it has been directed to transmit to the American Red Cross, the local Red Cross, and to the medical journals and public press.

It is with regret, deeply tinged with indignation that the Fellows of the Buffalo Academy of Medicine learn of the recent decision of the American Red Cross to withdraw appropriations of money for animal experimentation in its medical and surgical work at home and abroad.

To animal research work the world owes almost innumerable important discoveries. What would be our unfortunate and helpless position to-day without diphtheria antitoxin, antimenigitis serum, antitetanic serum, vaccination against typhoid, without the Wassermann test and salvarsan? The value of these has long since passed the experimental stage. Not a single dose of these remedies can be standardized without tests upon animals. In the domain of surgery who can estimate what animal research work has added to the successful results of the surgeon in aseptic and antiseptic surgery, bone grafting, the surgery of arteries, nerves, joints, intestines, and, in fact, all branches of operative repair? Even the diseases of animals have been equally lessened by knowledge gained through experimental research. Is it generally appreciated that every sterile dressing, the simple first application of iodine, even the cleansing of the hands and much of the simplest work of the surgeon and nurse owe their origin to biological research?

We have not yet by logical reasoning reached the conclusion that the life or temporary illness of a guinea pig, mouse, or any animal can be considered when the life of man is at stake. Has the welfare of the lower animal attained special importance just now, when millions of men are offering the supreme sacrifice in a foreign land? Animal experimentation and biological research have never been so vitally necessary as in the present war. The demand to-day is imperative to save every life possible, which is endangered by the horrible methods of a barbarous foe. In every properly conducted modern laboratory animal suffering is minimized to the last degree, not only from humane motives but to obtain more accurate scientific results. The benefits are immeasurable, while pain is absent or infinitesimal.

It is impossible to estimate how seriously interference with animal experimentation will affect the safety of our soldiers and sailors. It will make impossible the conquest of several terrible diseases likely to become prevalent in our army, and which may later spread to our civil population.

Scientific investigation is now particularly directed toward lessening the ravages from pneumonia, gas-gangrene, and trench fever. There are hopeful signs that this will be accomplished in the near future, if not prevented by ignorant and vicious interference. We agree with the *New York Times* that "Red Cross money, in the amount that was proposed, could not possibly have been better invested than in the establishment of a biological laboratory near the scene of war, for the study of the maladies of soldiers, which this sort of research work has not yet conquered."

As American citizens we are opposed to making this vital work dependent upon the beneficence of any individual, or to the Red Cross delegating or dismissing the matter by leaving it to the generosity of any person or group. The money is given the Red Cross to prevent and relieve suffering, and save lives. It is a distinctly national duty in every way, due to those who offer their lives for their country and should be met squarely and not dodged or evaded. We regret that the American Red Cross officials yielded to the threats of the antivivisectionists and like propagandists.

We ask assurance that provision be made for adequate experimental laboratory work. It is distinctly the function and duty of the Government to supply this need through a national agency such as the Red Cross or the War Department.

The American Red Cross by its decision made in weak compliance with the threat of an intolerant minority of its provisional supporters has established a precedent which may prove calamitous and far reaching in sinister consequences. Other irrational demands will follow and additional attempts to render scientific advance impotent will be aimed at our Army, Navy and public Health Service. Already seditious advice has been published, plainly designed to discourage enlistment and to obstruct the draft, by false and malicious statements concerning vaccination for the prevention of various diseases in the Army. This advice is fully as vicious as any promulgated by the German propagandists. The Red Cross by its action has taken a long step backward and failed to render deserved recognition of medical science.

The medical profession has been very patient and silent under the load of malignant abuse and false accusation, but growing resentment and an increasing determination to resist the intolerable fettering influences, forced upon it by perverted or delusional doctrines must lead to stern resistance. The time has come for us to protest against national submission to ignorance and fanatical prejudice, and we appeal for scientific progress, and for the return to common sense. The physicians and surgeons of America do a large proportion of the active, effective work of the Red Cross, and therefore we feel justified in stating our position.

We recognize and appreciate fully the splendid and tremendously efficient work of the American Red Cross. We realize that the sacred obligation to loyally support the Red Cross rests upon each and every citizen of the United States. We pledge our continued, devoted support to the Red Cross. We will not attempt to coerce the American Red Cross by the threat of discontinuance of personal and

financial aid, as did the opponents of this measure, which action we regard as most unpatriotic.

IRVING M. SNOW, M. D.
JOHN H. PRYOR, M. D.
HENRY C. BUSWELL, M. D.
F. PARK LEWIS, M. D.
JAMES W. PUTNAM, M. D.
EARL P. LOTHROP, M. D.
DEWITT H. SHERMAN, M. D.
JAMES B. CROSS, M. D.

Committee.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE MEDICAL CERTIFICATION OF RECRUITS—THE COMING MINISTRY OF HEALTH—THE ADJUSTMENT OF DIET—DEATH OF MR. GUY ELLISTON.

LONDON, April 18, 1918.

WITH the large extension of the military age, namely, from 41 to 51, and in the case of medical men to 55, the medical certificates in connection with the men appearing before the National Service Medical Boards will have to be very carefully given. Frequently medical certificates purport to prejudge a man's fitness or unfitness for military service, though written with absolute sincerity by the medical practitioner. The authorities at the National Service headquarters acknowledge that a well-drawn certificate from a private practitioner may be of great assistance to any recruiting board, and they say, though not to a very convinced audience, that such certificates receive full consideration before the boards come to their decisions on the cases in question; but what the private practitioner has to remember is that many men, holding that their work in a civil capacity is at the present time more valuable to the conduct of the war than anything which they can conceivably learn to do after enlistment at this late date, will try to evade military duty. The responsibility of medical men for the absolute accuracy of their certificates must in such cases be deeply realized, and the Minister of National Service has issued a circular notice to this effect during the present week, quoting the penal powers which may be exercised by the General Medical Council against practitioners who certify loosely. There is no doubt that these powers will be used where necessary.

Despite the fact that the political program appears already overfull, and that the position of military affairs on the English front is at this date of writing in a confessedly critical condition, rumor again has it that a bill may be brought into the House of Commons to set up a Ministry of Health, and to coordinate under one roof and one cabinet minister all the functions now discharged by the medical branches of half a dozen different government departments. Principal among these departments are the Local Government Board of the State authority for preventive medicine, and the Fraternal Insurance Commission as the State authority for the clinical care of from 12 to 14 millions of the population. The free discussion held by the fellows of the Royal Society of Medicine on April 15 to consider the position of the medical profession of the country under such a grand departure, though initiated by the opener as an academic de-

bate, had behind it a practical purpose. That purpose was to stir the medical profession to consider their position and to be ready to take concerted action in the direction best needed for the maintenance of the health of the country when the new legislation came actually upon the tapis. It is certain that any measure of national health must be in full accord with the best scientific opinion if any real satisfaction for the country is to be derived from its operation; and it is necessary that the medicine of the country should be ready with that opinion at the proper time, and not be found differing over details and thus frittering away its influence. The debate was opened by Surgeon-Major Gordon Dill, a distinguished provincial physician, senior on the staff of the Sussex County Hospital, which has been the center of strenuous war work at Brighton, who presented a scheme which fused under one head, to be a minister of cabinet rank, the preventive and clinical medical practice of the country. The minister was to have four assistants-in-chief (one each for England, Ireland, Scotland, and Wales), each of whom was to have a chief of executive for (a) preventive and (b) clinical practice. Under the first would fall all the existing activities of the Local Government Board and the Board of Education, and under the second the work now done by the voluntary hospitals, the poor-law infirmaries, and the panel practitioners. The energies of both sections were to be combined at the periphery, institutional treatment and laboratory facilities being common. Under such a scheme Major Dill claimed that all existing interests would be maintained, and a proper future assured both for the thousands of practitioners who have now left their private work for years to assist the medical service of the army and navy, and for the oncoming students who might be expected to join, not only in good quantity but in fine quality, a service of such promise. The scheme was blessed in the debate by Sir Arthur Newsholme, principal medical officer of the Local Government Board, who spoke with great official caution, but who testified with unchallengeable figures to the progressive work of his department; and Surgeon-General Sir Bertrand Dawson, a powerful member of the Army Advisory Medical Council, who sketched the future of medical practice, when all the practitioners of a locality had at their disposal a properly equipped hospital, with annexes for every specialty and a good laboratory, the buildings to be found and kept up by the State. The scheme was avowedly a *ballon d'essai*, put forward to excite interest and challenge amendments, and as such may prove a valuable nucleus for future communications. Sir Arthur Newsholme's speech made it fairly clear that the wisest course for new legislation to take would be to constitute any new department a branch of the Local Government Board, which has under its hands already the charge of so many important medical interests. And when the new department grows too big for the parent nest it will be time enough for it to start on an independent career.

The Royal Society has issued a wide, and what may be a quite useful invitation to naturalists, chemists, botanists, and all practical observers, to send in suggestions for the utilization as food of material hitherto unemployed in the British diet.

There is no doubt that the committee receiving the varied suggestions will soon have their desk loaded with impossible ideas and cranky formulæ and recipes, but among the dross there should be ore. To begin with, the fresh-water fish of the British Isles is almost uneaten, but in bulk it counts for a good deal, and some of it is quite good, and the experience of certain inland lake localities will here be very useful. Botanists know of many substitutes for green vegetables which grow wild in wood and hedgerow, and although a promising season for regular vegetables approaches, it will be sound economy to investigate the claims of anything that might supplement them. But to chemistry the mind naturally turns as the science of all others that may here be useful, for the production of synthetic food is in its infancy. Simultaneously with the invitation of the Royal Society there has been published by the Medical Research Committee a most valuable report upon the diet of the munition workers, prepared by Captain M. Greenwood, a well-known statistician, and Lord Dunluce. The conclusions of the report are based on data collected during the early part of last year, for the most part, in the canteens and hostels serving the munition factories, and its principal message is that in the immediate future we must look to carbohydrates as the chief provision of energy for work to be done. A radical reduction of fats will be necessary, in view of the short supply of meat and fat-supplying commodities, but the observers assure us that the energy to be derived from potatoes and cereals can be safely substituted. They give in support of their views a determination of the proportions of the various ingredients of a diet, and the number of calories needed to maintain life under conditions of varying stress, the whole forming a highly practical document, which should be of great use to the community at the present time, if its lessons are acted upon by those in authority.

The medical profession of the country, a not too well organized body, has suffered a severe loss on its business side by the sudden death of Mr. Guy Elliston, for just upon twenty years financial secretary and business manager of the British Medical Association. Elliston, who was trained with a big steamship company in commercial methods, and who learned the managerial side of journalism at the office of the *Naval and Military Magazine* and the *Public Health Magazine*, took over the financial management of the British Medical Association exactly as that body was undergoing thorough reconstitution. Reconstitution, for purposes of expansion, as well as of reform, is apt to be a very costly affair, and the association, which was rich when it started on what was practically a new career, spent its resources royally, but also quite judiciously. Large liabilities were, it is true, incurred, but a large increase in income and in stability of position was secured, and, much owing to Elliston's acumen and devotion, the association would soon have been out of debt, when, and only some nine years after the rebuilding of the premises and the entrance upon heavy commitments, Mr. Lloyd George introduced the National Insurance measure. This measure convulsed the medical profession and threw a grave strain upon the finances of the association; but Elliston's conduct of affairs again

brought the concern through well, though not to enjoy for long freedom from monetary cares. For three years after the introduction of national insurance came the outbreak of the great war, and Elliston from the beginning had to face difficulties which steadily increased as time went on, in connection with the issue of the *British Medical Journal*, whose revenue, looked at in one way, is the main source of income of the association. He worked unsparingly and successfully in circumstances of the greatest difficulty, and it is more than likely that his rapid succumbing to an attack of pneumonia was due to the fact that, always a delicate man, he had overtaxed his strength. Elliston was a younger son of the late Dr. William Elliston of Ipswich, and was 48 years of age. His father had been president of the British Medical Association.

OUR LETTER FROM PARIS.

REST AND CONVALESCENT CENTERS—SAVING THOSE WHO CANNOT SAVE THEMSELVES.

PARIS, March 25, 1918.

GENERAL PERSHING having some time since prohibited Paris as a leave center for the soldiers, other appropriate points had to be selected, and among them the Medical Authorities selected Aix-les-Bains and the Savoie region. The opening of the American Army rest camps in the Savoie region occurred on February 25, the first contingent of Uncle Sam's fighting men is expected to arrive this afternoon, or at the latest tomorrow. Hotels are ready to receive them, and the army has provided for everything that will make the men comfortable and feel at home. By next Wednesday there will be some three thousand troops enjoying the pleasures and wonderful climate of middle France.

Before some forty directors of various Red Cross activities yesterday afternoon, Mr. Edward Eyre Hunt, chief of the Bureau of Reconstruction and Relief and formerly delegate of the Commission of Relief in Belgium for the province of Antwerp, and Dr. Edward T. Devine, chief of the Bureau of refugees, described Red Cross work in the field as observed by them on recent inspection trips. The meeting was held in the office of Mr. Homer Folks, director of the Department of Civil Affairs.

Mr. Hunt spoke enthusiastically of the work in the liberated regions, where the effort of his Bureau is concentrated on increasing the agricultural production and thus releasing shipping from America for munitions rather than food. "Every brick means ounces of bread," he said.

Dr. Devine described the work for Refugees in the provincial department.

These are the elements of our problem: communities already full to the point of saturation, lodgings scarce or non-existent, food and fuel equally scarce, the residents naturally hospitable, but sorely tried by previous experiences; refugees weary, worn, grief-stricken, glad to be repatriated, wondering what fate may have in store for them next, discouraged, pathetically receptive.

Into this situation comes the fresh, vigorous, carefully-instructed, enthusiastic, eager Red Cross delegate; a credit of 5,000 fr. in the bank, with more to follow if it can be wisely used; supplies in the Paris warehouses ready to be sent if the embargo

permits; officials a little puzzled at first, but ready to accept our assistance, and ordinarily keen about it after the first or second interview. We are taking it for granted that the lodging, ordinary food, and the greater part of the clothing required will be supplied by the Government, in so far as the families cannot supply these things for themselves; that our task is to make the homes hospitable, sanitary, even if we can, comfortable. In other words, that we are to install the families in their foyer, to make them feel "chez eux" in the midst of themselves, so to speak. We are supplying clothing, fuel, even in some cases tools, chickens, materials with which to work; but our long suit is furniture—beds, tables, chairs, stoves, buffets, mattresses, bolsters, and blankets. Five hundred francs we are spending when necessary on the family, 100,000 fr. for a convoy of 600 people. Every day a convoy like this is arriving somewhere in France; every day our delegate is there to meet it.

It is a necessary task; it is meeting a war problem; it is helping the victims of the war; it is preventing this increment of the population from adding to the disaffected, unjustly treated elements of the population, and transforming them, to some extent, into hopeful and productive families. It is removing obstacles from before their feet at the moment of their entry into their home country; it is holding out to them hands of sympathy, of encouragement, of brotherhood; it is an expression of a Franco-American alliance; it is an expression of American generosity in war time, a legitimate expression of Red Cross sentiment, of the spirit of humanity and justice and democracy, for which, in this war, America and her allies, France and her allies are jointly battling.

Miss Margaret Curtis of Boston, who is arranging to repair and complete Paris buildings hitherto unoccupied, making them available as lodging for refugees, and Mme. Eduard Fuster, of Dr. Devine's bureau, also told of their work.

145, AVENUE DES CHAMPS ELYSÉES.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

May 2, 1918.

1. Random Remarks on Tuberculosis. John B. Hawes.
2. Medical Competence and Hospital Efficiency. Francis D. Donoghue.
3. Radium in the Treatment of Carcinoma of the Buccal Cavity. Robert B. Greenough.
4. A Study of Diphtheria Carriers. D. M. Lewis.
5. A Plea for a Legitimate Trial of Scientific Medical Methods in Chronic Intestinal Conditions Before Resorting to Surgical Interference. Mabel D. Ordway.
6. Primary Syphilis of the Eyelid, with Report of a Case. Henry D. Lloyd.

4. A Study of Diphtheria Carriers.—D. M. Lewis points out that measles is often followed by diphtheria and refers to results previously obtained by him from a consideration of this factor and reported in the *Interstate Medical Journal* (Vol. XXIX, No. 9). He also gives the results of an investigation conducted into the prevalence of carriers, the majority of whom he believes to be nasal. In October and November of 1917 an increasing number of cases of diphtheria were reported in New Haven. Lewis therefore engaged two nurses to make a survey of all those of school age and also, in districts where cases had occurred, of those not of school age, with a view to finding carriers of the disease. Cultures to the number of 687 were made and 23 carriers not of school age and 34 of school age were discovered, i. e. approximately 2 per cent. of the school

population were found to be carriers. In the case of such carriers the author recommends the following treatment: Constant inhalation by means of dropper, nasal swab or atomizer every hour in a 1 per cent. solution of gum camphor and eucalyptol in mineral oil for all individuals over five years of age, and a one-half per cent. solution in the case of younger individuals. He attributes the efficacy of this treatment partly to its hourly use as contrasted with the frequent practice of using antiseptics only once or twice a day. *Results:* Lewis points out that during the severe epidemic of diphtheria that occurred in 1906, there were 35 deaths in 5 months, and 9 more during the first three months of 1907. The next severe epidemic was the one in 1917, when during a similar period there were only 8 deaths, although during the early part of the period the frequency of cases was as alarming as at the beginning of the 1906 epidemic. During the first three months of 1918, 5 deaths occurred; that is, during the eight months of 1917-18 there were 13 deaths as against 44 during the same period in 1906-07. Such positive results produced by two months' work, he says, bespeak the rationality of the continuous operation of detectives for finding carriers. In summarizing the results of his work, Lewis says: (1) The continuous search for carriers in controlling diphtheria is an exact sanitary measure of prevention. (2) All individuals with acute catarrhal nasal conditions are potential acute nasal diphtheria carriers; it requires the presence of a chronic carrier, generally also nasal in type. The permanency of the former when made a carrier is dependent on the degree of nasal obstruction. (3) All individuals convalescent from any respiratory disease, however mild, constitute the largest proportion of nasal carriers of diphtheria. Investigation of all such individuals and their isolation, if carriers, is the essential basis of control of diphtheria. (4) In general, cases follow the production of acute nasal carriers by chronic ones. (5) Responsibility for any frequency of the disease is solely that of health authorities.

New York Medical Journal.

May 4, 1918.

1. The True Epileptic. L. Pierce Clark.
2. The Relation of Carbohydrates to Protein Synthesis. N. W. Janney.
3. The Clinical Significance of a Fecal Analysis. Louis Winfield Kohn.
4. A New Method of Preserving and Mailing Specimens for a Wassermann. W. L. Snider.
5. When a Cancer is Not a Cancer. Evarts V. de Pew.
6. A Two Stage Operation for Tendon Suture in the Hand and Description of a Simple Stitch. Joseph E. Fuld.
7. Hydronephrosis as an Underlying Cause in Attacks of Acute Abdominal Pain. Sergeant Price Martin.

7. Hydronephrosis as an Underlying Cause in Attacks of Acute Abdominal Pain.—Sergeant Price Martin lays emphasis upon the importance of bearing in mind the possibility of a hydronephrosis as an underlying cause in doubtful cases of attacks of acute abdominal pain. He points out that in cases of hydronephrosis due to constant mechanical obstruction to the ureter, a complete uranalysis as a rule reveals no pathological findings and an x-ray examination of the kidney and ureter will also generally prove negative. The kidney is then frequently excluded in the diagnosis and the patient operated upon for appendicitis. An appendectomy is performed and, the pain still persisting, a second operation is done for the removal of the gallbladder or, in the case of a woman, an ovary. Still no relief is obtained and the patient is treated for neurosis, lumbago, ptosis, indigestion, and so forth. In a case of this nature, a urological examination, including a complete uranalysis of a twelve or twenty-four-hour specimen, and an x-ray examination of the entire genitourinary tract should be made to determine whether a calculus is lodged in the kidney or ureter on either side, though subjective symptoms may be present only on one side. Should the plates prove negative, a cystoscopic examination should be made with the catheterization of both ureters. As a rule, the demonstration of obstruction to the ureteral catheter in the upper ureter and the existence of residual urine beyond the obstruction, which is characterized by its rapid flow, will suffice to call attention to the probable existence of

hydronephrosis. Should any doubt arise, the condition may be demonstrated by the overdistention method, but the question may then arise as to whether a pelvis that will only hold from fifteen to twenty-five c.c. is dilated to two or three times its normal capacity or is an unusually large pelvis. In order, therefore, to determine the exact condition present, the outline of a well distended pelvis as seen in a pyelogram may prove of more definite diagnostic value than any other data. The first deviation from normal is a flattening of the terminal irregularities seen in the normal minor calyces, while the more advanced cases vary from a mere flattening of the apices of the major calyces to the complete diffusion of the calyces and pelvis into a diffuse outline of a rounded sac. Martin goes on to describe the pathological and histological changes that take place in the kidney and gives diagrams of normal and dilated pelves, some of them from a collection of pyelograms made at the Mayo Clinic. He urges upon the general practitioner the advisability of consulting with a competent urologist in all doubtful cases of acute abdominal pain before subjecting a patient to unnecessary operations.

Journal of the American Medical Association.

May 4, 1918.

1. The Precipitin Test for Blood. Ludvig Hektoen.
2. Traumatic Cerebral Edema Causing Late Signs of Focal Cortical Irritation: Report of Case. Gonzelo E. Espejo.
3. Are All the Tubercle Bacilli Found in the Sputum Virulent? H. J. Corper.
4. Treatment of Diabetes from the General Practitioner's Standpoint. N. W. Jamney.
5. End-Results in the Prostatectomized Patient: A Comparative Analysis, Based on One Hundred and Ten Cases (Fifty-five Suprapubic, Fifty-five Perineal). Clarence Martin.
6. Globules of Metallic Mercury in the Tissues: Findings in an Aortic Aneurysm with Erosion of the Vertebrae. John A. Kolmer and E. V. Mastin.
7. Control of Polyuria in a Case of Diabetes Insipidus by Means of Hypophysial Extract. Jacob Rosenbloom.
8. The Total Blood Volume in Pernicious Anemia. Edward Lindeman.

3. Are All the Tubercle Bacilli Found in the Sputum Virulent?—H. J. Corper gives the results of an investigation undertaken to determine the range of virulence of tubercle bacilli isolated from the sputum in open cases of pulmonary tuberculosis. He found that in the majority of such cases the tubercle bacilli which could be isolated on artificial mediums from the sputum were virulent enough to produce systemic tuberculosis in guinea pigs, by means of doses as small as 0.000,001 mg., and that the range of virulence was very small; this latter observation was also made by Gilbert and Gregg, who found it to lie between 10 and 120 bacilli. Corper points out that if the virulence of the bacilli as cultivated on artificial mediums is a direct expression of their virulence in the sputum, there is only one conclusion to be drawn from these findings, and that is that in open cases of pulmonary tuberculosis the tubercle bacilli discharged by droplet or by expectoration, while still uninfluenced by drying and light, are a danger to mankind through direct transmission at least. He points out that Webb and Gilbert found that a culture of human tubercle bacilli, sufficiently virulent to infect a guinea pig when ten bacilli were used, was also capable of infecting a child in practically the same dose, and that it seems justifiable, therefore, to conclude that the tubercle bacilli found in the sputum of patients in open cases of pulmonary tuberculosis (provided the bacilli capable of artificial cultivation are a true index of those existing in the native sputum) vary only slightly in virulence for guinea pigs, and are for practical purposes nearly all pathogenic. That is, as may be deduced from Gilbert and Webb's observations, in 97 per cent of cases they will infect a child in a dose of less than one-millionth milligram. Corper adds that these experiments also seem to lay special emphasis on the importance of examination of the sputum of men in the military service or about to enter it.

The Lancet.

April 13, 1918.

1. Two Studies in Cardiac Pathology. (II.) Paroxysmal Tachycardia. Frederick W. Price.

2. Remarks on the Treatment of Fracture of the Lower Limb. George C. Sneyd.
3. A Study of the Cardiac Disabilities of Soldiers in France (V.D.H. and D.A.H.). Colonel W. E. Hume.
4. Delayed Primary Suture of Wounds. Captains John T. Morrison, J. N. J. Hartley, and E. F. Bashford.
5. Incarcerated Sepsis. Albert E. Morison.
6. Impressions of X-Ray Treatment. Major W. G. Harvey.

3. A Study of the Cardiac Disabilities of Soldiers in France (V.D.H. and D.A.H.).—Colonel W. E. Hume gives the results of an inquiry in the cardiac and circulatory conditions of 5000 soldiers sent to a base with a diagnosis of V.D.H. and D.A.H. He found that the symptoms of shortness of breath, pain in the region of the heart, palpitation, and giddiness occurred under varying states of body and mind, and in the majority of cases was unable to assign a definite pathological basis. These cases may be divided into those who throughout life have been unable to undergo physical exertion of any kind, possibly because of an inherent difference in the potentiality of the heart muscle; those who owe their disability to permanent or temporary damage to the heart muscle; and neurasthenics or those suffering from shell shock, in whom the fault lies in the nervous innervation of the heart rather than in the heart muscle. Cases of type I may improve to some extent under careful and graduated training but the majority are never fit for great and prolonged physical exertion. In the second group are included cases in which there is a definite history of rheumatic fever—in the present series 10.8 per cent. and in the ease of other observers 20 per cent.—and those convalescent from infectious diseases such as the enteric group of fevers, influenza, and trench fever. A study of onsets of symptoms with a view to their relation to prognosis produced no definite results. Hume found that 56.4 per cent. of cases occurred between the ages of 20 and 30, but of course the majority of the men serving in France were of this age. In classifying the civil occupations of the cases, he found that the lighter classes of occupation provided the largest number of patients. In the various branches of the service he found that the Infantry and labor companies afforded a higher percentage of D.A.H. cases than of ordinary medical cases. Hume points out that the rationale of treatment is the same in all cases, the most important factor being the abolition from the patient's mind of the idea that he has a diseased heart. This, with good food, undisturbed sleep, occupation and outdoor exercise, regulated and under discipline, is all that is necessary. By this method, he states, 50-60 per cent. can be sent back to their original work after 4-5 weeks. The remaining 40-50 per cent. are unable by reason of poor physique, actual disease, or age, to undertake any kind of work or hardship. Apart from those who suffer from actual heart disease or some other organic disease, he considers that nearly all are fit for some service in France. He adds that it would be of great advantage to the individual and to the Army if those who are considered to be unfit for general service could be allotted the work for which they are mentally and physically fitted.

British Medical Journal.

April 6, 1918.

1. Notes from a Clinical Lecture on a Case of Huntington's Chorea. Sir Clifford Allbutt.
2. The Necessity for Fuller Consideration of the Local Processes of Disease and Repair in the Treatment of Pulmonary Tuberculosis. Captain H. Morriston Davies.
3. The Importance of Regulating the Fat-intake in Diabetes Mellitus. P. J. Cammidge.
4. An Outbreak of Phlebotomus Fever. Captain J. A. Hartley.
5. An Outbreak of Phlebotomus Fever. Captain J. A. Delmege and Captain G. S. Staddon.
6. The Involvement of the External and Internal Popliteal Nerves in Lesions of the Sciatic Nerve. T. E. Hammond.
7. The Epidemiology of Meningococcal Meningitis, or Cerebro-spinal Fever. A. M. N. Pringle.
8. Fatal Case of Paratyphoid B Simulating Typhus Fever. Lieutenant-Colonel P. S. Hichins and Captain E. J. Boome.

3. The Importance of Regulating the Fat-intake in Diabetes Mellitus.—P. J. Cammidge points out that in the treatment of diabetes mellitus control of the fat allowance is quite as important as regulation of the carbohydrate and protein intakes. Bloor was the first to carry out a systematic study of the fat content of the blood of diabetics. He found that out of thirty-eight

cases a lipid value of the blood in excess of the normal average was present in thirty-six, and in all but three cases it exceeded the highest limit met with in healthy persons. A marked increase, up to 100 per cent. or more of normal values, was found in all severe cases, but as a rule the more severe and long standing the diabetic condition the more marked was the abnormality in the blood lipoids. The evidence at present available suggests that the excessive lipid value of the blood originates in the fat of the food, and is due to the partial failure of the mechanism for dealing with fat arising from the essential nature of the diabetic state. Blood found that there was no definite relation between high blood lipoids and the occurrence of acetone bodies in the urine. Moreover, that diabetic lipemia is not due to change in the reaction of the blood is indicated by the fact that the greatest possible reduction in its carbon dioxide capacity by acid poisoning produces no characteristic change in that direction. It would therefore seem that the tendency to imperfect utilization of fat in diabetes is not dependent upon any other feature of the disease, but is a primary phenomenon of the condition. Cammidge points out that it may be taken as a general working rule that fat unbalanced by an adequate available supply of other foods is poison to the diabetic, and that the craving for bread and other starchy foods is an expression of a natural want that should be dealt with by restoring the balance in the diet by reducing the fat rather than by increasing the carbohydrate, as is usually taught. He further points out that from experiments conducted by Allen, it seems reasonable to conclude that the hyperglycemia and glycosuria following excessive feeding with fat are due to a failure of metabolism consequent on the gain in weight above what the defective assimilative functions are able to cope with, and that any attempt to induce a high level of nutrition with fat results in an aggravation of the diabetic condition similar to that which follows a like attempt with carbohydrate or protein, although its effects are slower and more insidious. These observations make it clear that in addition to rendering the urine sugar-free by limiting the carbohydrate intake or adjusting the protein allowance, it is also necessary to ascertain the optimum amount of fat which will meet the needs of patients, prevent acidosis, and avoid the onset of glycosuria. Cammidge has obtained satisfactory results by the fasting treatment; in some cases in which sugar returned he found that an excess of protein was being taken and in others that the fat content of the diet was the difficulty, and when this was adjusted to the patient's metabolic powers the glycosuria promptly ceased and did not return. He states that in treatment the aim must be a steady weight which can be maintained without overtaxing the patient's defective metabolic powers. Gain in weight must be sacrificed to well-being and satisfaction of the appetite to length of days. Individualization of the diet, in which the allowance of carbohydrate, protein, and fat is regulated by the tolerance of the patient for each and by his powers of dealing with the diet as a whole, is the line along which the treatment of diabetics is developing.

British Medical Journal.

April 13, 1918.

1. Observations on the Nature and Symptoms of Cardiac Infection in Childhood. II. Rheumatic Heart Disease. F. J. Poynton.
2. Shell Shock and Neurasthenia in the Hospitals in the Western Command. Lieutenant-Colonel Ernest W. White.
3. War Psychoses Occurring in Cases with a Definite History of Shell Shock. Major R. Eager.
4. The Early Stage of Hysteria. Captain M. Culpin.
5. Medical Aspects of the Food Problem. Robert Hutchison.

5. Medical Aspects of the Food Problem.—Robert Hutchison considers the effect on health of the present food shortage in England under the following headings: (1) Effects of a diminution in the diet as a whole.—He points out that though a reduction in the fat ration of $\frac{1}{2}$ lb. per week would entail a loss of a stone in weight in seven months, this loss is not progressive, the individual being able to maintain a lower weight on the diminished diet. This is due to the lessened output of energy required to transport a smaller body weight and

an economy in "fundamental metabolism." A lesser body surface also means a diminished heat loss. There is, however, a danger point which is probably represented by the point at which the body begins to lose nitrogenous tissue as well as fat, when liability to disease, especially tuberculosis, and the tendency to functional nervous disorders becomes greater. The necessity of maintaining an adequate supply of vitamins makes it important that the diet, if scanty, should be varied in character. (2) Effects of an altered ratio of the chief nutritive constituents (proteins, fats, carbohydrates).—Hutchison shows that the present restrictions tend to make the diet poorer in protein and fat and richer in carbohydrate than under normal conditions. Physiological needs, however, can be met by a much lower protein content than that of a freely chosen diet which is about 100 grams or more. During childhood and adolescence and during pregnancy the protein intake must be maintained at a high level, and therefore extra rations of milk are allowed which should be supplemented by a free use of unrationed nitrogenous foods. The author remarks that it will be interesting to see whether the reduction of meat in the diet will lessen the incidence of such conditions as gout, epilepsy, and migraine. He says it should be beneficial to sufferers from chronic vascular and renal troubles, but will probably increase liability to tuberculosis. Special provision has been made in the rations for diabetics and children with so-called coeliac disease, since of course carbohydrates must be avoided by these patients. (3) Effects of alterations in quality of staple foods.—Bread is the food that has been most altered since the war. Hutchison states that, chemically, war bread is superior to white bread and that experiments have shown that it is well digested in the physiological sense. He thinks that many of the complaints that it is "indigestible" are imaginary, but that it may disagree with old persons with defective teeth and feeble stomachs or with patients suffering with colitis; thorough toasting and careful chewing will get over the difficulty in most cases. Margarine as a substitute for butter, he says, is perhaps deficient in certain vitamins but, if the diet is varied, it is not likely to affect health. It is probable, also, that milk may not be as free from bacteria as formerly and there is some reason to believe that there has been a substantial increase in tuberculosis (especially of the abdominal form) amongst children; this, however, is a matter deserving further attention and inquiry. Reviewing the whole question, Hutchison states that it may be said with confidence that there is no reason to suppose that the food difficulties, so far as they have gone at present, have had any adverse effect on health; if anything, their tendency has been perhaps in the opposite direction.

Berliner klinische Wochenschrift.

February 18, 1918.

Experiments with Friedmann's Antituberculous Vaccination.—Kölliker believes that it is only by the use of Friedmann's vaccination that a cure can be obtained in tuberculous joints or localizations in other viscera, such for example as the testicle or epididymis, with complete return of the functions and without destructive surgical interference. Kölliker advises all medical men to resort to this vaccine as early as possible in the treatment of tuberculous lesions. Kölliker has noted that the arrival into the system of a new antigen (such as antivariolic vaccine) may profoundly disturb a treatment which would otherwise have undergone a favorable evolution. Such enthusiasm is more than suspicious. Remember the death rate resulting from Koch's tuberculin of thirty years ago.

Therapeutic Experiments with Friedmann's Antituberculous Serum.—W. Kühne notes, as does the writer of the above article, the happy effects of this treatment, as compared with other ordinary treatments, medical or surgical, of tuberculosis. It is necessary to follow closely the evolution of the primary vaccination in order to estimate the indications for future intravenous injections. Any deviation from the rules laid down for the administration of the exact (sic) procedure of Friedmann will result in a cessation of the amelioration of the case. The same antagonistic effect

to this treatment will result from an intercurrent infection, such as smallpox vaccination or scarlet fever. The writer records the case histories of all the cases treated so far, to the number of twenty, by Friedmann's procedure. The conclusion offered is that one obtains by this exact treatment by "Friedmann's remedy" such cures of pulmonary and other tuberculoses as no other therapeutic means so far employed have been able to attain.

Cocaine Idiosyncrasy.—E. Tobias and K. Kroner record the case of intolerance for a very small dose of cocaine, characterized by fever and organic nervous and cardiac symptoms, followed later by trophic disturbances of the fingers and disturbances of the equilibrium when standing.

Münchener medizinische Wochenschrift.

February 19, 1918.

The Prognosis and Treatment of Pneumothorax.—Harms has noted that early puncture seems to be decidedly better than incision. In a like manner it would appear that an accord in opinion has been made to attribute cases of sudden death to gas emboli; "pleural eclampsia" has no other mechanism than this. The writer regards high intrathoracic pressure as bad; likewise an endeavor to break down adhesions may lead to complications, such as infection of the bronchi in the opposite lung, excessive compression of the heart, laceration of the mediastinum, emphysema, etc. As to pleural exudates which may arise during treatment, no fear need be entertained, only their purulent transformation is a distinctly unfavorable sign. The procedure cannot be controlled by statistics and only the study of each individual case, likewise the recognition of the clinical type of the process left to itself, will allow one to estimate the results. The writer is of the opinion that, generally speaking, the procedure will not deceive the hope it offers, if the following indications are adhered to, namely, (1) absolute indications, a unilateral fibrous process or even cavernous fibroid process. (2) Relative indications are the same cases with small torpid foci in the opposite lung. (3) Symptomatic indications: chronic ulcerative pneumonic processes. (4) Vital indications: severe hemorrhage. (5) Contra-indications: extremely acute processes or cascosus pneumonic processes.

The Chemiotherapy of Bacilli Carriers.—B. Stuber has endeavored to accomplish disinfection of the gall-bladder, taking as a basis the following theoretical considerations. Cystine when ingested is transformed into taurin in the liver and then becomes combined with cholalic acid and forms tauro-cholates which are eliminated with the bile. A combination of cystine and Hg. injected should free the Hg. during the progress of these transformations and should disinfect the gall-bladder. All this is naturally Teutonic dreaming and will probably result in a "potent and infallible" product, issued from some Farbenwerke for the use of the over-gullible practitioner with the conviction that "Deutschland ist über alles" in medical science. The writer says that he has been able to verify the elimination of Hg. by the bile and by this means he has been able to relieve carriers of their typhoid bacilli, especially among convalescents from typhoid. After all is said, the reviewer would merely say that, in Anglo-Saxon practice, the use of calomel has been for years greatly appreciated in these circumstances and that the learned (sic) tirade of the German writer may be profitably put on the list of what we have known for some time. We would note, however, that a Teutonic product of real value, namely, urotropin, has been overlooked by the distinguished writer of this memoir, in so far as disinfection of the biliary tract is concerned.

Deutsche medizinische Wochenschrift.

February 21, 1918.

New Researches on Muscular Function.—V. Kries refers especially to Hill's discoveries. In muscular contraction, the production of heat does not take place during the act but after it has been accomplished. Therefore, it does not correspond to the extreme phase of contraction (tension or shortening), but to the

phases of preparation and recuperation. These data, which contradict the older teachings of Fick, throw a new light on muscular physiology. They cause one to admit the existence of a form of energy as yet unknown, an intermediary between thermochemical and mechanical energy displayed by the contraction.

The Pathology of the Hypophysis.—Th. Fahr records two cases of lesion of the hypophysis. The first one belongs to the morbid picture called "hypophysary cachexia" by Simmonds. The patient, a female, aet 50 yrs., had had amenorrhea since the age of 29 years, at which time she had pneumonia and "nervous fever" (Nervenfieber). Since then she had daily vomiting and tinnitus aurum. Among the clinical symptoms a normal blood pressure and slight cutaneous pigmentation. The patient died in a convulsive attack. Autopsy revealed macroscopic changes in the suprarenal capsules, which were small, but the histologic findings did not permit one to conclude that there was a functional insufficiency. On the other hand, the hypophysis which macroscopically appeared normal, presented microscopically a sclerous degeneration of the anterior lobe, but nevertheless it contained islands of normal parenchyma. The posterior lobe, which was quite intact, contained much pigment. The other viscera were normal. The second case offered a pharyngeal tumor which must be regarded as starting from the hypophysary canal. The clinical notes show nothing which points to an insufficiency in the functions of the hypophysis, regardless of the complete destruction of the neurohypophysis (posterior lobe). This case speaks against the attribution of the adiposogenital syndrome, because in this particular instance this syndrome had not even begun. The neoplasm had destroyed the organ although it did not interfere with its functions.

Wiener medizinische Wochenschrift.

March 9, 1918.

An Attempt to Control Young Venereal Subjects.—E. Finger (of ancient vintage) has come to the conclusion that the police system now in force is insufficient for the control of prostitution, as this trade is becoming more and more clandestine resulting from the influence of social changes, such as feminine emancipation and professions now occupied by women, etc. Still more, Finger has noted that since the war there has been a marked increase in the number of young venereal subjects. Out of a total of 1,000 patients he tabulates the following results:

MALES.		
Age Years	Before the war	During the war
15	1	8
16	3	9
17	11	26
18	27	68
Total...	42	111

FEMALES.		
Age Years	Before the war	During the war
15	12	16
16	22	40
17	33	66
18	62	91
Total...	129	213

As to measures for dealing with this condition of affairs, Finger believes that police visits to all low class hotels has given good results. (In the U. S. such visits might be fruitful in what are rated as first class hotels.) The treatment should realize the isolation of patients, as well as from their occupation. This result may be obtained by the creation of "work colonies," an ideal to which the writer aspires. Finger, with the genuine Teutonic love of the salacious, enters into the details of the first steps taken into the social mire by the young girls of Vienna, upon which it is unnecessary to insist, but grievous from the fact that it is an evidence of senile decay in a brain once fertile in good things.

Nederlandsch Tijdschrift voor Geneeskunde.

January 25, 1918.

Intratracheal Treatment of Bronchial Asthma.—De Levie refers to an article by Einthoven published in 1892 in which was demonstrated the fact that asthma is due to spasm of the bronchi and is not dependent in any way upon the activity of the diaphragm. This view had long been upheld on theoretical grounds. Trousseau, himself an asthmatic, regarded the catarrhal component as unessential and made of asthma a nervous phenomenon. Biermer held similar views but laid more stress on the catarrhal component, regarding the congestion as a determining cause of the paroxysms. Traube, on his part, saw in the catarrh the primary, in the paroxysms the secondary factor. Einthoven's experiments did not dispose of the catarrhal theory. Recently it has been shown that asthma may be a purely anaphylactic phenomenon in which the lungs are not congested, but anemic and also dry. Asthmatics studied with the bronchoscope present a red and swollen mucosa, while immediately after a paroxysm the latter may be seen to be normal. But finds of this sort are by no means of uniform occurrence. Eosinophilia in the sputum is seen in the experimental anaphylactic case no less than in the catarrhal case in man. The phenomenon is also seen in angioneurotic edema. From one angle asthma is a vasomotor affection like urticaria, angioneurotic edema, mucous colic and other affections. These may also appear as anaphylactic phenomena, and as we know, anaphylaxis is acquired idiosyncrasy. But numerous other moments occur in the causation of asthma. It may be purely psychogenic while some writers have always seen the operation of a reflex element—in fact, asthma has been termed a reflex neurosis. If the method of cure shows the nature of the disease the intratracheal insufflations, which cause the greatest relief—those which contain novocaine and adrenaline—appear to indicate that reflex and hyperemic components play the major role. The author has used many drugs in this form of exhibition. The pioneers in this field comprise Pieniazek, Novotny and Ephraim and he has tested the substances recommended by them. In addition to cocaine and substitutes and adrenaline, he has tested various astringents and menthol, with special reference to the interparoxysmal period. Treatment during the interval was applied twice, then once weekly and later at longer intervals. The author's cases were associated either with chronic bronchitis or emphysema and the results, after several months of treatment, were very satisfactory. Of 15 patients treated 7 were cured, i. e., have remained free from paroxysm for one year; 6 are notably improved and 2 unimproved.

Il Policlinico.

February 1, 1918.

Peripheral Radicular Pseudotabes of Traumatic Origin.—Mendicini sums up his minute description of a case as follows: the syndrome presented included amyosthenia of the lower extremities, more accentuated to the right, associated with muscular hypotonia, abolition of the Achilles reflex and patellar reflex to the left, Romberg synaxatic gait, lancinating pains and intermittent paresthesiæ. There were also sensory disturbances having a radicular distribution, interesting especially certain lumbar segments on one or the other side. The entire syndrome followed a trauma of the lowest lumbar vertebra, the immediate result of which had been a complete paraplegia. The resemblance to true tabes was so pointed that one must ask whether the latter had not already been present at the time of the injury. It is true that in tabes the early manifestations appear at a higher level—the dorsal spinal, but exceptions occur. These symptoms comprise areas of tactile anesthesia which are demonstrable in the mammary area and upper extremities. But the author has recently studied a tabetic in which there were no sensory anomalies above the umbilicus. Tabes might, of course, have been excluded by absence of well known symptoms, although these could appear at a later period. The x-ray also showed that there was a lesion of the cauda equina. To go a little into history, the late Professor Dejerine described his neurotabes in 1883-4 and was promptly fol-

lowed by numerous clinicians whose studies elaborated the picture of polyneuritic pseudotabes. But the latter affection was never traumatic in origin, being the result of alcohol, arsenic or other toxic principle. The author's case can be differentiated easily from neurotabes on other counts. A general survey of lesions of the cauda equina shows that the prognosis is always favorable, i. e. there is a fixed tendency to improve, even in cases which at the outset seem grave. The lesion is extrameningeal and hemorrhage into the vertebral cavity is absorbed, so that after initial paraplegia we note the evidences of pseudotabes.

Emotional Traumatic Dystrophy in the War Zone.—Pighini refers to post traumatic conditions which do not appear to stand in direct relationship with the actual wounds. In other words, conditions in which a reflex component is usually imagined. The lesions in question are seen to be dystrophic. To what extent a psychogenic element is present has been much debated. There are numerous symptoms which point either to a psychic or endocrine mechanism. To throw some light on the problem, the author has made much use of the exhibition of certain alkaloids and harmonic principles. Adrenaline does not provoke glycosuria nor does it influence the blood pressure. The only result is augmentation of the tremor. Atropine causes tachycardia. Pilocarpine causes salivation and sweating. Physostigmin reduces the frequency of the pulse when it is elevated. The patients show a remarkable tolerance to thyroïdin and often profit by its use. Thus far the problem defies all attempts at solution, despite the indisputable evidence of this or that factor.

Finska Läkarsällskapet's Handlingar.

December, 1917.

On the Complement Fixation Reaction in Scarlatina and other Exanthemata of Childhood.—Nysten refers to the occasional appearance of the Wassermann reaction in scarlet fever, which fact induced him to develop the general study of complement fixation in these ailments. Naturally he was interested chiefly in the differential diagnosis of scarlatina. He first used an excess of complement and studied large quantities of serum with negative result. He then made an antigen out of a scarlatinous organ, and also used large amounts of antigen with small quantities of complement. From this experiment he learned that such antigen is not specific, differing in no wise from normal organ antigen. In using complement in the smallest hemolytic dose he obtained a positive result after two hours' standing at 37°, most marked in the second and third week and most frequently in cases with glandular swellings. In a series of controls he obtained no positive reactions. He also used cholesterin antigen with a small amount of complement and also obtained some positive results under the very same conditions. With streptococcus antigen from throat swabs he obtained no positive result. In measles he was unable to provoke a complement fixation but in variola he used an antigen from the pustules and obtained a positive reaction many times, usually on the second day of the outbreak. No complement fixation could be obtained in any case of varicella.

Various Sugars in the Diet of Nurslings.—Nyberg tested lactose, cane sugar, dextrin, maltose, dextrose, etc., in respect to their individual tolerance and food value. A proprietary preparation was found in this connection to correspond closely to the nutrient sugar long ago devised by Soxhlet and composed of maltose and dextrin. The same association is found in varying degrees in other well known proprietary foods, a fact of considerable significance.

Pregnancy Sepsis.—A case reported by Siemerling which might have been comprised under gravidity toxicosis was found to have quite a different motivation. The patient suffered from incoercible vomiting, polyneuritis and polyneuritic psychosis. Artificial abortion failed to save her life. Autopsy showed that the woman was suffering from streptococcus encephalitis, together with neuritis and myositis.—*Correspondenz-Blatt für Schweizer Aerzte.*

Book Reviews.

AN INTERNATIONAL SYSTEM OF OPHTHALMIC PRACTICE. Edited by WALTER L. PYLE, A.M., M.D., Philadelphia, Member of the American Ophthalmological Society. **MEDICAL OPHTHALMOLOGY.** By ARNOLD KNAPP, M.D., Professor of Ophthalmology, Columbia University; Executive Surgeon, Herman Knapp Memorial Eye Hospital. With 32 illustrations. Price, \$4.00. Philadelphia: P. Blakiston's Son & Co.

DR. ARNOLD KNAPP has presented in the volume under notice a full description of ophthalmological practice. The first part of the book is taken up with an exhaustive illustrated description of ophthalmological anatomy, and particularly of the nervous system connected with sight. In this portion of the work Prof. Otto Marburg of Vienna cooperated. The diseases of the nervous system affecting the sight are dealt with at considerable length. The chapter discussing diseases of glands with internal secretions concerned in eye affections, though brief, is of great interest. The toxic amblyopias are subdivided into groups. The infectious diseases, circulatory diseases, diseases of the respiratory and digestive tracts, diseases of the kidneys, diabetes, diseases of the female generative organs, osseous system, skin disease are all considered in their relation to eye affections. Lastly, hereditary eye diseases are dealt with. The object of this book is to give the essential of what is known of the relations of the various diseases discussed to the eye at the present time. The work is well illustrated and should prove of great use to eye specialist as well as general practitioner.

THE DISPENSATORY OF THE UNITED STATES OF AMERICA. Twentieth Edition. Thoroughly Revised. Largely Rewritten and Based Upon the Ninth Revision of the United States Pharmacopoeia, 1914. By JOSEPH P. REMINGTON, Ph.M., F.C.S., late Professor of Theory and Practice of Pharmacy in the Philadelphia College of Pharmacy. Chairman of the Committee of Revision of the Pharmacopoeia of the United States. HORATIO C. WOOD, JR., M.D., Professor of Pharmacology and Therapeutics in the University of Pennsylvania; Vice-Chairman of the Committee of Revision of the Pharmacopoeia of the United States of America. SAMUEL P. SADTLER, Ph.D., LL.D., Former Professor of Chemistry in the Philadelphia College of Pharmacy; Member of the Committee of Revision of the Pharmacopoeia of the United States of America. CHARLES H. LA WALL, Ph.M., Associate Professor of Theory and Practice of Pharmacy in the Philadelphia College of Pharmacy; Secretary of the Committee of Revision of the Pharmacopoeia of the United States. HENRY KRAEMER, Ph.G., Ph.D., Professor of Botany and Pharmacognosy in the University of Michigan; Member of the Committee of Revision of the Pharmacopoeia of the United States of America. JOHN F. ANDERSON, M.D., Director of the Research and Biological Laboratories of E. R. Squibb & Sons; Member of the Committee of Revision of the Pharmacopoeia of the United States of America. Philadelphia and London: J. B. Lippincott Company, 1918.

THIS Dispensatory is really a monumental work. Issued first in 1833, in a somewhat modest form, it has now become a veritable vade mecum of facts concerning medicinal substances. It is a mine of information and is almost all inclusive so far as medicinal treatment of whatever kind is concerned. In order to show the manner in which this Dispensatory has increased in size it may be of interest to note its enlargement since the issue of the first edition. The first edition consisted of 1073 pages, while the present consists of 2010. An especially fortunate circumstance in the compilation of this work is that the editors have been peculiarly well fitted for the task, and, of course, to their labors is due the success of the undertaking. A great loss to American pharmacy has been sustained by the death of Professor Remington, one of the editors since 1880, and who, although gravely ill, kept at his post until the manuscript had been completed. Since 1907 vast progress has been made in pharmacy and medicine and in consequence a thorough revision of the work had been called for. Indeed, the book had been almost entirely rewritten. The arrangement of the

book is excellent, all the valuable features of the nineteenth edition having been retained. Chemical incompatibilities have been accorded great prominence, a summary of the incompatibilities of the more important drugs having been placed immediately before the description of their therapeutic value. Articles on vaccines have been added and those dealing with the various serums have been enlarged considerably. The Harrison Antinarcotic law and the regulations of the Internal Revenue office in connection with it are given in extenso. The Food Inspection decisions under the Food and Drugs Act of 1906 are set down in the first part of the book. This affords a commercial and valuable opportunity for wholesale and retail pharmacists to obtain a knowledge of these regulations. Part I of the Dispensatory contains the discussion of all the remedies recognized by either of the two Pharmacopoeias used by English-speaking people. In Part II the national formulary and non-official drugs are considered by themselves. In Part III the tests and test solutions of the two pharmacopoeias, weights and measures, the art of prescribing medicines, an abstract of the national formulary IV and cognate miscellaneous matters are dealt with. The drugs are arranged in alphabetical order. It may be said that the description of the different medicinal substances is remarkably comprehensive and extremely accurate, and the entire volume is simply replete with information much of which is practically indispensable to the physician and general practitioner.

ELEMENTS OF HYGIENE AND PUBLIC HEALTH. A Text-book for Students and Practitioners of Medicine. By CHARLES PORTER, M.D., B.Sc., M.R.C.P. (Edin.), of the Middle Temple, Barrister at Law, Medical Officer of Health, Metropolitan Borough of St. Marylebone; Examiner in Public Health University of Edinburgh; Member of Board of Examiners, Royal Sanitary Institute and Sanitary Inspectors' Examination Board; Formerly Tutor in Public Health, St. Bartholomew's Hospital, etc.; Author of "Sanitary Law and Practice" (with Dr. William Robertson), "School Hygiene and the Laws of Health," "Sanitary Law," etc. With 98 illustrations. Price, \$4.15. London: Henry Frowde and Hodder & Stoughton, 1917.

THIS is a very attractive volume; its size is handy, and not repellent; its contents are new and not merely revised; the author has had a wide experience in teaching, writing, and examining on the subject matter of this book. The work deals with personal hygiene, public hygiene, and disease (including origin and spread of infectious diseases, the notifiable diseases, prevention of infectious disease, and non-notifiable diseases), tropical diseases, animal parasites, occupational diseases and industrial hygiene, offensive trades and trade and other nuisances, climate and meteorology, disposal of the dead, food, air, soil, water, housing, ventilation, warming, lighting, removal and disposal of refuse and waste (house drainage and drains, sewers and sewage, household refuse), the existing house, school hygiene, public health administration, sanitary law, and vital statistics. The author has written a most interesting volume; the different topics are treated briefly, but authoritatively, and there are a sufficient number of useful illustrations. Of course, the sections on public health administration and sanitary law are based on English law, custom, and requirements. The price of the book seems unnecessarily high, and will hardly aid its sale.

ANAPHYLAXIE. ANTIANAPHYLAXIE. Par. A. BESREDKA. Preface de E. ROUX. Price, 4 francs. Paris: Masson & Cie., 1917.

THIS little volume, dedicated to the author's late chief, Metchnikoff, is the labor of one of the leading authorities on anaphylaxis, who is, moreover, the creator of our knowledge of antianaphylaxis. The first portion of the book is, therefore, a preparation for the consideration of the latter subject. From the sensibilizing injection the author leads up to the toxic or loosening injection. The culmination of the book is Chapter V., in which is discussed the principle of antianaphylaxis, as illustrated by the vaccinating injection. The last two chapters comprise really a supplement which deals with miscellaneous phenomena of anaphylaxis and the various theories of its nature.

Society Reports.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.

Annual Meeting Held March 29 and 30, 1918.

JOHN A. KOLMER, M.D., OF PHILADELPHIA, PRESIDENT.

(Continued from page 835.)

SESSION WITH THE AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

Various Immunological Reactions in Glanders.—Dr. G. B. WHITE of New York read this paper. Discussing glanders infection Dr. White said one horse among a number of serum horses apparently in good condition got ill, died, but had no autopsy. A week later another horse had to be killed. The eye test then was put on all the horses of the stable. Six animals reacted. Complement fixation was also done. Upon positive eye tests the horses were killed and autopsied. The tests showed similarity to the results in tuberculosis. All horses in which lesions were found gave positive subcutaneous reactions, but negative complement fixation and agglutination. Three of the horses autopsied did not show lesions, but perhaps the examination was not thorough enough. Those which showed lesions at autopsy had given positive subcutaneous tests. Those with positive eye tests gave positive subcutaneous tests, but the opposite statement did not hold. A positive complement fixation did not always go with positive eye test. The complement fixation was not considered particularly reliable in this condition. After the injection of mallein to the eye, there would appear a positive complement fixation and agglutination, in a horse originally negative. The most reliable test is the subcutaneous test, which can be found positive at the time of early lesions. Later the eye test appears, lastly complement fixation and agglutination. After an injection of mallein the subcutaneous test would be refractory for three weeks, but after six weeks it would be apparent again.

Dr. WM. H. PARK of New York said there was absolutely no knowing what reaction could be relied upon in serum horses. Very few horses would pass all three tests,—complement fixation test, agglutination test, and subcutaneous test. There had been a question as to what horses should be admitted to the market for food, and it was found necessary to alter the standard so as to admit horse meat to alleviate the food shortage.

Dr. A. P. HITCHENS said that it was his feeling that many more horses reacted to the subcutaneous test than had glanders. He did subcutaneous test as well as eye tests and complement fixation, and he depended upon complement fixation. He found they had to accept some horses which gave positive subcutaneous tests. They had had no trouble with those animals. Reading of the subcutaneous test required considerable skill, the symptoms varied. Just what was a positive subcutaneous reaction and what was not, was open to question and would depend largely upon the individual making the examination.

Dr. G. B. WHITE said he quite agreed that Dr. Hitchens might find a positive subcutaneous test, with no active glanders. It was much the same as tuberculosis. One might have a healed lesion. Unless the horse with this reaction was put under any particular strain, there was very little chance of glanders breaking out.

Active Immunity in Those Immunized Against Diphtheria.—Dr. WILLIAM H. PARK of New York read this paper. In testing different species of animals, some were found to have no immunity, some were entirely immune, and again there were a group in which some were immune and some were not. Guinea pigs had no natural immunity. The horse could be immunized very rapidly and nearly always produced considerable antitoxin. At the end of twelve months the developed immunity had dropped to the original level,—1/50 to 1/4 units. Of human beings, a number were not immune. Dr. Zingher had made interesting tests on groups of babies: first immune babies with immune mothers; they remained immune. Another series were not im-

mune; they were immunized and became immune. Dr. Zingher tested children in institutions and found that fourteen months after immunization, those that had received but one injection of antitoxin were as immune as those that had received two or three injections. The development of immunity was, however, slower. Results were very encouraging. A great number of children remained immune. It seemed as if the acquired immunity would be as permanent as the natural immunity. Of four hundred and four children tested, three hundred and ninety-six remained immune. Two of these never became immune. It would seem practical to immunize infants at the period of life when there was the greatest danger, when they had no immunity. Infants under one year, immunized, seemed to retain the immunity.

Dr. A. F. HESS of New York said that the use of toxin-antitoxin mixtures had made a great difference in infant asylums. Formerly there used to be about fifteen cases a year with three or four deaths, and since the use of antitoxin there had been no diphtheria and no deaths. In one hundred and fifty cases injected and followed for from one to two years, 98 3/4 per cent. had remained immune. As regards the best time for immunization, too early injection could be made, because children carried over some immunity from their parents and would thus be immune the first months of life, and yet have no immunity later in the first year. Fifteen per cent. of cases lost immunity in the first year; 10 per cent. in the second year; 5 per cent. in the third year. If no protection were given to susceptible infants, there would be many more cases of diphtheria in institutions. This protection would absolutely do away with diphtheria in institutions.

Dr. J. A. KOLMER asked the nature of the reaction following the toxin-antitoxin mixture. Was a single dose advocated or was it wise to give a second?

Dr. WM. H. PARK said that children who had received one injection, would be immune by the end of a year, but if there were any immediate danger it would be well to test again by the Schick test, and, if necessary, to give another injection. The method was being used in the Navy and in the Army, as diphtheria was not always recognized at once, and if the troops were immunized, one did not have to worry about carriers. In a few cases there was a slight toxic effect. If the protein in the toxin-antitoxin mixture could be controlled, it would become a very harmless procedure.

Dr. J. F. ANDERSON asked if there was quick deterioration in the mixture.

Dr. W. F. PARK said they always used old toxin which had dropped in toxicity. One-third more antitoxin was given than was actually required.

A Simple Method for Blood Cultures.—Drs. J. G. WURTS and S. W. SAPPINGTON described this method. The interest attaching to positive blood cultures made it essential that there should be some improvement in technic. It was considered necessary, in view of the bactericidal effect of the leucocytes that the serum should be removed. The blood was, therefore, diluted with sterile, distilled water, in dilutions of 5, 10, 12, 20, and 25 per cent. blood to water. The growths on diluted blood were more readily obtained than with pure blood. The best growth occurred on a 30 to 40 per cent. dilution. This seemed a specially good medium for pneumococci. It had always been found impossible in other ways, to get a good, rich growth in severe cases. In cases of *B. typhosus* infection, or with streptococcus infection, the diagnosis could be made within twenty-four hours. The results were equal to those with the use of bile, and the simplicity of the method made the use of it, outside of a hospital, extremely easy and satisfactory.

Bacteriological Study of Postoperative Pneumonia.—Miss MIRIAM OLMSTEAD of New York read this paper. She had studied one hundred and thirty cases of postoperative pneumonia, and had recorded the recovery of a pathogenic organism in thirty-one cases,—a percentage of 23.8. Two cases had a pneumococcus I, in the blood stream, one of these pneumococcus I in pre- and postoperative sputum. One had pneumococcus II, in the sputum, pre- and postoperative, and the urine was precipitated by pneumococcus II serum. In two cases with an atypical II in pre- and postoperative sputum, the etiology was established, in one by a positive ag-

glutination test of the patient's serum, and in the other by a urine precipitin reaction with Type II serum. Type III was established as the inciting factor in five cases; one had a blood culture; from one the organism was obtained by lung cultures at autopsy; the blood of two agglutinated the Type III, recovered from the post-operative sputum. The urine of these two, and one other, who had Type III in the preoperative sputum specimen, gave a precipitin reaction with Type III serum. In eighteen cases Type IV was the factor, once being recovered from the blood, and seventeen cases gave a positive agglutination reaction with strains from the sputum. In one of these cases the urine precipitated with Type IV serum. In one case a hemolytic streptococcus was found in the blood stream and in another a hemolytic streptococcus in the sputum gave a positive thread reaction with the patient's serum. A mucoid streptococcus was found in sputum and chest fluid of one case. Some of these organisms were undoubtedly the inciting factors of other post-operative pneumonia cases, but no direct evidence could be obtained as to this view. As Whipple has stated, the most common factor was Type I. This was found to be recovered in either pre- or postoperative sputum in ninety-seven of one hundred and thirty cases studied. This appeared significant.

Dr. A. F. HESS of New York asked if pneumonia developed among cases where the pneumococcus was absent, if so, how many? In what percentage of cases was there discrepancy in the type of pneumococcus in the pre- and the postoperative sputum where pneumonia developed?

Dr. J. A. KOLMER asked how many patients, with pneumococci in the blood stream, died. How many showing precipitin reaction died? He was under the impression that persons showing the precipitin reaction had rather a bad prognosis.

Miss M. OLMSTEAD said that those persons who gave a urine precipitin test did not seem to have a bad prognosis. No case died. Three patients had Type III in the sputum and gave precipitin test reactions. None died. In reply to Dr. Hess, in three cases there were postoperative findings of pneumococci in the sputum, where they were nondemonstrable preoperatively. The majority of cases had pneumococci pre- and postoperatively.

Active Immunization Against Pneumonia.—Dr. R. KOHN of Boston read this paper. This study he said was not new. Lister had given large doses of heated killed pneumococci of virulent types at six to seven day intervals. In active immunization against all types agglutinins and opsonins could be demonstrated eight months afterward. Reports constantly showed the desirability of protection against pneumonia. It was believed, however, that immunity against pneumonia was of short duration. It was found that a horse immunized three years ago, with no injections for one and one-half years, gave serum that protected against 0.1 c.c. This serum had originally protected against 0.2 c.c. Tests were made to discover the protective power of blood serum against infection in white mice, injected intraperitoneally. It was found that normal human serum would protect mice against the M.L.D. Some serum protected against a particular strain. It was found that most persons could be immunized against types one and two, possibly three, and that after nine months the immunity had not diminished. It could last one year, possibly more. There was no evidence that it was absolutely protective. Adverse conditions might result in a lowering of the danger point.

Dr. AUGUSTUS WADSWORTH of the New York State Health Department said that he felt a great deal of interest in this work. Different individuals, exposed to different pneumococcus infections, manifested different degrees of immunity from time to time. He had done experiments on rabbits in which he had sought to produce lesions and to get some immunity. He felt that pneumococcus immunity in the human subject was a very important question.

Dr. WM. H. PARK said that in the south of France there was a great deal of pneumonia at one camp. The men were vaccinated with cultures from the camp and in eighteen days the pneumonia disappeared. Another camp used the same vaccine and the results were negative. He could not say whether this was a coincidence.

Using the culture of a camp 50 miles distant did not seem to correspond to the type of infection. It was striking that the cessation of the epidemic in the camp followed the use of the vaccine.

Production of Pneumococcus Serum and the Corresponding Curves Obtained by Protection and Agglutination Tests.—Dr. G. B. WHITE of New York read this paper. He said that the unusual demand for antipneumococcus serum had urged them to put forth every effort to increase the yield from their serum horses. The problem had arisen as to how best to spare the horse. The conservation of the animals was an important thing. The heavy draft horses seemed to stand the bleedings better; the lighter types did not last long. A vicious horse with "a great deal of game" was the best type of producer. Type one strain in virulent culture was necessary to produce type one serum. The cultures were transplanted three or four times, using Witte peptone, or, if not obtainable, Fairchild or Parke Davis preparations. The culture was heated three-quarters of an hour at 56° C. and made into a vaccine which was used in a series of six injections. If live organisms were used, the preparation was made fresh each time and injected intravenously. Three daily injections of dead cocci were made, then three of living; wait a week and repeat, and six days after the second weekly injection the horse was bled. The dosage is regulated by temperature reactions which should not be above 100°. Horses are bled before and after immunization. Three or four days then elapse before giving an injection. Agglutination seems to be an uncertain indication of immunity and agglutinating power changes rapidly, according to cultural conditions; also the condition of the horse. A standard method had been evolved by which 1 c.c. of serum protects against 0.1 c.c. type one pneumococcus. The serum is tested against the maximal amount of culture it will neutralize; also the smallest amount of serum which has protective power is estimated. There was no proven deterioration of serum. There seemed to be no parallelism between agglutination power and protection power, and the former standard would probably be discarded as unreliable.

Dr. A. P. HITCHENS said he could congratulate Dr. White on the results obtained in the rapid immunization of the horses. This was an especially important point at this time. In regard to bleeding, what was the plan of bleeding as regards the time of injections? What was the interval between the injections?

Dr. J. F. ANDERSON said they had been using a method of six daily injections, in three courses, with seven-day intervals. The horse could be bled in thirty-two days. A standard was made to protect against 0.1 c.c. culture, 0.2 c.c. culture, and 0.3 c.c. culture.

Dr. G. MCCOY of the Hygienic Laboratory said that he was glad to hear Dr. White bring out the point of the unreliability of the agglutination power as compared to the protection value. They had had strains sent back marked N. G. because they did not agglutinate type one pneumococci, but still there was a high protection power. All commercial sera before being sent out were tested by the hygienic laboratory.

Dr. A. WADSWORTH asked if the high protective serum had any agglutination power at all.

Dr. MCCOY said it had no agglutination power at all. Dr. WADSWORTH asked was it controlled and was told "Yes."

Dr. J. B. WHITE said that the horses were bled six days after the last injection. Two courses of injections preceded bleeding. They had lost four horses from pneumococcus infection. The first two were protective against 0.1 c.c. culture. Both animals had lobar pneumonia of type one kind. One horse died of pneumothorax. Another animal had constantly elevated temperature. It was found to have 125 pneumococci to the cubic centimeter of blood. It died of endocarditis. The organism was serum fast. That horse never protected. Another horse produced blood which on blood agar showed 100 paratyphoid bacilli. The serum agglutinated the strain 1/5000.

Rapid and Simple Method for the Determination of Type of Pneumococcus in Sputum of Lobar Pneumonia. Dr. CHARLES KRUMWIEDE of New York presented this communication. This was based on an attempt to dissolve the pneumococci and get the antigen. The sputum

from the lung being rich in albumin, this was coagulated by boiling water and the coagulum extracted to get the precipitin reaction. The coagulum was added to saline if the latter was necessary. It was again placed in boiling water to get soluble antigen. The broken clot was centrifuged and the clear supernatant fluid used for the test. With 0.2 c.c. of serum in the test tube the antigen was placed upon the serum, and tubes were placed in the water bath. Contact rings would be then noticed. The tubes should be shaken for twenty minutes and the observations could be read within half an hour.

Dr. O. W. H. MITCHELL of Albany said he had gotten the same results by the method of extracting with sand. He was convinced as to the specificity of the reaction. The rapidity and simplicity of the method made it an excellent one. Their sera were furnished by the New York State laboratory. The tests had been checked by Dr. Wadsworth and invariably when the sputum had reacted definitely his report had corroborated their results. Young rats had been found easier to procure than mice for pneumonia work. Children kept them as pets and a few inquiries generally resulted in getting as many as were necessary. Half-grown rats were preferable to mice. The peritoneal cavity is larger.

Experiments with Cancer Tissues and Normal Tissues, Also with Artificial Systems.—Dr. G. H. A. CLOWES of Buffalo presented a summary of this work. He had produced similar results to those of Osterhaus and Loeb. The size of the pores of a filter, he would state, had no relation to the permeability of the filter. The factor of importance was the lubricant. A suspension of rouge would not pass through a filter, but if salt were added the surface tension was lowered and the passage of particles through the filter took place. Thus it could be said that salt solution was the most toxic possible substance, as far as permeability of tissue was concerned. It was found that rapidly growing tissues had relatively greater conductivity and less resistance. If the ions could pass through more easily, the permeability—therefore conductivity—of the tissue was greater. In systems of drops, high surface tension produced very large drops, while lowered tension produced many drops, to the point of a continuous stream. In regard to human blood, this was equal to 0.15 NaCl. Protoplasm was a delicate mechanism, controlled by the nicest balance of soaps, lipoids and fats. The question of anaphylaxis was bound up with this matter of balance. Pathological conditions were results of disturbances of the balance of soaps and fats in emulsion. The protein was really nothing but a mesh or network which served to support this delicate emulsion of protoplasm.

Dr. JAMES EWING said that in listening to the philosophical presentation of Dr. Clowes the previous day, he had suggested that it would be well for the speaker to attempt an interpretation of his observations in terms intelligible to the pathologist and the immunologist. It had seemed to him that they were on the verge of seeing a great light, which never dawned. One wished to know how physical systems had a direct bearing on pathological conditions, especially in fatty degeneration, although Dr. Ewing said he was prepared to admit that the fatty changes were not as simple as the soaps. This line of work corresponded to that done by Nobel. The phenomena of anaphylaxis would probably be found to fall in line with all these observations. Dr. Ewing said he felt he could congratulate Dr. Clowes on having made his experiments intelligible—to the pathologist.

Dr. H. ULRICH said that he felt that surface tension was a vital factor in formation of spores. *B. subtilis* would not grow on media with lowered surface tension. *B. anthracis* entirely loses its pathogenicity when grown on media with lower surface tension. It would then produce no symptoms whatever. When blood serum is added to culture media the tension is lowered. The tension had to be suited to the growth of the organism. This work of Dr. Clowes was very suggestive.

Dr. J. BRONFENBRENNER said that this question of surface tension was not new. The reaction to the antigen was based on change in surface tension. When Abderhalden's work was done it was shown conclusively that where the serum was induced to undergo digestion there was decrease of surface tension. Ger-

man scientists had suggested that photometric phenomena might be parallel. The phenomena of ferment action might also be a question of dispersion.

Dr. G. H. A. CLOWES said that he felt immensely interested in the observation about anthrax spores. That corresponded with his own findings. Anyone who had seen the amoeboid movement and spore formation and separation and phenomena in yeast would be convinced as to the importance of surface tension. He had got objects that looked exactly like leucocytes and shown them to the pathologist, who said they were leucocytes. This was simply by getting a perfectly balanced emulsion. He had also done work with organic poisons, in regard to their hydrogen ion concentration, Dr. Bronfenbrenner had mentioned the myostagmine reaction. That was in accordance with Asterley's work. He let drops fall into the air instead of into media. Ferment action was definitely due to surface tension changes. Perfect contact has been effected and dispersion occurs, or aggregation takes place.

The Chemotherapy of Experimental Pneumococcus Infections.—Dr. J. A. KOLMER stated that the object of this work was to produce drugs possessing high pneumococcal activity, yet of sufficient low toxicity to admit a dosage which would increase the pneumococcal activity of the body fluids, against acute pneumococcal infection. At the present time quinine derivatives were the only known drugs which exerted this effect to any marked degree. Work has been done with mercurial compounds injected directly into the lung, but this had not proved of value. Experiments by Drs. Schamberg, Raiziss and Kolmer had resulted in the discovery of mercurial compounds, possessing marked bactericidal properties for pneumococci in the test tube. These agents were combinations of mercury with: (a) Naphthol and Naphthylamine; (b) Phenol; (c) Benzidine; (d) Aminophenyl-arsenic acid; (e) Guaicol. Subcutaneous or intramuscular injections of these drugs were made two hours before a lethal dose of pneumococci into mice. The work was carefully controlled. A Type I strain of pneumococcus was employed throughout. The results of this work showed that all of the ordinary soluble salts of mercury and many of the new compounds worked with, were found to be without appreciable effect in protecting mice against a lethal dose of pneumococci. Often it was found that larger doses of these compounds hastened death by reason of summation of toxic effects.

Drs. J. A. KOLMER and E. STEINFELD of Philadelphia recorded the results of their experiments with Morgenroth's drug, optochin, a hydroquinone derivative, (methylhydrocuprein) which was found to have a high pneumococcal value, in the test tube and in the living animal, although its high toxicity would not allow of a sufficient amount being administered to influence lobar pneumonia. This drug, administered subcutaneously, in doses without protective value, usually increased the protective value of antipneumococcus serum, Type I, in a slight but definite manner, in severe infections among mice, with homologous pneumococci. Secondly, several of the commoner compounds of quinine, as quinine and urea hydrochloride, quinine hydrobromide and quinine chlorodisulphates administered subcutaneously, in doses without appreciable effect upon fatal pneumococcus infections, sometimes increased the protective power of antipneumococcus serum, but to a lesser extent than that afforded by ethylhydrocuprein hydrochloride. Ordinary salts of mercury and several synthetic compounds of mercury, were without effect upon the protective power of serum in severe infections.

Studies on the Toxicity of Pneumonic Lungs.—Drs. J. A. KOLMER, C. WEISS and E. STEINFELD of Philadelphia read this paper. Numerous experiments were cited and the results found by these investigators would show that: (a) Salt solution extracts of human lung in the stage of grey hepatization in pneumococcus lobar pneumonia, were found to be more toxic for experimental animals than similar extracts of normal lung tissue. The method of extraction influenced the toxicity of both extracts. (b) Lethal doses of extracts of both pneumonic and normal lung tissue injected intravenously usually produced anaphylactic symptoms. (c) Sterile extracts of pneumonic lung tissue in dogs, removed forty-eight hours after intrabronchial insuff-

flation of virulent pneumococci, were more toxic than similar extracts of consolidated lung, following intrabronchial insufflation of sterile aleuronat in suspension, and both of these were more toxic than equal quantities of extract of normal dog lung. (d) The toxicity of normal and of pneumonic lung was decreased by heating, drying, and passing through a porcelain filter. (e) Extracts of human pneumonic lungs, during grey hepatization, were frequently hemolytic for guinea pig cells, whereas similar extracts or normal human and dog lungs, and of consolidated dog lungs following the intrabronchial insufflation of virulent pneumococci and sterile aleuronat, were generally non-hemolytic. The hemolytic activity of these products was neutralized by horse antipneumococcus serum, also normal rabbit serum; was reduced by heating and drying, and usually removed by porcelain filtration. (f) One extract of a human pneumonic lung in grey hepatization was found to neutralize partly the agglutinating activity of an antipneumococcus serum. (g) The nature of these toxic and hemolytic substances was unknown; it was probably allied to the protein fractions and might be partly responsible for the symptoms in lobar pneumonia, which were ascribed to toxemia.

A Skin Reaction to Pneumotoxin.—Mr. CHARLES WEISS and Dr. JOHN A. KOLMER present this communication. The work reported formed part of the studies on the properties of pneumotoxin and its probable role in the pathology of lobar pneumonia. The authors used the endocellular hemolytic toxin of the pneumococcus freshly prepared for each test by dissolving the washed living organisms (Type I), in solutions of sodium choleate. Guinea pigs previously sensitized, reacted to the intracutaneous injection of 0.1 c.c. of the toxin. Control animals gave uniformly negative results. Among human adult cases of lobar pneumonia the reaction was elicited as early as the fifth and as late as the thirteenth day of the disease (two days before and six days after the crisis, respectively). In children it was demonstrable about the same time, but was negative immediately or one or two days after the crisis. Patients recovering by lysis reacted as late as the thirty-second day. In general, the test was positive in all active cases.

Dr. A. P. HITCHENS asked had Dr. Kolmer taken into consideration the great increase of toxicity in tissues which undergo autolysis. A piece of liver digested in sterile salt solution for twenty-four hours would become extremely toxic.

Dr. R. R. MELLON of Rochester asked if these extracts of empyema fluid bore any relation to the aggressiveness of the disease.

Mr. WEISS, of Philadelphia, said it was very difficult to decide whether or not the toxicity or the pneumonic exudate was present or not in tissues undergoing autolysis. One could detect the proteins, proteoses, etc. Most of the experiments were done to detect substances called pneumotoxins, to which the toxicity of the exudate is due. The addition of autolysates would increase the toxicity. The hemolytic properties of the pneumonic exudate may not have been specific for pneumonia. They had been attributed to various fatty acids. Specific anaphylactic results were obtained by sensitizing guinea pigs by normal and pneumonic exudates. The latter was rich in fibrin and the reaction might have been specific to the fibrin.

Dr. JAMES EWING said that this work was an important step in the right direction. He did not feel competent to offer an opinion, but he wondered why the work of immunologists turned always to specific toxins and away from tissue changes which the pathologist was interested in. He believed that immunologists had been set back by over attention to Ehrlich's theories.

Dr. G. H. A. CLOWES asked were these substances soluble in fats and lipoids or in water. That was of vital importance in determining their characteristics.

Dr. J. KOLMER said they had no means of absolutely controlling this work in relation to aggressiveness. They tried to ascertain whether this toxic substance would retard phagocytosis of pneumococci in vitro.

Observations on the Use of Salvarsan in Acute Infections.—This work, a brief summary of which was given, was done by Dr. C. S. ALLISON, who had recently

died of lobar pneumonia, and in whom the Association lost a most promising and untiring worker. He had tried the effect of using salvarsan therapy in positive blood stream infections, due to various bacteria. Results from the use of the Dakin solution in infections of the uterine cavity were recorded together with the salvarsan injections. Good recovery was made. Experiments with the use of salvarsan in streptococcus bacteremia were recorded. The conclusions were that unless the primary focus of infection could be detected and removed, intravenous injections of salvarsan were of little use.

Preliminary Tests to Blood Transfusion.—Dr. ARTHUR F. COCA of New York made this presentation. There was, he said, little to add to this practically closed subject, but certain facts should be kept in mind in regard to blood constituents, where transfusion was required. Individuals fell into four groups in regard to the red corpuscles qualities. Two different agglutinable substances are present (a) and (b) and the plasma of human being contains iso-agglutinating substances—(A) and (B). It might be stated that (a) is never present with (A). All possible combinations of the substances, however, might occur in different individuals, as many as 4,000 having been demonstrated. The four groups are—I, with iso-agglutinable substances (A) and (B) in the plasma; II, with (BB) in the plasma; III, with (A); IV, substances lacking. Most individuals are Types I and II. Transfusion would be most favorable when donor and recipient belong to the same group. Most unfavorable results would arise when the recipient's plasma contained agglutinins for the donor's corpuscles. As regards technic:—venous blood is obtained, citrated, and the serum of the patient is mixed with washed corpuscles of the donor, and vice versa. If agglutination were present, it would do as much harm as hemolysis; hemolysis never occurs without agglutination. Dr. Coca gave the different techniques of various workers, Weil, Rous and Wright, which he had simplified by his method. One per cent. sodium citrate was used, one part to nine of patient's blood. One point to bear in mind was that the donor's blood, not being anemic, was richer than the recipient's blood. One part of donor's blood to nine of the patient's was sufficient. In this proportion agglutination would take place at once, if at all, and could be readily detected.

Dr. JOHN A. KOLMER of Philadelphia said he would like to refer to a technique which had been employed during the past year which was somewhat similar to that demonstrated by Dr. Coca; this was the microscopic method with Lee's technique. Two types were used: one containing 1 c.c. of sodium citrate in a dry test tube and one with blood. The blood from the patient and from several donors (separately) was brought to the laboratory. The corpuscles were not centrifuged; the clots were broken up in the platinum loop. Two drops of patient's serum was used with one drop of corpuscle suspension of each donor; then two drops of serum from donor and one drop of corpuscles from the patient. Observations were made at the end of fifteen minutes, when agglutination, if any, would be marked. This method did not attempt to group the blood which was not of practical advantage, unless in an army hospital where groups were tested, but it was a quick and practical procedure in the average case. Dr. Kolmer said he believed the opinion was gaining ground that these preliminary tests should be done. Some surgeons did not make use of them and transfused without paying attention to any tests. This would seem to involve certain risks to the patient.

Dr. A. F. COCA said that the choice of methods would lie with the individual and what apparatus he had at hand. These methods were much quicker than blood counting. All the apparatus would be available in any laboratory that does blood counting. As regards transfusion without preliminary tests, it was known that death had occurred from this procedure, and the surgeon might meet serious trouble. Eighty per cent. of persons fell into the first two groups and the chances were that the donor would fit the case, but this did not hold good in all cases.

Isolation, Purification and Concentration of Immune Hemolysin.—Dr. M. KOSAKAY read this paper: These studies were made in the Institute of Forensic Medi-

cine, Tokio Imperial University. The concentration of antibodies for the purpose of serum therapy, and the elimination of serum proteins in order to avoid serum sickness, were the objects of the research. Elimination of serum proteins was attempted by the precipitin methods employed in production of diphtheria antitoxin. Secondly, extraction of immune bodies by antigens and use of inorganic substances, such as charcoal, was attempted. Separation of antibodies from the antigenic substance was found possible. This was done with hemolysins, precipitins and other combinations by treatment with acids and alkalis. Antibodies were found to be coagulable by high temperatures. Use was made of the fact that immune reactions were slow in salt free media. The serum elements were removed by washing in sodium chloride, and the antibody in the final preparation could be measured. The corpuscles were treated with hypertonic sugar solution which does not produce hemolysis, the corpuscles thus remained intact with the hemolysins attached. Some antibodies were discharged into the sugar solution at ordinary temperature, but more were obtained by raising the temperature, to as high as 60° C., without producing hemolysis. Five-sixths of the antibodies were thus discharged and the concentration was found to be of some value. The optimum relation was found to be 4 c.c. of corpuscles and 20 c.c. of a 10 per cent. sugar solution; 15 minutes was found to be the optimum time of reaction. The supernatant fluid was found to contain hemoglobin, and the attempt was made to get rid of this protein. This was done by shaking the sugar solution with ether. This produced 3 layers: first, ether; second, gelatinous mass; third, clear layer of sugar and hemolysins. The latter was dialysed and sugar removed. When the sugar-free, salt-free solution was evaporated, the hemolysin was left and was 5/6 full strength. It was free from protein reactions.

Dr. WILLIAM H. PARK of New York asked if Dr. Kosakay had been able to separate the antibodies from the bacteria, as well as from the red cells.

Dr. JOHN A. KOLMER of Philadelphia asked if it were possible to secure the hemolysin alone from the immune serum by this method. With the antihuman system there was the trouble of hemi-agglutination. So far efforts had failed in securing hemolysin free from the hemiagglutination. Was the final solution free from this factor?

Mr. CHARLES WEISS of Philadelphia said that two years ago, working in the Health Department Laboratories, he had tried to produce anti-Schick hemolysins, free from red blood cells. Dr. Cahn suggested crystallizing the hemoglobin. If one could produce this by chemical means the technique would be simplified.

Dr. KOSAKAY said it was a good idea to make the hemolysin free from bacteria. It had not been tried. He had not been able to separate the hemiagglutination from the hemolysin. This was an important point to study.

A Rapid, Simple Method for Extraction of Precipitin Antigen from Bacteria.—Dr. CHARLES KRUMWIEDE of New York read this paper. This was not original, but it demonstrated the extraordinary resistance of bacterial precipitin antigen to both heat and chemicals. A very heavy suspension of bacteria was necessary for the technique. Antiformin was added and the mixture kept boiling till the bacteria were dissolved. Phenolphthalein was next added, then hydrochloric acid, finally alcohol. The solution was then dissolved to 20 times its volume with saline, to get rid of bacterial rests. The clear solution resulted in an extract to be diluted 50 to 200 times. The essential point was to start with a very heavy bacterial suspension. If not heavy enough, there would be very little precipitate. Acid-fast bacteria could not be used for this method, as they were not dissolved by the solution. The above method would produce the most concentrated form of antigen obtainable.

Dr. GEORGE SMITH of Glen Olden, Pa., asked if this precipitin antigen was as valuable as antigen for the production of other immune bodies, when employed as antigen.

Dr. KRUMWIEDE said he had tried to produce immune serum to the antigen. It did not produce any antibodies.

(To be concluded.)

Therapeutic Hints.

Lumbago.—Whitla uses the various types of salicylates for relief of the pain, such as aspirin 15 gr., salicin 20 gr., salophen 10 gr., or salol 10 gr., given three times daily, usually with plenty of water to drink, and the following application applied on lint over the affected part of the back:

℞ Liniment. belladonnæ 5ij
Liniment. aconiti 5 iss
Liniment. chloroformi ad. 5vj

M. Sig. For external use.—*Dictionary of Treatment.*

An Ointment for Microparasitic Skin Diseases.—Pied offers the following modification of Reclus' ointment (*Jour. de Médecine et de Chirurgie Practiques*):

℞ Glacial carbolic acid,
Salicylic acid āā 1
Resorcinol 2
Camphor (powdered),
Antipyrine āā 5
Balsam of Peru 6
Vaseline q.s. ad 100

The carbolic acid, salicylic acid, resorcin, and camphor should be dissolved in a small quantity of alcohol. The antipyrine is dissolved in its own weight of sterile water. The mixture is incorporated with the vaseline, and the balsam of Peru thoroughly mixed with it in a mortar.—*The Practitioner.*

Eczema and Other Irritating Dermatoses.—

℞ Bismuthi oxidi 5ij
Acidi oleici 5ij
Cerae albæ 5vi
Petrolati 5ij 5ij
Olei rosæ mxi

M. et fiat unguentum.

McCALL ANDERSON.

Carbolic Acid in the Treatment of Bubo.—Wolff uses pure carbolic acid liquefied by the addition of one-tenth by weight of rectified spirit, for the treatment of bubo. If non-suppurating he applies every day a layer to the central part over one square centimeter. He ceases these applications when the skin desquamates, and begins afresh a few days later, unless the bubo has disappeared. When the bubo contains pus, the latter is evacuated, and the pocket is touched with the carbolic preparation every two days until granulation takes place, when a simple iodoform dressing is applied.—*Medical Press.*

A Nerve Tonic.—Goodell recommends the following in conditions of nervous exhaustion:

℞ Extract of sumbul,
Sulphate of iron of each gr. xx
Asafetida gr. x
Arsenous acid gr. ss

M. et fiant pilulæ xx. Sig.: One pill after meals three times a day.—Hare's "Practical Therapeutics."

Constipation.—

℞ Aloes,
Sodium chlorate āā gr. xv
Cocoa butter q.s.

M. Sig.: For one suppository, to be taken at bedtime.

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METHOD AND ORGANIZATION OF REEDUCATION FOR WAR CRIPPLES IN GERMANY.*

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NEW YORK.

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THERE is no general uniform system of care for war cripples in Germany. There is no central authority giving general direction to the work; the reeducation schools for cripples are of varying types and most unevenly distributed. At the same time, the work is of a purely volunteer character; the matter of reeducation is wholly in private hands and is not even supervised by the Imperial Government.

However, in spite of this lack of system and of government control, the work that is being done ranks extremely high, both with regard to its volume and to the efficiency of the individual institutions. This has been made possible by the highly developed system of private charity in Germany and by the existence of a strong body of enlightened public opinion with regard to what constitutes the duty of the nation towards the war cripple.

At the beginning of the war, there was in Germany the usual outbreak of charity, misguided by the traditional attitude towards the war cripple, which was a combination of hero worship with pity for an assumedly helpless member of society. The newspapers were loud in their demands for *Heldenheime* (Old Soldiers' Homes), where all cripples could be maintained in idleness for the rest of their lives. Public sympathy towards the war cripples was in danger of being absorbed in the traditional undesirable forms of charity, to the total disregard of constructive forms of assistance.

Immediately, however, an educational campaign was started to divert public opinion to an interest in the work of rehabilitation and reeducation of cripples. This public education on the subject of proper treatment for war cripples has been very efficient and effective. At the present time, German public opinion has fully assimilated the idea that the real public duty towards the cripple is to restore him to work and to an active participation in the economic life of the country, and that this is a part of the patriotic duty. The faith in the possibility of the rehabilitation of war cripples has be-

come a part of the patriotic faith. The principle that no one need be a cripple unless he himself wishes it, and that "the wounded man must sink back into the mass of the people as though nothing has happened," is accepted as a creed.

These results are due to the work that had been done in Germany before the war for the care of cripples and the achievements that had been obtained. For many years it had been the creed of leading German orthopedists that almost any cripple could be made fit to work again and that education for work should be the regular treatment. Germany was the country which, of all others, had, when the war broke out, the most foundation for caring for cripples. The German Federation for the Care of Cripples (*Vereinigung für Krüppelfürsorge*) was an organization of old standing. There had been developed, during fifty years' experience, fifty-four cripple homes, ranging in size from six to three hundred beds. Some of them were already taking adults as well as children; they had among them two hundred and twenty-one workshops, teaching fifty-one trades. On the other hand, the German system of social insurance was to a large extent responsible for the promotion of the study of the care and training of cripples. Under the insurance laws, a workman is taken care of, for the first twenty-six weeks of illness, by the *Krankenkassen*, which are supported by joint contributions of employers and employees. After twenty-six weeks, he is supported by the *Berufsgenossenschaften* (Employers' accident insurance associations). These latter associations, which have charge of the men for longer periods and are more concerned with cripples than with mere cases of sickness, have made a special study of the physical and mental training of the industrially disabled. Preparing a man to resume his trade was to their advantage, since it relieved them of the necessity of paying him a permanent pension.

When the war broke out, the German orthopedists naturally became the leaders in educating public opinion and took the initiative in organizing the volunteer work for the care of cripples. The first place in this work belongs to the Federation for Care of Cripples, and especially to its secretary, Dr. Konrad Biesalski, Germany's leading orthopedist. Immediately after the outbreak of the war, the Kaiserin, at Dr. Biesalski's suggestion, sent a telegram to the Federation, asking that the German cripple homes throw open their doors to war cripples. To this, all the homes immediately consented. Dr. Biesalski undertook a tour of Germany under the auspices of the Red Cross, in which he visited all the principal cities, urging the formation of voluntary committees for the care of war cripples.

*Detail research work on which this article is based performed by Miss Ruth Underhill of the staff of the Red Cross Institute for Crippled and Disabled Men.

The immediate result was the formation of volunteer committees in many cities and of larger ones in some states and provinces and the starting of work in all parts of the empire under various auspices and with various plans.

While the methods used in the different localities and institutions may greatly vary, there is a complete unity of purpose. Germany has a complete definite scheme as to what constitutes the reconstruction of war cripples. It is accepted by all the institutions working to this end, it is put in practice, and the statement is that in ninety per cent. of the cases the desired results are obtained. The scheme, as expressed by Dr. Biesalski, is as follows:

1. No charity, but work for the war cripple.
2. Cripples must be returned to their homes and to their former conditions; as far as possible to their former employment.
3. Cripples must be distributed among the mass of the people as though nothing had happened.
4. There is no such thing as being crippled, while there exists the iron will to overcome the handicap.
5. There must be the fullest publicity on this subject, first of all among the cripples themselves.

There are four stages in the treatment of war cripples: (1) medical treatment, (2) provision of artificial limbs and functional reeducation, (3) vocational reeducation and vocational advice, (4) placement. These activities are cut sharply in half, the first two being the function of the Imperial Government and the last two of private and state agencies.

All hospitals where wounded soldiers are treated, whether for first surgical care, or later convalescent care, are under military control and discipline. The hospitals are of two types: on the one hand, the regular military reserve hospitals, and on the other hand, the so-called *Vereinigungslazaretten* (affiliated hospitals), or private hospitals which have put at the disposal of the war department either their whole plant, or a certain number of beds.

The *Vereinslazaretten* include all the cripple homes and hospitals which were offered to the war department by the Federation for Care of Cripples, by the *Krankenkassen* and *Berufsgenossenschaften*, by the Red Cross, by many municipalities, individuals and charitable institutions. There is a fairly complete network of orthopedic homes distributed all over the empire, to which men can be sent for final intensive treatment. According to a statement by Dr. Leo Mayer, there are at present about two hundred such institutions, and Germany's facilities for giving orthopedic treatment to crippled soldiers are quite adequate.

The organization of the work, in the stages that are not under the control of the Imperial Government, varies greatly with the different parts of the empire. It is either financed and directed entirely by the state government, as in Bavaria; or it is initiated and directed by the government, but with private cooperation and support; or, finally, it is initiated and financed by private agencies, but with government cooperation. In spite of all these differences, however, there are, in all the divisions of the empire, local care committees for war cripples in almost every town. In all the committees, the agencies represented are usually the same: the

municipality the *Bezirkskommando* (military district command), the accident insurance associations, the Red Cross, the women's clubs, the employers, different business organizations, and the labor unions. Germany is now thoroughly covered with a network of local organizations. In September, 1915, a national committee (*Reichsausschuss*) was elected, at a meeting of representatives of the cripple work from all parts of the empire, for the purpose of coordinating the work of the local organizations.

The wounded soldier, after receiving the first surgical treatment at the field hospital, is removed to the rear: if he needs orthopedic treatment, to one of the orthopedic hospitals. An effort is always made to send men for treatment to their home town. After his discharge from the hospital, the man goes back to his reserve battalion, which is likewise quartered at his home town, and there he awaits the final decision upon his pension and his dismissal as *dienstunfähig*, or unfit for service.

Most of the civilian activities, both in reeducation and in placement, take place while the man is under the authority of hospital or reserve battalion. This makes necessary the closest cooperation between military and civilian authorities. The effect is that of two interlocking systems functioning side by side, occasionally overlapping, occasionally failing to make perfect connections, but, as a rule because they are not really different in spirit, managing very effectively.

Medical Treatment.—The principle upon which the orthopedic treatment proceeds is that practically every cripple can be made fit to work again. This attitude is assumed by all the German writers, in contrast to the French, who make more conservative estimates. It appears to be a definite public policy to assume as an article of faith that rehabilitation is an absolute success and that discussion is superfluous. Dr. Biesalski states that from ninety to ninety-five per cent. of all war cripples treated are returned to industrial life. The time of treatment for a man in the orthopedic hospital is from two to six months. Men are kept here until they are ready to go back to the army or pronounced definitely *dienstunfähig*, unfit for service. Even if they are so unfit, the War Department does not discharge them until they are pronounced by the physician physically fit to go back to civil life.

There is great enthusiasm in Germany over the advances made in orthopedic treatment, and it is certain that the best hospitals are excellently equipped. The arrangements at Nürnberg, for instance, include an operating room, a room for making plaster casts, an x-ray machine, hot and cold baths, massage, electric and medico-mechanical treatments of all sorts. More and more emphasis is being laid on physical exercise as a means of strengthening the stump and also the remaining limbs and of bringing the physical condition back to the standard. The plan is that a man shall begin very simple but systematic physical exercises even before he is out of bed. These are gradually increased until finally he has two or three hours a day under a regular gymnasium instructor. In many places, physical directors from public schools and universities have volunteered their services as instructors. *Turnvereine*, or athletic clubs, often

turn over to the cripples their gymnasiums or athletic fields. Municipalities often place at the disposal of the hospitals their public parks and swimming pools.

Games and outdoor sports are found to have an immense therapeutic value, both psychological and physical, as compared with medico-mechanical treatment. At Munich, at the Königliche Universitäts-Poliklinik and the Medico-Mechanisches Ambulatorium, 2,000 men receive regular physical training. The Oscar-Helene Heim, Berlin-Zehlendorf, reports as part of its regular training for one-armed and one-legged men, ball playing, spear throwing, bowling, shooting, and quoits. The sports at Ettlingen include work on parallel bars for one-armed men and hand ball and jumping for one-legged men, besides regular calisthenic exercises pursued in the open. At the one-armed school at Heidelberg, Dr. Risson reports club swinging for one-legged men, a contest with the horse between the one-armed and one-legged, standing high jump for the one-legged, putting the shot by the one-armed, also ball throwing and hand ball for the latter, the stump being used as well as the good arm. The reserve hospital at Görden, Brandenburg, emphasizes long distance running and takes its men for long hikes in the open in regular running costume. Swimming is also being emphasized. In Berlin, cripples have been given free entrance tickets to the public swimming pools. Their swimming is supervised and no one is allowed to go into deep water until the instructor is sure of his ability. On a day when forty cripples, mostly with arm and leg injuries, made their first attempt, all of them were able to swim without help. In many places, hospital contests are organized or permanent athletic clubs for cripples are created.

Trade training is under civilian auspices and is not conducted directly by the hospitals. Many hospitals, however, have a workshop or two attached for purposes of functional reeducation. There is great emphasis, in all the reports on the subject, on the fact that even this occupational therapy should be really useful and should lead the patient direct to some practical occupation. There is also some emphasis on the fact that a man should be visited and his mind turned toward work at the earliest possible moment before mental lethargy has any chance to set in.

Artificial Limbs.—All artificial limbs are furnished and kept in repair by the government. The government has prescribed maximum prices for prostheses of different types. Otherwise there is no official supervision; no standard pattern is prescribed, and the matter is left to the doctors and engineers of the country.

The result is an immense stimulation of activity. The magazines are full of descriptions of new prostheses recommended by doctors and manual training teachers from all parts of the country. At an exhibition of artificial limbs, held at Charlottenburg, there were shown thirty kinds of artificial arms and fifty legs in actual use. The German Orthopedic Society has devoted much discussion to the matter and there has been wide education and publicity.

The principle now thoroughly accepted is that the prosthesis should reproduce not the lost limb, but the lost function. It should not be an imitation

arm or leg, but a tool. The standard of merit is the number of activities it makes possible. The prostheses usually supplied to cripples answer this definition. The legs are very like the old-fashioned peg leg; the arms are some variation of jointed rod with an arrangement by which different appliances may be fastened to it. With the arm, is supplied a wooden hand covered with a glove which may be attached for street wear. The so-called *Sonntagsarm* (Sunday arm) is never supplied except on request to clerical workers.

The limbs are made by private firms, many of whom sell them at cost price as a patriotic measure. Some of the hospitals have an orthopedic workshop as part of their vocational training equipment, and these make their own limbs or at least prostheses for temporary wear. But there are certain well-known makes of limb which have come into very general use.

The Jagenberg Arm. This is the invention of a factory owner at Düsseldorf, where there is a very large school for the wounded. It consists of two metal rods joined by a ball and socket joint which can be turned in any direction, a grip of the well hand sufficing to fix or loosen it. It is fastened to the stump by a tight-fitting leather cuff. With the arm is furnished a set of twenty attachments suitable for all the ordinary operations of life, such as eating, dressing, etc., and a wooden hand for street wear. The number of attachments can be added at will to suit any trade. The arm is easily made and its parts can be had at any factory.

Rota Arm. Made at the Rota Works, Aachen, after designs by the engineer Felix Meyer. Very similar to the Jagenberg arm, it differs in the manner of attaching tools. A set of attachments and an artificial hand is also furnished with this arm.

Schüsse-Schückert Arm. Made by the Siemens-Schückert Works, Nürnberg, after designs by Dr. Silberstein, of the Royal Reserve Hospital, Nürnberg. The firm manufactures the arm at cost. This differs from the Jagenberg and Rota arms in having the weight of the arm borne by a strap over the shoulder while in the two former the weight comes on the stump. The arm has been tried out, particularly in the Nürnberg carpentry shops with great success. It has a carefully worked-out set of attachments fitted especially for carpentering.

Riedinger Arm. The invention of Professor Riedinger, Würzburg, it consists of a long leather upper arm and short metal lower arm, with a tube into which attachments can be screwed. It is fastened on by a complicated harness over the shoulder and is particularly good for heavy lifting.

Brandt Arm. The invention of Wilhelm Brandt, Brunswick. This is a celluloid arm with sliding joint, meant for lighter work.

Hanover Arm. Made by the firm of Nicolai, Hanover. Here the ball joint is replaced by a hinge, fastened at any angle by wing screws. This arm has also a set of attachments. It is light and particularly suited to clerical workers.

The two *Schönheits* or *Sonntags* arms (decorative arms), made are the Schüsse arm, Leipzig, and Carnes arm, an American patent purchased by a German firm. The Schüsse arm is a perfect imitation of the human arm entirely useless and pur-

chased only by wealthy cripples as an extra prosthesis. The Carnes arm is also an imitation, but with a very complicated mechanism, by which most of the operations of daily life can be managed. The Carnes arm is too expensive and fragile for wide use. A cheap imitation of the Carnes arm has been invented by Professor Bade, Hanover, but is not durable. Even this has not met with wide approval, because the arms made on the tool plan far surpass it in working usefulness.

Two hand prostheses are in wide use, both invented by cripples and both on the principle of the claw. The hand best suited to factory workers is that invented by the locksmith Matthias Natus. It consists of an iron claw fastened with straps to the stump. It grasps a tool like a hand and can then be clamped in that position.

The Keller claw was invented by a farmer, August Keller, and consists of three wires the thickness of a lead pencil wound together claw shape and fastened to the stump by a strap. It grasps tools as does the Natus hand, and its owner has found it entirely successful for all farm operations. It has now been patented and is being widely copied.

The makes of artificial leg have not been so standardized. The general principle on which they are made is that of simple construction and swift repair. Orthopedists have given up the effort to get much foot movement and the usual plan is an unjointed foot with a convex sole. The most noteworthy improvement is that adopted at Freiberg of reducing the weight by making the upper leg of a thin metal rod. The shape of the leg is retained by covering the rod with a wire form covered with elastic. Dr. Alfred Jaks, of Chemitz, has invented a leg consisting of parallel levers which are set in motion by raising and lowering the stump.

In February, 1916, the Society of German Engineers made an attempt to standardize the various efforts in the production of prostheses, by offering three prizes for the best artificial arm. The prize entries were on view for three months with very good educational results. The Society then decided to establish a permanent *Prüfungsstelle* (test station) for artificial limbs, which was opened at Charlottenburg, in February, 1916. The station has been empowered by the military authorities of the Berlin district to advise all cripples of the district as to prostheses. To August, 1916, three hundred and forty-five cripples had been so advised. The Kaiser, from sums placed at his disposal for war relief, has recently turned over 50,000 marks to be used for the purchase and testing of artificial limbs. Twenty thousand of this goes to the *Prüfungsstelle* in Charlottenburg.

Vocational Advice and Reeducation.—Reeducation in Germany goes on at the same time as the medical treatment. This has two causes: First, there is the strong conviction among all cripple welfare workers that results can be obtained only by getting hold of a patient at the earliest possible moment of convalescence, and second, the fact that, since the Imperial Government does not pay anything towards reeducation, it is more economical for the care committees to attend to it while the men are in the hospitals and thus save themselves the expense of maintenance.

The first civilian function in the care of the war cripples is vocational advice. The local care committee usually appoints vocational advisers, which appointments have to be sanctioned by the local military authorities, who control the visits made to the men at the hospitals. As soon as the man is well enough to be visited, the committee sends to him its representative to get full facts on his experience and his physical condition and then advise him as to reeducation or immediate work. The principle is fast held to that a man must, if humanly possible, go back to his old trade, or, failing that, to an allied one.

The trade training is given while the men are still in the military hospital, beginning, in fact, as soon as they are able to be out of bed. The workshops are maintained by the local care committees; they can either be located in the hospital or in a separate building to which the men are transferred every day. The first plan is followed mainly in the case of a few of the larger cripple homes, such as the big hospitals at Nürnberg, Munich, Marfeld, Görden. In most instances, there are no workshops maintained at the hospitals. The local care committee may utilize the local trade schools. There are excellent facilities for this, since every town has at least one trade school. Some representative of the educational authorities generally serves on the local care committee and the schools are eager, in any case to offer free instruction. German magazines are full of advertisements of free courses for war cripples, offered by schools of the most varying kind, public and private, from agricultural and commercial schools to professional schools and universities. On the other hand, in a large town, with a large number of hospitals, the committee may create a school of its own. Thus, in Düsseldorf, for instance, where there are fifty hospitals, the committee has taken possession of a school building equipped with shops and tools and gives twenty courses open to men from all the hospitals.

The instruction offered and the trades taught present a great variety. Thus, at the Nürnberg school, the curriculum is as follows:

A. Theoretic work: left-handed writing, improved writing with right hand, typewriting, stenography, commercial course, general course, for industrial workers, farm bookkeeping, theoretic courses, for the building trades (carpenters, locksmiths, masons, plasterers, etc.), decoration and design, theoretic course for machinists, left-handed drawing, office management.

B. Practical work: tailoring, painting, bookbinding, printing, locksmithing, shoemaking, saddlery, weaving, orthopedic mechanics, machine tool work, carpentry, farming, paper hanging, toymaking, blacksmithing, brushmaking.

The Düsseldorf school offers the following curriculum:

A. General Education: civics, German, manual training, education of one-armed and left-handed men.

B. Theoretic Trade Courses: building trades, metal-working trades (courses for machinists and for draughtsmen), commercial course, course for railway and postal employees and lower position in civil service (office work, telegraphy), course for store clerks, agricultural course, course in handi-

craft as preparation for journeyman's and master tests.

C. Practical Trade Courses with Shop Work: electrical work, metal work, carpentry and cabinet work, locksmithing, stone masonry and carving, graphic trades (printing, lithography, etc.), book-binding, cardboard and leather work, painting and plastering, upholstery and decorating, dental laboratory work.

It is planned that none of the courses shall take more than six months, the maximum time for hospital care. These short courses are intended for men of experience who need further practice in their old trade or in an allied one. If a man needs further training after this short course, he becomes the charge of the local care committee, which supports him in a technical school or pays the premium for apprenticing him to a master workman.

A special effort is being made to return to the land all those who have any connection with it, such as farmers, farm laborers and even handworkers of country birth. All the hospitals which have any land give courses in farming and gardening for their inmates. It is estimated that there are several hundred such hospital farms, small or large, run by the wounded. In addition to this, there are definite summer farm courses at agricultural schools and universities, which are free to cripples. There are in the empire ten regular agricultural schools for war cripples.

Since the one-armed man has the greatest handicap, special arrangements for the training of one-armed have been made in many places. A school for the one-armed means, as a rule, special courses for one-armed men given in the regular city schools where the men will afterward be taught a trade. The purpose of these courses is to exercise the stump and the remaining members, until the man is able to take up trade-training besides others less seriously crippled. The course includes instruction in the ordinary acts of life, such as eating, washing, dressing, tying knots, using simple tools, left-hand writing, etc. In addition all the schools put great emphasis on physical training. Six weeks is said to be enough to put a one-armed man in condition to go on with regular training.

Placement.—There is no uniform machinery for the placement of war cripples. The principle is universally recognized that a "man must go back to his former position." The care committees, while interviewing the man in the hospital, get also in touch with his former employer. Sometimes a position is thus secured even before the man has started on his training, and the latter is then adapted to the requirements of that particular position. It is, however, not always possible to place a man with his old employer. Some of the larger care committees run employment bureaus of their own. Others turn over the man who cannot be taken back to his old position to another agency, mainly to the employment bureaus. Germany has a regular system of public employment bureaus supported by the municipalities. The bureaus in each state or province are united under a state or provincial directorate, and the directorates in an imperial federation. Some of these bureaus had, before the war, special divisions for the handicapped, and others are now forming them.

Employers' and workmen's associations are of considerable assistance in the placement of war cripples, especially the *Vereinigung Deutscher Arbeitersgeverbände*, (Federation of German Employers' Associations), which has been recently formed for this particular purpose, and the many master guilds of handworkers. There are also a number of agencies due to charitable or private initiative.

Finally, there are open to war cripples a very large number of positions in government service. The Imperial Government has promised that all former employees of the railways, post office and civil service will be reemployed, if not in their old capacity, in a kindred position. These men are to be paid without consideration of their pensions. The post office department has decided to give all future agencies and sub-agencies in the rural districts to war cripples, provided they are fit for the positions and want to settle on the land. Many city governments make efforts to take in cripples. A number of employments under the war department are reserved for cripples. The war department, through its recently created welfare department (*Versorgungsabteilung*), attempts also to develop a placement activity wherever there is no very active local care committee, and publishes twice a week a journal which gives the positions open for war cripples.

FURTHER EXPERIENCES WITH THE DIRECT EXAMINATION OF THE DUODENAL CONTENTS IN AFFECTIONS OF THE GALL-BLADDER AND ALLIED ORGANS.*

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THE utility of the direct examination of the duodenal contents (bile and pancreatic secretions) in affections of the liver, gall-bladder, and pancreas is so self-evident that it hardly appears necessary to discuss it. The fluids of all accessible cavities are eagerly studied (gastric contents, feces, urine, blood, spinal fluid) and their characteristics found useful in establishing a diagnosis. Why should not this be done with the duodenal contents? The latter, as it is well known, carry with them secretions and excretions of vital import for the existence of the organism (duodenal and pancreatic juices and bile). It is but natural that affections of the liver, gall-bladder, and pancreas will gain considerably in clearness by frequent and thorough explorations of the duodenal contents.

In two previous papers^{1,2} I have published the results of my findings in this respect. In the present article I intend to report my new experi-

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1. Max Einhorn: Direct Examination of the Duodenal Contents as an Aid in the Diagnosis of Gall-bladder and Pancreatic Affection, *Amer. Jour. Med. Sciences*, Oct. 1914.

2. Max Einhorn: The Duodenal Tube as a Factor in the Diagnosis and Treatment of Gallbladder Disease. *J. A. M. A.*, June 19, 1915.

ences with the direct examination of the duodenal contents in affections of the gall-bladder and allied organs. For the sake of brevity I shall describe all the cases in which the direct examination of the duodenal contents was of material aid in diagnosis in the subjoined table, while a few of them will be sketched in greater detail. The latter are as follows:

CASE 1.—Gastric ulcer and cholecystitis, February 2, 1918 (Table No. 11). Mrs. J. T. P. had a sudden attack of pains in the epigastrium and slight jaundice, requiring morphine, one and one-half years ago. These attacks of gas and distress in the stomach occurred after getting tired or overeating about once a month, later oftener. Patient also suffered from constipation and slight pains relieved by bicarbonate of soda. On January 10 the patient had a severe attack, requiring a hypodermic, lasting two days. Since then there was a temperature of 100° to 101° up to February 7. Patient felt weak and had lost 17 pounds in weight.

Present condition: Patient looks somewhat pale. There is nothing abnormal to be elicited in the chest organs. The stomach extends one to two fingers' breadth below the navel. The epigastrium is painful to pressure. The liver is not enlarged.

Examination of the gastric contents one hour after a test breakfast shows: HCL +; Acidity = 65. Duodenal bucket (February 9, 1918) passes the pylorus and shows a blood stain at 41-42 cm., bile 55 cm. down to the end. The examination of the duodenal contents, fasting condition, shows as follows: yellow, very turbid, alkalinity = 40; A = 20; S = 7; T = 4.5. The blood count is as follows: red blood cells = 6,000,000; Hb = 100 per cent.; white blood cells = 8,000; polymorphonuclears = 68 per cent. The blood pressure is 128 mm. The urine does not show any albumin or sugar or bile. The temperature is: morning, 99°; evening, 100.5°. X-ray examination by Dr. Stewart revealed a pathological gall-bladder with adhesions and marked prepyloric spasm.

The diagnosis was gastric ulcer and cholecystitis, probably due to gallstones. Patient was treated by duodenal alimentation and instillation into the duodenum every other day of 15 c.c. of either a one-half per cent. argyrol solution or a one per cent. ichthyol solution. After a few days' treatment the temperature was normal, and the patient felt better. The duodenal contents began to look better (less turbid).

CASE II.—Mrs. R. K., November 1, 1917. Cholelithiasis (Table No. 6). Patient was well until four years ago, when she began to be troubled with pain in the stomach 2-3 hours after eating. These attacks would occur once or twice a month for several days and last one-half hour. Six months later the condition became worse. The attacks occurred more often and were more severe. The pains appeared 5 or 6 hours after eating and would spread over the entire stomach. Vomiting would bring relief. This condition has become steadily worse up to the present time, the patient having lost 40 pounds during the past six months.

Present condition: Two to three hours after eating patient complains of severe pain in the stomach. These pains continue until the stomach is emptied by vomiting, which is usually 4 to 6 hours after meals. The attack of vomiting lasts about 1 or 2 hours, after which the patient is very weak and complains of muscular pains all over the body followed by chills. The latter condition lasts about one hour. The patient looks slightly icteric. The thoracic organs do not reveal anything abnormal. The stomach is slightly dilated extending to two fingers' breadth below the navel. The liver is slightly swollen, overlapping one finger's breadth the margin of the ribs in the right mammillary line.

Examination of the gastric contents revealed the following: HCL = 0; acidity = 30; no blood. The duodenal bucket string was 65 cm. in length; bile 35-65 cm.; blood stain, 49-51 cm. The duodenal contents on November 1, 1917 (fasting condition) were yellowish brown, twice the normal amount; alkalinity = 20; A = 10; S = 4; T = 6. On November 5 the duodenal contents were yellowish green and turbid. A = 10; S = 5; T = 3.

The blood count: red blood cells = 3,200,000; Hb. = 85 per cent.; white blood cells = 8,000; polymorphonuclears = 79 per cent.

The diagnosis of gallstones was made and an operation recommended. Dr. Willy Meyer performed the operation. A number of hazelnut-sized stones were found in the gall-bladder and two were discovered lodged in the common duct. Cholecystectomy was done and the patient made a perfect recovery.

CASE III.—Mrs. K. S. Chronic pancreatitis and jaundice due to pressure on the common duct. October 1, 1916. For the last five years the patient complained of severe diarrhea, epigastric distress, weakness, and loss of weight. Patient looks pale and thin; tongue not coated. Chest organs are apparently normal. The stomach extends to about one finger's breadth below the navel (splashing sound). The liver is not enlarged. The examination of the gastric contents one hour after a test breakfast shows as follows: HCL = 0; Acidity = 4; no rennet; very little fluid; pieces of roll not changed; no blood. The bead test revealed that the beads appeared in the stool after 42 hours, with fish-bone, catgut, fat, meat, and thymus containing nuclei, present.

On October 7, the patient had pains in the right upper abdomen, felt chilly and became slightly jaundiced. The duodenal contents were examined on October 12, in the fasting condition, with the following result: watery, no bile, alkalinity = 10; A = 2; S = 1; T = trace.

The diagnosis of chronic pancreatitis and probably also gallstone colic was made. In view of the fever which was continuous and symptoms of cholangitis, an operation was recommended. On October 19, 1916, the patient was operated by Dr. Willy Meyer. No stones were found in the gall-bladder; the pancreas was thickened and hardened; the glands in the neighborhood swollen. An appendectomy and cholecystostomy were performed. Patient made a good recovery. The bile running from the fistula examined on October 24, showed: A = 2; S = 0; T = 0; Alkalinity = 40. The draining of the gall-bladder was kept up for a number of weeks and had a remarkably good effect on the general condition of the patient. She has picked up in weight; diarrhea has disappeared, and the patient remains pretty well up to date (March, 1918.)

CASE IV.—Carcinoma of the stomach and pancreas. (Table No. 20.) Mrs. R. October, 1916. The patient complained of gastric disturbances for about ten weeks before consulting me. The chief complaints were pains one hour after meals, loss of appetite, and a loss of fourteen pounds in weight. The gastric contents showed: HCL + Acidity = 74; occult blood present; no food retention. The string test showed a blood stain at nineteen inches from the lips and bile below 23 inches, showing permeability of the pylorus. A resistant mass was palpable below the left costal margin. Examination of the duodenal contents as follows: clear, yellow (golden); alkalinity = 20; A = 3; S = 2; T = 0. A diagnosis of carcinoma of the stomach (lesser curvature), probably involving the pancreas was made.

As the patient was quite young, about 38 years, an operation was decided upon, in order to attempt to bring relief if in any way feasible. The incision, however, showed a considerable malignant tumor of the lesser curvature of the stomach extending to and involving the pancreas. The pylorus was free. The mass was left intact and the wound closed.

Two or three weeks after the operation the pains were excessive and the patient could not take the least food without suffering greatly. In order to bring some relief and help nutrition, duodenal alimentation was instituted. The food entering the duodenum, not touching the stomach, thus leaving the tumor unmolested, proved to be a great boon to the patient. She rallied considerably and felt pretty well for a while. In resuming the ordinary way of alimentation the pains returned and opiates were constantly required to reduce the suffering and make the condition bearable. A few months later the patient asked for a new period of duodenal alimentation which was given her again with some benefit. The patient continued to live and to suffer until nothing was practically left of her body, excepting skin and bones and then she died.



SPECIMENS OF NORMAL AND ABNORMAL DUODENAL CONTENTS

1. Mrs. M., Cholecystitis, Oct. 13, 1917. Dark yellowish brown.
2. Mrs. P., Cholelithiasis, March 9, 1916. Golden yellow, turbid.
3. Mrs. S., Cholelithiasis, Feb. 28, 1916. Brownish purple, turbid.
4. Mrs. N., Normal, Feb. 25, 1918. Golden yellow, clear.
5. Mrs. W., Pancreatitis, March 6, 1916. Purple, clear.
6. Mrs. J. H. McE., Nov. 24, 1917. Dark green, yellow tinge, slightly turbid.
7. J., Cholecystitis, ulcer duodeni, April 19, 1916. Dark brown, tinged with yellow.
8. Mrs. R., Cholelithiasis, Feb. 15, 1914. Greenish, turbid.

In this case it was of special interest to watch the function of the pancreas which was frequently tested. We give here the different examinations which always showed an entire absence of the trypsin ferment. The examinations were as follows:

Oct. 21, 1916. Alkalinity = 20; A = 3; S = 2; T = 0.

Oct. 23, 1916. Alkalinity = 5; A = 3; S = 2; T = 0.

Oct. 27, 1916. Alkalinity = 30; A = 4; S = 5; T = 0.

March 6, 1917. Alkalinity —; A = 0; S = trace; T = 0.

CASE V.—Duodenal ulcer with periduodenal abscess. January 13, 1917. (Table No. 22.) Mr. J. F. D., about forty-six years old, was troubled for a number of years with pains in the upper abdomen late after meals covering periods of 4 to 6 weeks, intermingled with intervals of perfect euphoria lasting 6 or 8 months. For the last 4 weeks patient has been suffering from a similar attack of pains in the abdomen. In addition to the old symptoms patient experienced great weakness and had off and on chilly sensations, accompanied by a slight rise of temperature.

Present condition. Face is flushed; tongue is coated; chest organs apparently normal. In the abdomen there is tenderness to pressure over the epigastric region. The liver dullness is increased upward up to one finger

below the right mammilla and downward two fingers below the costal margin. At the lower margin of the liver a resistant mass can be palpated three inches in length and one and one half inches in thickness. The gastric contents showed HCl + Acidity = 74; no blood; the stool blood negative. The Wassermann was negative. The thread test showed a blood stain from 23 to 23½ inches, and bile below 24 inches. The duodenal contents were as follows: golden yellow, clear; alkalinity = 20; A = 8; S = 3; T = 3. The blood was: Red blood cells = 5,300,000; Hb. = 88 per cent.; White blood cells = 13,760; Polymorphonuclears 79 per cent. This examination was made on January 23, 1917. On the 24th the blood was: whites = 14,000; polymorphonuclears = 80. The temperature fluctuated between 99° and 102° F. and was of an irregular type. The x-ray examination did not show anything definite. The urine revealed the absence of albumin and sugar and the presence of urobilinogen.

With regard to the diagnosis the past history and the thread test pointed to a duodenal ulcer. While the present symptoms and the swollen liver with the rise of temperature and the considerable leucocytosis seemed to indicate an infection process probably due to some gall-bladder disease. The clear golden yellow bile appeared to negative an infectious process in the gallducts. The resistant mass beneath the liver and the

TABLE OF CASES IN WHICH THE EXAMINATION OF THE DUODENAL CONTENTS WAS OF DIAGNOSTIC AID (MAY, 1916-MARCH, 1918)

Case	Name	Diagnosis.	Date.	EXAMINATION OF DUODENAL CONTENTS.				Appearance of Duodenal Contents.	Remarks.
				Alkalinity.	Amylopsin, Mm.	Steapsin, Mm.	Trypsin, Mm.		
1	Mrs. B.	Cholecystitis and probable cholelithiasis.	5-24-16	10	6	..	3	Greyish, tinged with yellow (straw color), turbid, mucous.	Rennet +. At operation stone found in common duct.
2	Mrs. L.	Cholelithiasis.	6-15-16	10	1½	..	½	Slightly turbid, yellow, mucous.	Operation. Gallstones found.
3	Mrs. T. K.	Cholecystitis.	6-16-16	20	5	1	3	Yellow, turbid.	X-ray=circular shadow, probably due to gallstones, operation for adhesions over cecum; gallbladder contained no stones.
			6-19-16	30	8	2	3	Purple, clear.	
4	Mrs. B.	Cholelithiasis.	3-2-17		8	Trace	..	Whitish, turbid, trace of yellow.	Operation. Gallstones found.
5	Mrs. B. H.	Cholelithiasis.	4-20-17	30		..	..	Yellow, turbid.	Milk unboiled=coagulated Milk boiled=no coagulation Operated upon by Dr. Willy Meyer Gallbladder enlarged, containing seropurulent fluid and stones (cholecystectomy).
			4-24-17		4	1	3	Yellow, clear.	
6	Mrs. K.	Cholelithiasis.	11-1-17	20	10	4	6	Yellowish, brown, twice normal amount.	Gallstones found at operation. Case described in detail.
			11-5-17		10	0.5	3	Yellow, green, turbid.	
7	Mrs. S.	Duodenal ulcer and cholelithiasis.	11-9-17	30	10	4	6	Yellow tinge of green, slightly turbid.	Operation=200 stones found in gallbladder. The duodenal bucket test= blood at 22½ inches. On 11-18-17, rise in temperature and blood count = Polys.=78 per cent.; W. B. C.=10,200.
8	Mrs. A. L. M.	Cholecystitis.	10-11-17 10-13-17	(Gastric contents 20)	=HCl + S	Ac.=40	+	Greenish, brown turbid.	Operation on 10-27-17. No stones found; gallbladder looked like velvet and dark brown. Bile=dark brown resembling Kumbacher beer. X-ray=diagnosis of gallstones.
9	Mrs. J. H. McC.	Cholelithiasis.	11-24-17	20	10	6	4	Dark green with tinge of yellow and slightly turbid.	Operation 11-26-17. Gallstones found in gallbladder and common duct. Blood count=R. B. C.=4,800,000. W. B. C.=11,800. Polys.=8,270. H. B.=90 per cent. Temperature, 99-101 deg. F.
10	Mrs. R. F.	Cholelithiasis.	2-12-17	40	2	2	4	Whitish, no bile.	Operation. Stones found. Cholecystectomy.
11	Mrs. P.	Gastric ulcer; cholecystitis.	11-8-18	40	20	7	4½	Milky, cloudy, no bile.	Case described in detail.
12	Mrs. I. N.	Peptic ulcer; cholecystitis.	6-17-16	30	5	..	½		X-ray=gallbladder disease. No operation.
13	Mr. W. D.	Cholecystitis.	6-27-16	25	7	8	3	Watery, cloudy.	Blood count=W. B. C.=12,000. Polys.=71 per cent.
14	Miss B.	Peptic ulcer; cholecystitis.	10-3-16	30	2	..	..	Light, yellow turbid.	No operation.
15	Mr. W. N.	Cholecystitis.	3-2-17	30	7	2	5	Yellowish, slightly turbid.	No operation.
16	Mrs. P.	Cholecystitis.	4-17-17	2	2	1	..	Greyish, turbid.	X-ray=visualization of gallbladder.
17	Mr. Z.	Gastroptosis; cholecystitis.	11-10-17	10	3	5	5	Yellow, turbid.	X-ray=ulcer of stomach.
18	Mrs. P.	Cholecystitis.	11-16-17	30	7	5	6	Yellowish, green, turbid.	X-ray=probable distended gallbladder W. B. C.=11,400; Polys.=79 per cent. H. B.=70 per cent. Wassermann +.
19	Mrs. K. S.	Chronic pancreatitis; jaundice due to pressure.	10-12-16	10	2	1	Trace	Watery, no bile.	Case to be described in detail.
			10-24-16	40	2	..	..		
20	Mrs. R.	Carcinoma of pancreas.	10-21-16	20	3	2	..		
			10-23-16	5	3	2	..		
			10-27-16	30	4	5	..		
			3-6-17	..	..	Trace	..		
21	Mr. H. W.	Carcinoma of pancreas.	9-9-16	..	6	..	..	Whitish.	Rennet. Absent.
22	Mr. D.	Duodenal ulcer, with periduodenal abscess.	1-13-17	20	8	3	3	Golden, yellow, clear.	Liver enlarged, case described in detail.
23	Mr. J. K.	Hemolytic jaundice and cirrhosis of liver.	5-15-16	30	3	2	1	Greenish, yellow and turbid.	
24	Mr. A. S.	Hemolytic jaundice and cirrhosis of liver.	3-2-17	30	6	6	4	Yellow, brown, turbid.	

temperature curve in conjunction with the leucocytosis pointed to a suppurative process in the upper abdomen near the liver, requiring surgical aid. The operation performed by Dr. Willy Meyer disclosed a periduodenal abscess. The gall-bladder was found to be normal. About 3 or 4 ounces of pus were evacuated and the wound was drained. The temperature continued for a number of days. The patient being extremely weak and exhausted duodenal alimentation was instituted. Under this regime his strength increased from day to day and the fever disappeared. The patient then made a perfect recovery and regained in a few months the forty pounds he had previously lost.

In looking over the table we find eighteen cases of probable cholecystitis with turbid bile. In ten of these, in which the diagnosis pointed to gall-stones, operations were performed. In eight, stones were found, while in two cases (Mrs. T. K., No. 3, and Mrs. A. L. M., No. 8) no stones were found; in one case, however, the bile aspirated during the operation from the gall-bladder looked dark brown and was turbid, representing exactly the sample, which had been previously obtained by duodenal aspiration. In this case the gall-bladder was excised; the mucosa was found to be inflamed and thickened, representing the strawberry type. In a few of the eight non-operated cases (11-18) the x-ray report likewise seemed to indicate some pathological condition of the gall-bladder. Cases 19 and 20, both representing several pancreatic lesions which came to operation, one benign the other malignant, have been described in detail. They are of interest; in one the trypsin ferment was greatly diminished; in the second it was always entirely absent.

Case 21 is probably one of malignant disease of the pancreas. In Case 22 the bile was clear and seemed to negative gallstone disease. For further particulars see the full case report (Case V).

Another case of clear bile, not mentioned in the table, that came to operation is likewise of interest and helpful in excluding gall-bladder disease. The patient, E. T., had three attacks of severe abdominal colic and gastric hemorrhage in the course of four years. During the last attack there was tenderness over the right abdominal side (gall-bladder and appendicular regions). The thread showed no distinct blood stain, the bile was golden yellow and clear. The diagnosis of appendicitis was made. At the operation the stomach and gall-bladder were thoroughly explored and found normal. The appendix was diseased and strictured. It was removed.

Cases 22 and 23 represent hemolytic jaundice; both were intensely icteric, but bile was constantly found in the duodenum, but was very turbid.

As seen from the table and the few cases described in full the examination of the duodenal contents with regard to the appearance of the bile and the presence and quantity of the pancreatic ferments was often of importance and helpful in making a diagnosis.

In a former paper I described a method of imitating the looks of the duodenal contents in such a way that an imitation sample can be kept as a record. To-day I take pleasure in showing you a colored plate of a number of samples of normal and abnormal duodenal contents (representing principally bile).

You can easily see the great varieties and deviations from the normal encountered in the duodenal contents in pathological conditions. It is principally the changed bile which produces these kaleidoscopic variations. Normally it is clear and golden yellow. In pathological states it is frequently turbid and greenish or dark brown.

The duodenal contents can be examined for a great many other items than those stated in the present table. Thus the bacteriological and the microscopical examinations are of import. A great many other points which I shall not broach here will likewise have to be investigated. Even with the scant knowledge we have at present at our command the study of the duodenal contents (bile and pancreatic juice) is frequently of value in abdominal pathology. The direct examination of the duodenal contents deserves, therefore, to be more frequently employed in the field of internal medicine.

26 EAST SIXTY-THIRD STREET.

ADIPOSIS TUBEROSA SIMPLEX;

A REPORT OF THREE CASES.

By J. M. ANDERS, M.D., LL.D.,

PHILADELPHIA.

IN 1908 the writer reported four cases, which presented a condition not previously described, to which he gave the name Adiposis Tuberosa Simplex. This disorder occurs only in obese subjects and is more commonly perhaps associated with the anemic than the plethoric form of adiposity. The following excerpt from my original article accurately characterizes the condition met with in the three cases recorded below and also in those previously reported:

"Circumscribed fat masses appear in the subcutaneous tissues; they form distinct, moderately dense, slightly movable, somewhat flattened tumors, ranging in size from a bean to that of a hen's egg. Their number varies all the way from one-half dozen to two dozen or more. These moderately firm fat-nodules are not distributed over the entire body, but in some cases are confined to the extremities, particularly the lower, and in others to the abdomen. The tumor masses show no tendency to fuse together and are not elevated above the surrounding surface; they are sensitive to the touch and may be the seat of pain which varies in intensity within rather wide extremes, being moderately severe and distressing in rare cases and trivial or even absent in the majority of instances.

"The lymphatic glands are not involved, and the skin remains soft, flexible and non-adherent. The mental processes are normally active and also the muscles; asthenia is not present, and there is no more indisposition to physical exertion than is observed in cases of obesity as a rule. The knee-jerks are present and the cutaneous sensibility is unaltered, in some cases, at least."

CASE I.—Miss O. P., aet. 39 years, weight 188 pounds, height 5 feet 3 inches, applied to me for examination and treatment on November 3, 1916. History of obesity in paternal ancestors; also one of two sisters weighs 194 pounds. Father died of cardiorenal disease. One sister has had acute rheumatism. Patient had the usual diseases of childhood; appendicitis

three years, and both sciatica and "intestinal indigestion" two years, since. Menstruation has been "irregular" for several years prior to two years ago, but normal since then. Patient has paid slight attention to her diet in the past and has not taken exercise systematically. She has suffered from headaches daily during the past month, has dyspnea on exertion, is somewhat nervous and irritable. It is probable that the latter symptoms are due to frequent "aching" pains in the region of the appendix. Over the extremities, especially the lower, were to be felt small masses about one-half dozen in either leg, which masses were non-adherent to the skin, not visible, a few slightly sensitive to the touch or palpation and all strictly isolated.

The blood pressure was 122 systolic and 95 diastolic, and physical examination of heart, lungs and abdomen proved negative, if fat-deposits and their mechanical effects be excepted. Repeated examinations of the urine gave a favorable result, although hyperacidity and a marked uratic deposit were almost constantly present.

As the result of suitable treatment, chiefly dietetic, for the obesity, there ensued a gradual loss of weight until 165 pounds was reached at the end of six weeks. With the decline in avoirdupois, the circumscribed fat masses gradually diminished in size and most of them disappeared.

Later, an increase in bodily weight caused one-half dozen small fatty tumors to reappear, several of these being found on the upper arms. Subsequent reduction of the patient's avoirdupois again resulted in a disappearance of the fatty lumps. It is of interest to note that these masses developed within a brief period—three months.

CASE II.—Mrs. P. R. S., aet. 59 years, nativity American, occupation housekeeping, married, weight 222 pounds, height 5 feet 8 inches, first fell under observation May 2, 1910. The family history reveals gout in the paternal grandmother, while the father had died of organic heart disease, although beyond 75 years of age; the father was heavily built, but did not appear fat. Otherwise, the history of ancestors and near relatives was negative. Patient had childhood diseases, and suffered from marked pyrosis during two pregnancies; at time of menopause, which had taken place five years previously, developed "neuritis" in arms and legs. Patient observed small lumps over extremities to palpation; condition had slowly improved since visits to Virginia Hot Springs.

Present Illness: A physical examination revealed on inspection abnormal fat deposits, most marked over thighs, hips and abdomen, while the bones were small. There were fat lumps in the lower limbs somewhat larger than those observed in other cases of this condition; they were somewhat tender to palpation, but did not project above the skin surface; arteries hard to the feel, and nerves of the extremities tender to the touch. The heart sounds were clear though muffled, and the aortic second accentuated. The uranalysis proved negative in its results both chemically and microscopically.

The treatment consisted of massage to hips and abdomen three times weekly, a walk of three miles daily, a glass of Celestine vichy three hours after mealtime and on rising, a tepid sponge bath once daily and the following dietary:

Breakfast: Fruit, as oranges, stewed prunes, or grape fruit; pulled or toasted bread, 1 oz.; a small amount of hominy grits; a soft boiled egg or an egg cooked in any manner except fried; coffee, 4½ oz. (without sugar or cream).

Luncheon: Sweetbread, white meat or fowl or game, 2 to 3 oz.; French rolls or toasted bread, 1 oz.; fruit (except strawberries and bananas); a small amount of fat in the form of butter and cream; water, 6 oz.

Dinner: Clear soup (about 6 tablespoonfuls); fish; white meat of chicken or game, and mutton and veal (occasionally), 3 to 4 oz.; green vegetables, as spinach, string beans, green peas, lettuce, and macaroni stewed in milk, 1½ oz. For dessert, plain rice pudding, junket, or fruit (except strawberries and bananas).

The above method of treatment caused the patient's weight to fall from 222 pounds to 196 pounds in the

course of two months. The general condition was now greatly improved and the fat lumps much diminished in size. Unfortunately, the patient, who lived in another city, passed from observation at this time and, although the miniature tumors had not entirely disappeared, the writer feels confident that further treatment of the kind pursued would have caused their removal in toto.

CASE III.—Mrs. S. H., aet. 37 years, nativity American, first applied to me for treatment October 30, 1910. *Family history* disclosed the fact that her mother and one paternal aunt had been subjects of obesity. Among previous illnesses, typhoid fever at 28 years was the chief; patient grew slowly stouter after recovering from that disease. For example, prior to the occurrence of typhoid fever her weight was 107 pounds, whereas she now weighs 180 pounds. There are no symptoms apart from a feeling of fatigue, especially after exertion. A blood examination shows an anemic type of obesity. In the left hypochondriac region on a line with the left nipple a small, fatty, deep-seated tumor can be felt; this is slightly tender to palpation and freely movable. The uranalysis gave a normal result.

The patient remained under treatment for a period of six months with marked reduction in weight (154 pounds) and felt greatly improved as to her general health. The small fat tumor disappeared as the result of the treatment carried forward for the obesity. A recent visit of this patient to my office for a different complaint (severe cold) gave me an opportunity to inquire with regard to the small fat lump which the patient stated had not recurred.

The cases of obesity in which separate, small, fat-masses occur are, as stated in my former article, quite rare. Their existence, however, is to be recollected. Again, the harmlessness of these localized fat deposits, their etiological connection with obesity, as shown by their disappearance under appropriate treatment for the latter condition, are facts which make it desirable that they should be placed in a special clinical group, so as to avoid confusion of individual cases with adiposis dolorosa on the one hand and nodular circumscribed lipomatosis without symptoms on the other.

To regard the condition merely as an occasional variation in the clinical picture of simple obesity, as Lyon² suggests, fails to emphasize sufficiently its clinical importance and relationships to other conditions in which fat lumps occur.

Price³ speaks of the condition under discussion as standing halfway between simple adiposis and nodular circumscribed lipomatosis with absence of general symptoms. The close clinical association of adiposis tuberosa simplex and instances of the last-named syndrome in which constitutional features are missing, is obvious, since pain is present in rare cases only of the former condition.

The writer, therefore, feels inclined to accept Price's classification for the present. If adiposis tuberosa simplex forms a connecting link between simple obesity and nodular circumscribed lipomata, it would seem wise to designate it by a special grouping. Clinically, adiposis tuberosa simplex does not conform, in certain particulars at least, to the description of simple obesity.

REFERENCES.

1. Anders: *American Journal of the Medical Sciences*, February, 1908.
2. Lyon: *Archives of Internal Medicine*, July, 1910, p. 68.
3. Price: *New York Medical Journal*, August 22, 1914.

1605 WALNUT STREET.

THE HEALTHY SCHOOL CHILD.

SCHENECTADY'S SYSTEM OF KEEPING HIM HEALTHY.

BY WILLIAM J. BOOKS, M.D.,

SCHENECTADY, N. Y.

THE healthy school child constitutes the major educational problem of the public schools. Most children are healthy, and are able to advance according to an established standard, or even exceed the schedule for their age. Therefore, from a purely educational standpoint a thoroughly modern and efficient school system attains its highest efficiency and achieves its best results with healthy children.

An unhealthy child introduces a disturbing factor into the normal progress of a school, a diverting agent from concentrated effort on the normal child. Any distracting feature, as an over-age child in a grade—in the majority of instances due to physical defect and consequent poor health—forces a division of interests and complicates the ordinary difficulties of teaching. Or the long period of absence of a large number of pupils, incident to epidemics, delays an educational program. And while the majority of children are healthy, still many who may be classed as healthy are handicapped by some physical defect or habit or home condition which interferes with their best mental and physical development.

To secure the maximum benefit of public-school education it is obviously essential that the child be healthy; it is equally clear that if the maximum is to be approached, not only must the healthy child be maintained and improved in health, but for the unhealthy child must be secured a condition of good health. Communities, to eliminate a far too great economic waste of human material and educational effort, must provide the necessary force to insure a healthy school child. The cumulative result, stronger men and women, physically and mentally, is not the least reward of such a policy, though mentioned briefly.

Schenectady has recognized the immediate and future value of the healthy school child. For several years previous to 1915 the city maintained a relatively large health organization in connection with its schools, six doctors and six nurses, but with indifferent success, because of lack of coordinate and intelligent effort.

In 1915, in order to secure results, the staff was reorganized, placed under the direction of a chief of staff, and the development of a comprehensive inspection system commenced along scientific lines. In 1918, the staff consists of a chief medical inspector, six school physicians, two dentists, an oculist, and thirteen nurses. This force is engaged in the health supervision of 18,000 school children in twenty-eight public and parochial schools, probably the largest force per 1,000 children maintained by any city.

With the valuable services of a dispensary operated by the Schenectady Day Nursery, every school physician being prominently associated with the dispensary staff, and with a dental dispensary conducted by the public schools, the city is probably the best equipped city in the country for the preservation of the health of its school children. Having assumed the responsibility, Schenectady has met a big problem in a big way.

THE SCHENECTADY SYSTEM.

Nurses.—In the Schenectady system, each of the twenty-eight schools are visited daily by a nurse, the nurse appearing at the opening of the session. On entering a building the nurse notifies the school's telephone operator, and a record is made of her presence. She also notifies the operator when leaving the building. By this simple arrangement the exact location of every nurse is known at all times at the central switchboard, and no delay is experienced in cases of emergency. The presence of the nurse in the building is also signaled to all rooms of the building.

On appearing at the opening of a school session the nurse admits all children who have been absent because of illness, each child receiving a thorough examination to detect signs of contagious disease. After this preliminary work in a school the nurse goes to the next school of her district, and admits the returning children of that school. After this feature of the daily routine is completed, the nurse proceeds to class-room inspections, treatments, sanitary inspections, home visits, etc.

Districts.—Each nurse is assigned to two schools, working alternate mornings and afternoons in each school of her district. A nurse will thus have under her inspection from eight hundred to eighteen hundred children. From a health standpoint this arrangement is all that could be desired, and is indeed a farsighted policy. It may be argued that each nurse could supervise many more children. This holds true—if the children are in districts which can be visited daily by the nurse. A nurse can properly supervise the health of about 3,000 children, on condition that these children are in one or two schools, so that the schools can be visited daily. A nurse cannot properly supervise the health of 3,000 children in three, four, or five schools, so that the schools can be visited only every third or fourth day. This will be demonstrated later on, in a comparison of epidemic conditions of several years ago with present-day conditions. It is also very evident in the great increase of defects found with the more intensive inspection which the enlarged staff has been able to give.

School Physicians.—The school physicians, six in number, spend one hour of work daily in one school of their district. On entering a building the doctor reports to the school telephone operator and also on departure. This eliminates delay in calling the doctor. Each school receives one full hour's work a week, during which time the doctor vaccinates, examines children, or directs treatments, according to the routine of his work.

Another hour is spent daily in answering calls to other schools of his district or making home visits. While each school is visited once weekly, at which time the doctor spends his entire morning's work, he is subject to the calls from other schools of his district at any time during the week.

Two school dentists, and a dental dispensary are included in the health forces of the public schools. The dispensary is operated daily from 9 A. M. to 12 M., each dentist working alternate mornings.

There is one school oculist, with dispensary in the day nursery. Examinations and treatments are conducted on two mornings of each week. A school

fund has been included in the budget for the purchase of glasses, making it possible for a child to obtain glasses when parents cannot afford to buy them.

A *Chief Medical Inspector*, devoting all time during school hours to the work, is the director of the health work in the schools. His duties are administrative, and he formulates the health policy of the inspection force. He has general supervision over the nursing and medical staff, directs control of epidemics, open-air schools, and is head of the mental clinics. His superior is the superintendent of schools.

General Consideration.—(1) Epidemic prevention—contagion control. (2) Vaccination. (3) Physical examinations. (4) Special features.

1. *Epidemic Prevention.*—The educational routine of the Schenectady public schools has not been disturbed by an epidemic of any disease during the two years in which the present system has operated. In considering the epidemic problem it is interesting to compare present-day conditions with the conditions of former years, when the medical inspection system was rather rudimentary.

Measles.—In 1913-14 an epidemic of measles had its inception in November, and lasted throughout the entire school year. About fifty cases appeared in November, 1913, and increased each month in intensity until in March and April, 1914, as many as five or six hundred cases occurred monthly. During the entire school year there were about 1,500 cases of measles in the school system alone. Entire school rooms would be depopulated for a week or two at a time. It requires no great imagination to realize the disorganization this caused in the educational schedule. In order to combat the situation all other work of medical inspection was dropped, and the entire attention of the staff was directed toward the control of the measles epidemic.

If a review of the city health records is made it will be noticed that epidemics occur in waves, each alternate year showing a return of a disease. For instance, scarlet fever will predominate one year, and measles will be the prevalent disease the following year. Therefore, after the measles epidemic of 1913-14 preparations should be made for a recurrence of measles in 1916-17.

Till the Christmas holiday of the 1916-17 school year, under the new system of school inspection, the school system was relatively free of contagious disease. In October, 1916, shortly after the opening of school, a small outbreak of measles occurred, but was segregated to one district and controlled without difficulty. With the exception of a few sporadic cases of measles during November and December, there was no tendency toward another outbreak.

During the holiday vacation, when the children were free from school, a small outbreak occurred in the Bellevue district. Children mingled freely at play, parties, moving-picture houses, and Sunday schools, and the disease was widely scattered in the district. As was natural, foci of contagion were spread to other parts of the city by children visiting back and forth.

When the school reopened after the holidays the nurse discovered eight active cases of measles in school. These cases were the first intimation that measles had become prevalent during the holidays,

as the records of the Health Department disclosed no increase in the number of cases reported by family physicians. This district was immediately placed under very rigid supervision and a general warning issued. During the next two weeks about twenty cases occurred in the school, but under the close inspection and early exclusion and segregation of suspicious cases by the doctor and nurse, the outbreak in this school began to subside. Similar conditions occurred in other parts of town, but under the same thorough inspection the outbreak was handled without any disruption of the educational work.

It is significant to note that the school most affected was a school where the inspection work was disturbed at the most critical time by a breakdown in health of the school nurse, which necessitated her relief from duty. Until this time the situation was under control in the district. Until the new nurse could become acquainted with the district, a matter of a few days, the disease attained increased momentum, and in a short time an entire room was depopulated. Another grade was also seriously affected before control was regained.

The Old and the New Results.—In comparison with the year 1913-14, in the winter of 1916-17 there were not more than one or two hundred cases of measles a month, and it is safe to say that the children of the public schools were less affected than the children under school age. A more interesting comparison is with the parochial schools, which were not at that time under medical inspection. The disease in these schools was widely prevalent, and a source of infection to the entire city.

Measles will always be the hardest epidemic condition to control, but with the present force maintained for school inspection, it is safe to say that the school children of the city will be less affected than children who are not of school age, and instead of the public schools being a source of spread of contagion they will be the safest places for the child. Children's parties, moving-picture houses, trolley cars, and Sunday schools are of far greater importance as a source of infection.

Diphtheria, Scarlet Fever.—In the last two years there has not been an epidemic of scarlet fever or diphtheria. From a comparison of the reports of the three years previous to 1915 a very prominent feature will be the pronounced increase in the number of cases of diphtheria in 1915-16. This is due to the fact that a culture was taken of every suspicious throat in that school year, with the result that nearly five times as many actual cases of diphtheria, or "carriers," were discovered as in any previous year of which there is a record.

There is no excuse for an epidemic of diphtheria or scarlet fever in the public schools of to-day. Though more virulent than measles, these two diseases are more easily controlled, and do not spread with the great rapidity after occurrence of the disease.

Control of Contagion.—When a disease of contagious nature appears in a school, and threatens to assume epidemic proportions, a nurse is stationed in that building, and remains her entire time in the building until the danger of epidemic is past. During this period the school doctor of the district also visits the school daily, and if necessary spends the entire time of his school hours in that building or

in making visits to the homes of absent children or cases excluded for observation.

The Exposed Room.—The room in which the outbreak first appears receives the careful attention of doctor and nurse. Each child is inspected, if diphtheria; or the non-immunes, if measles, whooping-cough, scarlet fever, etc.; and children who are regarded as suspicious are excluded from school for a period of observation in the home. If the disease develops, the case is quarantined; or, if the suspicious symptom disappears, the child returns to school.

Both doctor and nurse give a brief health lecture to the children, instructing them in certain preventive measures, such as gargling, castor oil, bathing, clean hands and fingernails, and staying away from quarantined homes and children.

The room, several times a day, is thoroughly aired and sunned; and at night, and in the morning, before school, undergoes a long period of open-air treatment. During the airing period, books opened loosely, and papers, are placed on desk tops so that the air can pass between the leaves. Desks and floors, and places where dust might collect, are scrubbed with soap and hot water. The room is then considered safe.

Home Visits.—When a child is absent three days from school the nurse visits the home to ascertain cause of absence, and, if illness, whether a physician is in attendance and whether the illness is of contagious nature. If there is doubt in the nurse's mind as to nature of illness, the school doctor is notified, who then visits the home.

In time of epidemic, or danger of epidemic, every absent child is visited the first day it does not appear in school. Nurse or doctor may make the visit, and examine the child to determine nature of illness.

Fumigation is regarded as obsolete, and of no practical value in school hygiene and sanitation as a preventive agent. It is never used except for psychological effect on nervous parents, principals or teachers, and others who require some concrete evidence of precautionary measures, such as strong odors, complicated and expensive apparatus, exclusion of children where they cannot be observed daily by the school authorities, steps quite in vogue in a day when mystics ward off evilspirits with weird and fanatic rites, penetrant vapors, fearful odors, and powerful extracts of toads, lizards, snakes, mice, and other remedial drafts which happened to be of prevailing popularity at that period. The theory, perhaps, was that any self-respecting germ would leave the vicinity rather than stand for such treatment.

Closing Schools.—There is no reason to-day for closing a school on account of contagion if a modern and efficient system of medical inspection is in operation. By actual experience we have been able to demonstrate that an epidemic can be confined to smaller limits and more easily controlled when children are in school, under continual observation, with the early exclusion and segregation of all suspicious cases. In fact, so great is the confidence of the parents in this system that it is a common occurrence for a nurse to receive a note from a parent requesting her to examine a child before entering the school room, as the child has developed suspi-

cious symptoms overnight. It is conceivable that a condition might arise, such as an especially virulent invasion of disease, when it might be necessary to close the schools. This is, however, a remote possibility.

The exclusion of children from moving-picture theaters, Sunday schools, trolley cars, and children's parties, should be considered before the closing of schools is considered. As soon as a school is closed because of contagion, children are thrown at liberty to mix freely at play, to go where they please, usually—home, theoretically, exposed to the elements, and removed from any trained or expert observation, thus rendering impotent any attempt to combat the disease.

A Simple and Accurate Record Necessary.—It has been found convenient to send to the parents blank forms to be filled, giving permission for the physical examination of the child. No simple or accurate way has heretofore existed by which we knew whether a child was immune from any of the childhood diseases, all of which would be of great assistance in preventing epidemics. Therefore, it is requested on the physical examination permits that the parent signify whether the child had ever had scarlet fever, measles, whooping cough, chicken pox, etc.

A record has thus been provided for us by which we know every child in the system who is immune or non-immune, so that when an outbreak occurs a nurse can enter the infected room with a brief record of those whom it will be necessary to observe closely. This clearly simplifies the work of epidemic prevention.

2. Vaccination.—Vaccination in New York State, as in other States, is a much discussed and disputed subject. The State law, till two years ago, required that every child be vaccinated before entering a public school. At that time, presumably as a "sop" to the anti-vaccinationists, the law was modified so that only public-school children of the first and second class cities had to be vaccinated, permitting the smaller cities and country districts, where health and sanitary regulations are more adapted to the propagation of disease, to be free of this "encroachment on personal liberty." While the law is perfectly clear in its intent, thousands of children in the State succeed in evading vaccination yearly in the cities where it is required. This is in part due to the opposition of parents, on one pretext or another, and partly to the ignoring of the law by the school authorities. Schenectady is at least one city in the State where the requirements of the law are fulfilled. True, it is not without opposition year after year, with stock protests ranging from "conscientious objection" to "religious principles." However, exemptions are only permitted where health or physical condition render vaccination inadvisable. A consideration of our methods and the results obtained should be sufficient to convince those opposed that vaccination can be performed with safety and without detriment to the health of the child; that is, sufficient to convince all except a certain type of "conscientious objector" who won't be convinced under any circumstances.

On the opening day of the new school year each child of the kindergarten and first grade is given a printed slip with a statement of the law requiring

vaccination, and a blank form to be filled in and returned immediately, if it is desired that the school physician perform the vaccination. With the exception of a comparatively small number these slips are returned the following day.

For the first two weeks of the school year the doctor's entire time is occupied in vaccinating. After the first two weeks, vaccination is performed once weekly for a month, after which it is only performed once monthly, completing the revaccinations, the stragglers, and those who have been excused because of poor health earlier in the year, but who have now been restored to good health.

Those who refuse to be vaccinated after the first two weeks of school are excluded, and notified that they cannot return to public schools till vaccinated. This generally results in some sort of response—either vaccination or court.

Method of Vaccination.—Where vaccination is performed on a large number of children under public auspices it is essential for the success of the undertaking that a uniform method be used, after it is learned by experience which is the best method. The technique used in the Schenectady schools is as follows:

The left arm is bared, and an area near the insertion of the deltoid is cleansed with alcohol and permitted to dry. An ordinary, medium-sized sewing needle, which has been sterilized in alcohol, is used for scarification, and is then discarded and a fresh needle used for the next child. A scarification of very small size is made, not much larger than the head of a match, and without drawing blood. A very small drop of vaccine is applied to this and allowed to dry, after which a sterile dressing is applied. The dressing is changed after four days, and after the first week each vaccination is observed daily and redressed.

Rosenau advises the Continental method, which is prescribed by law in several of the European countries. It is claimed for this method that with but two scratches, no scarification, complications are less frequent.

Our experience in Schenectady with the two methods is that with the technique described but one wound is produced, a smaller wound and scar results, the reactions are not as severe, and complications extremely rare, and due in every case to the interference or curiosity of child or parent.

Results.—In the two years during which vaccination has been insisted upon, 3,000 children have been vaccinated. Of this number 98 per cent. of the results have been successful. No serious complications have resulted, and but five severe reactions have been observed. It is safe to say that if an epidemic of smallpox should occur in Schenectady the public schools would be the least affected of any public or private institution in the city.

3. PHYSICAL EXAMINATION.—The State law requires that each public school child be examined once yearly. In no city in the State is it possible, with the existing medical inspection forces, to meet the letter of this law unless each child receives merely a perfunctory examination. In Schenectady it has been considered more advisable to be thorough than to establish a record for the large number of children examined annually. A greater effort has been made to secure the correction of the

defects found than to compile a vast column of accusatory defects as evidence of the fact that young America is a race of weaklings and the people becoming decadent.

Of 15,000 children in the public school in the 1916-17 term, 10,000 received physical examinations. A printed slip is sent home with each child, notifying the parents of the State law and stating that the examinations will be performed by the school physician if the parent desires it, and signs blank form to that effect. Commencing with the kindergarten, each grade is examined, the lower grades first. It is possible to reach about the seventh grade each year. Thus in the children in whom it is most necessary, the young children, defects are discovered and corrected at an early age, permitting normal physical and mental development.

In the physical examination the child is stripped to the waist, and receives a thorough chest and abdominal examination, and a more thorough examination if necessary. To prevent criticism and to protect the child from whatever embarrassment the normal child experiences, if any, the examination takes place behind a screen separating him from the other children. This feature is important, because each year some person of supersensitive morals is sure to discover the indecency and shocking immorality of the practice, and write letters to the city and State officials and the newspapers on the decadence of American purity and morals, as revealed in certain deplorable tendencies in our public schools. And we must protect our morals, by all means.

A Few Results.—One of the most encouraging results obtained is the improved condition of teeth, from kindergarten to high school. With our school dentists, our weekly lectures on oral hygiene, the toothbrush drills (more deplorable fads and follies in our drift from the little red schoolhouse of when Methuselah was a child), we are striking at the root of one of the important factors in the cause of ill health in children and adults. Normal physical and mental development is inconceivable in a child with badly infected and decaying teeth.

Tuberculosis—Building Backfires.—Another hopeful feature is a work which will have its greatest results in future years. *No public or private agency is situated more favorably than a modern public school medical inspection force for the combating of tuberculosis. No other agency has the strategic advantage of position for a great and prolonged drive against the great white plague.* When the great preventive fight is made in the schools the attack is directed at the great base of supply of the invader.

Two sure means of successfully attacking the disease are followed. All children, up to the seventh grade, receiving a careful examination every year, with the chest bared, offers the first means of discovering the disease in an early stage, or a predisposition to the disease—an attack on the flank.

The second method is an attack directly on the center, and cannot fail in eventually breaking through. Every intelligent school nurse knows the children and the families of her district. She is therefore enabled to become acquainted with the tubercular families of her district and incidentally the children of the families, who are naturally ex-

posed to the disease. In the Schenectady system these children are examined once monthly by the school doctor. If there is the slightest doubt as to their condition they are placed in an open-air school and kept there till they gain rugged health.

Thus there are two means of early discovery of the disease or the predisposition to the disease; by a thorough examination of all children yearly, and by a knowledge of the family history gained by the school nurse in her district work. With the open-air schools there is the means at hand of treating the condition as found.

On several occasions an attempt has been made to obtain a record of tuberculous families of the city. If such a record could be obtained, a map for each school district could be made showing the exact location of tuberculous cases, lung blocks, and other danger spots. The aid such a map would be to the school doctor and the nurse is obvious.

There is a State law, however, which keeps all such records under lock and key, and available only to the health officer and immediate assistants, after prescribed rites and secret ritual. The exact advantage of this health legislation is probably quite evident on deep study, and perhaps clever strategy in stamping out the scourge from an office chair. Superficially, however, it appears to have some disadvantages, and does not seem to be of marked assistance in reducing the tuberculosis rate in New York State.

Syphilis.—In the annual report of 1916-17 appear the records of 14 cases of syphilis. This is the first time that syphilis has been definitely established as an important factor in the health management of the Schenectady schools. As far as I know, it is the first instance of a public record of the existence of the disease in school children. While there is not at hand a voluminous collection of records to refer to, its apparent non-existence as a factor in the records available does not necessarily indicate that syphilis among school children is a discovery of the Schenectady Medical Inspection Staff. It does indicate, however, that *syphilis in the public schools is more prevalent than generally supposed by school or health authorities*, and that it is more prevalent in the Schenectady schools than indicated by the report, because our cases were obtained by a mere scratching of the surface, the diagnosis being plainly written on the children and substantiated by a positive Wassermann blood test.

Since the condition has been found greater effort should be made to find all congenital cases of syphilis in the public schools and secure the proper treatment. Might it not be the causative factor in many cases of chronic illness, mental retardation, feeble-mindedness, incorrigibility, juvenile delinquency, and tendency to criminality in children, where the cause is apparently obscure? That it might cause these conditions is not beyond the pale of possibility, because it was found to be the cause of fourteen such cases in the Schenectady schools! An intensive study of many troublesome cases in the schools frequently discloses many surprising conditions for which there is a remedy!

Other prominent features of the reports are the number of curvatures of the spine in an early stage of development, not found in less thorough examina-

tions; the really large number of conditions found producing ill health and mental retardation in children; and other features found in any well-balanced system of medical inspection.

4. SPECIAL FEATURES.—(A) The Open-Air Child. (B) The Mentally Atypical Child. (a) The Backward Child. (b) The Feeble-minded Child.

A. *The Open-Air Child.*—Four open-air classes are maintained, each being located conveniently for different sections of the city. The open-air classrooms have been constructed especially for the purpose, and are situated on the roof of the school building, with a roof playground attached. At present each open-air department is equipped and operated for about thirty children, with a capacity for fifty children, in anticipation of the future growth of the city during the next few years at least.

The child, on admission is provided with a clean woolen suit and hood, gloves, felt boots, and a woolen sleeping bag, and thus warmly clad is fortified against the Arctic temperature which frequently prevails in Schenectady.

A thorough physical examination is performed by the school doctor, and includes a hæmoglobin test, height, weight, and mental examination. The school nurse also visits the home of the child and advises on the proper food, hygienic conditions, and other corrective measures. A weekly record of weight is made, a frequent hemoglobin test taken, and temperature recorded daily in cases where necessary. There is no definite period for attendance in an open-air class, the child continuing till established to a rugged state of health, whether several months or several years are required. When it is considered safe to return a child to the regular grades this is done, but the child remains under observation.

A *Feature of Prime Importance.*—One substantial meal is provided daily, and consists of at least 900 calories food value, which is about 200 calories more than necessary for the average child. No attempt is made to approximate a hospital standard of diet, as the type of child in the open-air class does not require an invalid or semi-invalid menu. Suffering very often from malnutrition, due to lack of food or improper feeding, a *regular* meal of wholesome quality is required. Temptingly prepared by experts whose chief mission in life seems to be the conception of delicious nutritional gems, dinner is served in cheerful surroundings to eager youngsters in an advanced stage of starvation, having had nothing to eat since breakfast. If one is of the opinion that the open-air-class child would thrive better on a pampered diet, a visit at the very popular lunch hour should allay all fears. Of the several hundred children who have attended these classes no record exists of any who have refused the food.

A carefully balanced diet has been prepared by the Supervisor of Domestic Arts, who also directs the preparation of the food. This eliminates the possibility of waste, and has the additional advantage of uniformity of feeding, enabling the purchase of food supplies in bulk at greatly reduced cost. Despite the present high prices of food we have been able to feed the youngsters at only an increase of 1½ cents per meal per child without cut-

ting down either the quality or quantity of food. The cost at present is about nine cents per meal.

After lunch each child brushes the teeth, and then, wrapped comfortably in a warm sleeping bag, lies in the open air on a cot till the afternoon session commences. If sleeping at the opening of the session, the child is not disturbed, but is allowed to sleep, and returns to the class on awaking.

A New Phase.—It is important to note here that in cases where there is a persistent temperature, but no other symptoms of an active tuberculosis, attendance at the morning session is permitted; but following lunch it is required that the child sleep in the open for several hours. After several weeks the temperature subsides and the patient is permitted to return to the afternoon session. This is distinctly better than excluding the child from even the open-air school, to roam perhaps at will, or to be confined in unsuitable quarters in the home. Thus the open-air schools have entered upon a new phase of usefulness, subject, of course, to the objection of the chronic objector, "that the public school is not a hospital."

The open-air schools have introduced a very human feature into the public schools of to-day. The weakling, the child predisposed to tuberculosis, the child of malnutrition, whether underfed or improperly fed, is now able to receive an education and at the same time benefit in health. Human material, formerly waste, is reclaimed. A useful citizen is saved to the community—a most practical consideration.

B. The Mentally Atypical Child.—(a) *The Backward Child.*—Always in a school is the problem of the backward child; the over-age child, retarded in grade, who retards the normal progress of the other children; who is a source of embarrassment to parent, teacher, and pupil, and who suffers humiliation constantly because of mental inferiority to younger children. Of recent years a certain percentage of these cases have been found to be due to remedial causes, such as pronounced anemia, adenoids, defective vision, defective teeth, deafness, thyroid deficiency, and other very evident physical imperfections.

Those actively engaged in health work among school children are constantly encountering cases of mental retardation due to some physical defect or to an economic or social factor. In order to approach the matter from an angle which would permit of accurate deductions, in the spring of 1917 a study was made of (1) the health, (2) the physical condition, (3) habits, (4) home conditions, of 100 backward children, every case referred by the school principals. Without entering into a detailed discussion of the result of this most interesting study (a report of which is being prepared), it can be stated that in 95 per cent. of the cases some gross condition could be assigned as a definite cause of the backwardness. To establish a more efficient working knowledge by which to proceed in such cases, a thorough study should be made of every case of mental retardation, an accurate system of records should be maintained, the apparent cause corrected, and an observation of the result be carefully noted. Thus will the solution of this problem be approached from a scientific basis.

(b) *The Feeble-minded Child.*—A problem of so

great magnitude as the care of the feeble-minded, and one so vitally related to public welfare, is essentially a State responsibility. Few municipalities are in a position to equip and maintain an institution for the feeble-minded. Even if cities or counties were able to assume such a burden, it would not only be a waste of public funds but an ineffectual method of procedure. If so serious a social evil, linked inseparably with pauperism, crime and prostitution, is to be attacked with any hope of solution, nothing but a scientific co-ordinate effort offers chance of success. Obviously it is out of the question to expect forty or fifty different agencies, cities or counties working separately, to secure a successful result. Equally obvious is the fact that the State is the only agency capable of concentrating forces and scientifically organizing and directing the work. The State, however, is not prepared to accept full responsibility at present, having neither adequate institutional facilities nor a definite program for combating the condition; eventually, no doubt both deficiencies will be remedied. Until then, cities will have to depend on their own initiative, and accept what limited aid the State is prepared to extend.

The Role of the Public School.—In any policy that a city adopts toward providing for its feeble-minded population, the public schools are bound to assume a very prominent rôle. This will undoubtedly be true of any plan which the State ultimately develops. It is practical, then, that schools proceed along conservative lines to organize a rational system for caring for the feeble-minded child, always bearing in mind that such a child because of its amentia *is not destined to become a useful member of society.*

The problem, therefore, is not one of reclamation. It is not a question of conservation of human material. Rather, it is a question of elimination from normal life of burdensome material. Manifestly, any system which contemplates the preparation of the feeble-minded child for normal intercourse with society, for competition of normal life and its constantly increasing demands for existence, is based on an impractical premise. A system, however, which is established on the principle that the public school is simply a "clearing house," an intermediate station between the home and the institution, is founded on a practical basis. The work conducted with this idea, with the chief feature an *early recognition* and *segregation* of this type of child, is fulfilling the highest possible function, performing the most humane and greatest service to the child and society; but therein lies a difficulty. On whom is the early recognition to depend? Who in the school system is qualified to definitely state that a child is feeble-minded? It is a delicate procedure to direct that a child be transferred from a grade of normal children to a special class for feeble-minded children. It is stamping a child as mentally incompetent, socially unfit, as an undesirable unit of a community, a potential menace to the safety and welfare of the public; and the decision is often by a very slim margin. Data must be complete, the case must be positive! Who is to make the diagnosis?

A Type of Diagnostician.—A few years ago it was recognized that the feeble-minded individual is a serious economical and social factor of public

importance. Feeble-mindedness seeming, as it did, to account so well for a high percentage of pauperism, prostitution and crime, was immediately pounced upon by some enthusiasts as a solution for the backward child, the dullard, the laggard in the public schools. So-called experts sprung up overnight prepared to eliminate this very perplexing condition by the proper classification and segregation of all such pupils into special classes. Their chief qualifications for the work consisted of a brief course in an institution for the feeble-minded, and an acquaintance with one or more of the mental tests, which could not be termed exactly intimate. Obviously they were considering a very important matter, with not only an imperfect conception, if with any understanding at all, of the difference between a backward child and a feeble-minded child, but with inaccurate methods.

They knew that in almost every grade, one or more children were over normal age and still unable to make progress. They also found that on a mental examination, many of this type would test below normal for their age. They did not know, however, that certain physical conditions could impede the mental progress of a mentally normal child. They did not know, or did not recognize, that a high-grade Ament may, on a mental test, appear to far better advantage than some mentally normal children, or may even attain a higher scholastic standing. Other details, such as personal and family history, social and economical conditions, or a thorough physical examination, were apparently of no importance. But with a long-standing and troublesome educational flaw to be remedied, and with a comparatively simple method of connection at hand, so to speak, they proceeded to eradicate this most undesirable feature, and chaos followed. Even in this day of enlightenment, ideas, methods and results have made little progress in many quarters.

It is a matter of extreme importance to the public and justice to the child that a diagnosis of amentia be made only after a careful and scientific development of every phase of the case. Before a positive decision is possible, a personal and family history have to be obtained, the information being derived from every available source, from the home, relatives, the school and court; the social and economic factors require investigation; a complete physical examination, including serological, is imperative and, of course, a mental examination. When all materials are assembled and compiled into a record, the complete history is balanced and judged by a capable and experienced specialist. Obviously a matter of so considerable importance is not for inexpert or inexperienced hands. Notwithstanding, far too often are cases disposed of by immature judgment. A working knowledge of the different systems of mental tests is considered by many to be sufficient for diagnosis; but the fact that a child tests several years below normal on a certain scale at the time of examination is not a criterion of amentia. Nor does retardation in school, incorrigibility, juvenile delinquency and a test below normal on a mental scale constitute feeble-mindedness. True, these features are prominent concomitants of feeble-mindedness, and are important points in obtaining a history, but like conditions exist in children not mentally deficient.

Since the feeble-minded child is a factor of importance in public schools, important because it is necessary to separate such a child from normal children, and present in numbers estimated as high as 2 per cent by some authorities, there is no alternative but to meet the condition, as any other problem, and in doing so it must be borne in mind: That this type of child will never be a desirable member of society. That the public school can best serve as a "clearing house" for the institution. That the early recognition and segregation comes only within the sphere of the specialist.

Failure to recognize a high-grade feeble-minded child of the border-line type, because of inefficiency of the examiner, is a great misfortune. On the other hand, if a mentally normal child is branded as feeble-minded by the inexpert or inexperienced, with only a superficial knowledge of the condition, it is a disaster.

The Schenectady Policy.—The policy which the Schenectady Public School system has adapted toward the feeble-minded child in the schools is based generally on the above principles. Life in an institution is considered to be the most desirable for the mental defective. Recognizing the futility of offering a suitable training outside of an institution, efforts are directed more toward a preparatory training for the institution.

Four classes for mentally defective children are maintained, each class being in charge of teachers who have specialized in that work. Fifteen pupils are assigned to each class. Before admission to the class, a child undergoes an examination by a specialist. The child is brought to the "clearing house" by the mother, accompanied by a school nurse. A personal and family history is obtained from the mother and several subsequent visits may be necessary. The school nurse has ascertained the social and economic conditions of the home, school and court records also accompany the case; and the child is examined both mentally and physically. Records are maintained of every case examined and are valuable for references and statistical purposes. When it has been definitely established that the child is a true case of amentia, a transfer is made to a special class and the relatives advised of the importance of having such a child committed to an institution. It is of interest to note that several very urgent cases have been admitted to State institutions recently, very shortly after application had been made. This is an encouraging sign of improved State facilities.

The great possibilities of school medical inspection are probably not fully realized. Though wonders have been accomplished the work is still in the pioneer stages; even so, it has almost reached the period where it convinces the skeptic that school health work is not a fad. Certainly no public health work has a greater motive than the production of strong, healthy bodies and minds. In this day, the type of man and woman of to-morrow is a most urgent consideration.

With the State physical training laws, and with oral hygiene drills and weekly health lectures, teaching simple rules of health and hygiene from kindergarten to the higher grades, who knows but that in the future, health lectures will become a part of the curriculum.

Even now a new field seems to be unfolding for the school health worker. Though it is too soon to make more than a preliminary report of two years' observation, a certain type of child who was formerly sent to reform schools has been kept in the public schools, without interfering with the normal progress or the morals of the school, and with marked improvement in the child. One notable case is that of a fourteen-year-old boy, who had not spent more than three months away from a reformatory since he was nine years of age, but under treatment has attended school for nearly six months without being tardy, with only one day's absence, and according to the last report, in the words of his teacher, "has been all any teacher could ask for," and, "he is interested in his studies and anxious to get his lessons," and, "is an unusually bright boy."

Truly, the possibilities of school health work are not fully realized. Public school medical inspection has arrived, and it is here to stay.

515 STATE STREET.

WASTE CAUSED BY PREVENTABLE DISEASE OF INTESTINAL ORIGIN.*

By VICTOR G. HEISER, M.D.,

NEW YORK.

A VERY pleasant privilege has been accorded me to say a few words before the Academy, and I shall endeavor to show my appreciation by being as brief as possible. It is refreshing to come from the fields of slaughter to find here an association so hopefully at work for conserving human life and for promoting the well-being of mankind. The other speakers have already dealt with various phases of health as factors in national efficiency. I wonder whether sufficient emphasis has been placed upon the enormous amount of pain, misery, unhappiness, sickness, and death that is caused by preventable intestinal disease. It is well within the bounds of conservatism to state that over 127,000 persons in the United States die annually from causes acting in and through the intestines. In other words, from swallowing something unclean which might easily be avoided. To this must be added other hundreds of thousands who are made ill or are incapacitated from the same causes.

The economic losses are estimated at enormous totals. For instance, Dr. Allen S. Smith of the University of Pennsylvania states that hookworm disease in the South causes between \$250,000,000 and \$500,000,000 damage per annum. Stiles states that the very conservative estimate of 50 cents loss per week for each person suffering from hookworm disease gives a total of \$50,000,000 per annum. Ellis estimates that typhoid fever costs the United States \$350,000,000 annually, and as an instance he cites the fact that before the city of Pittsburgh had a safe water supply this disease in one year was estimated to have cost the city \$3,142,000. Ellis also estimates that in the State of South Carolina alone the hookworm losses are \$30,000,000 per annum. The State Board of Health of Louisiana estimates an annual loss of \$3,000,000 from hookworm disease in that state. Gunn estimates that the loss from hookworm disease in one mine in

California which employs 300 men is \$20,000 per year. The construction of the St. Gotthard tunnel through the Alps was almost completely stopped by disease among the laborers, until it was discovered that the illness was caused by the lack of proper disposal of human excrement. Again, Stiles estimates that 30 per cent of the education in the Southern States is wasted owing to the backward mentality caused by hookworm infection. Clayton Lane has just published a statement showing that the entire war debt of India could be paid by wages which are lost by Indian hookworm victims, and yet we know that wages in India are a mere pittance compared to American standards. So far we have mentioned only typhoid and hookworm infection. To these must be added the losses caused by diarrhea, dysentery, cholera, and a host of other diseases.

Then there is also an enormous indirect loss. Hazen, for instance, showed that each death avoided from typhoid fever prevented two or three other deaths from other diseases. This theory has frequently received confirmation. For example, in Manila, in periods during which water from an uninhabited watershed was used, there were 3,000 fewer deaths per annum than when the water supply was taken from an inhabited watershed. The deaths from practically all causes declined by changing the source of the drinking water; there was a reduction in the number of deaths from pneumonia, from tuberculosis, nephritis, and from other affections not ordinarily associated with intestinal disease.

The Remedy.—It may be asked what can be done to prevent this enormous waste. The answer is simple. It is only necessary to provide for the safe disposal of the excrement of the entire population. In most of our cities the problem has been largely solved through the water carriage of sewage. Yet I am told that even here in Philadelphia there are thousands of open privies which may be a menace to health through the agency of flies and other contact contaminating human food and drink. The great bulk of the trouble, however, is in rural communities. It has been the popular belief that the health of those who live in the country is much better than the health of those who live in the city. This could probably be made so by the observance of ordinary hygienic precautions. But let us look at the actual conditions. In a survey of more than 200,000 school children in New York City, compared with 200,000 school children in rural Pennsylvania, it was shown that disease was at least four times as prevalent in rural Pennsylvania. Death rates in the country are higher. A large percentage of the ill health in the country districts is due to primitive latrine conditions. There are many areas in this country where no form of latrine exists. By careful surveys it has been demonstrated in many sections of the United States that only 50 per cent. of the houses have latrines of any kind. The remedy is very simple, and easy of application. No great engineering works are necessary, and the method of prevention can be demonstrated to the most ignorant. There is no community in this country which does not have sufficient resources to carry out the safe disposal of body discharges.

*Read before the American Academy of Political and Social Science, Philadelphia, Pa., April 26, 1918.

The meager evidence here presented shows that

the loss caused by only a few of the intestinal diseases will total to more than a billion dollars per year. Efficiency is the watchword of the day. The struggle for existence after the war will probably be keener than ever. Shall we enter the contest with this handicap, or shall we strike it from us?

REPORT ON WAR TIME NURSING PROBLEMS.

BY

THE PUBLIC HEALTH COMMITTEE OF THE NEW YORK ACADEMY OF MEDICINE.*

Number of Nurses in the United States. According to the information gathered by the national nursing organizations, there are between eighty and one hundred thousand registered nurses in the United States. The last estimate, made by Miss Mary C. Wheeler for the American Nurses Association, places the number of registered living nurses at 98,006 exclusive of the states of Nevada, New Mexico, and Arizona which have no registration laws. In this number, of course is included the nurses who have retired from work because of age, marriage, or for other reasons. This number also includes the probable six to ten thousand nurses in public health work.

Number of Nurses Needed for War Duty.—There is no definite basis for estimating the total number of nurses needed for war duty. The nearest approximation to an estimate, which we have been able to get, is as follows: The number of sick and wounded is estimated at ten per cent of the armed forces; therefore, for an army and navy of two million men, two hundred thousand would require nursing attendance. It is estimated that two hundred thousand sick and wounded in the army and navy will require about 25,000 nurses.

Up to the present time a little over 9,000 nurses have enlisted, and a call has been issued for the enlistment of one thousand a month henceforth.

The recruiting of nurses is done chiefly through the agency of the Red Cross, although a small number of nurses have been obtained by the Army and Navy directly. Thus far only full-trained, graduate nurses have been recruited for Army and Navy work.

Nursing Situation.—In spite of the fact that only 9,000 have thus far entered the military establishment, a shortage of nurses has already become apparent in hospitals, particularly the smaller ones which have no training schools, and in private practice. The American Nurses Association has looked into the matter of the shortage and reports that until several months ago most of the registries had available nurses, but since then all of the nurses are busy all the time. This shortage may be alleviated

*The membership of the Public Health Committee is as follows: Charles Loomis Dana, M.D., Chairman; James Alexander Miller, M.D., secretary; John S. Billings, M.D., Nathan E. Brill, M.D., Robert J. Carlisle, M.D., Floyd M. Crandall, M.D., Lewis Fox Frissell, M.D., Arpad G. Gerster, M.D., S. S. Goldwater, M.D., John A. Hartwell, M.D., Thomas W. Hastings, M.D., L. Emmett Holt, M.D., Abraham Jacobi, M.D., Howard Lilienthal, M.D., Walter L. Niles, M.D., Bernard Sachs, M.D., Thomas W. Salmon, M.D., Frederic E. Sondern, M.D., J. Bentley Squier, M.D., W. Gilman Thompson, M.D., Frederick Tilney, M.D., Philip Van Ingen, M.D., Karl M. Vogel, M.D., George B. Wallace, M.D., Herbert B. Wilcox, M.D., E. H. Lewinski-Corwin, Ph.D., executive secretary.

somewhat by an appeal to those who employ private nurses to conserve the nursing service by employing them only when it is absolutely necessary, and then to employ the minimum number needed.

In this country we have approximately 1,500 training schools with a registration of 40,000 students, turning out annually about 11,000 graduates. The period of training in most of the schools is three years. The entrance requirements call for a full high school education in only 5 states; in 28 states only one year of high school is required; and in 13 states the grammar school education is sufficient. The remaining several states do not specify any preliminary educational requirements.

Many of the training schools have less than their full quota of pupils, and can accommodate more. A few training schools, already supplied with their full normal quota of pupils, are renting additional buildings in which to accommodate surplus applicants. The efforts of the Nurses Association are directed toward bringing to the training schools as large a number of students as is possible, in order to train a large number of nurses, and to release graduates whose places in the hospitals, to a limited extent, can be taken by pupil nurses.

Over 400 young college women have been enlisted for nursing work under the auspices of Vassar College. They are to get several months of theoretical training at the College, and in the autumn will be distributed among the various hospitals of the country for two years of practical training. Those in charge of this work seem to think that these young women represent a very desirable element in the nursing profession and can be relied upon to finish the course.

The suggestion of drafting girls for nurse duty is evidently not to be considered seriously.

The proposal to reduce the term of training school instruction from three years to two years is also not to be recommended at the present time in view of the fact that it will not materially improve the situation as far as the immediate supply is concerned, and would simply act as an entering wedge for lowering the standards of nursing education. It is not desirable to lower the educational requirements for entrance into the training schools.

The establishing of schools for nurses under army auspices has been widely discussed and according to report is receiving official consideration. It is a question to what extent such schools could attract women who would not otherwise consider entering the nursing profession. The mere diversion of a part of the normal supply of pupils from civil to military hospitals would not solve the problem.

In addition to the registered graduate nurses, we have in this country about 115,000 partially trained nurses who, for one reason or another, failed to complete their training school courses, but who have had experience in private practice and who oftentimes make good and reliable bedside attendants.

The Red Cross has also instituted short courses in connection with base hospitals for the training of voluntary aids, as they are called. Something like two thousand young women have taken this training (451 in New York City), both theoretical and practical, during the past year, but they have not been sent abroad; all of them have been kept in

this country, some doing canteen work, others taking up public health and similar work. Many of them are still idle. Several thousand, in addition, have taken the preliminary lecture course and are awaiting an opportunity to complete their training in hospitals. The only apparent obstacle to such training in New York City appears to be the official opposition of the State Education Department, whose disapproval, recorded nearly a year ago and as far as we are aware not since reconsidered, was based upon the belief that the needs of the State and of the nation during the war could be met by the enrollment of pupil nurses in the ordinary way.

It is our understanding that the Surgeon General's office does not wish to utilize the services of aids until all the sources of regular nursing supply have been exhausted. The civil hospitals, generally, are willing to train aids in large numbers, and to use them in case of need. Twelve hospitals in New York City are to-day utilizing the services of a limited number of aids and are on record as finding the plan wholly practicable. There are a great many women of good social standing in this country who, prompted by patriotic motives, earnestly desire to enter this field.

The training of non-professional, voluntary aids, with proper limitation, selection, and control, would meet pressing needs quickly and with the least disturbance of professional nursing standards during or after the war. It is of course understood that the principal efforts of those interested should be directed toward increasing the supply of regular pupil nurses, and that under no circumstances should young women be encouraged to enlist as aids who can be persuaded to enter the ranks of pupil nurses.

Recommendations.—1. Training school facilities in connection with each hospital should be enlarged to the fullest capacity.

2. Young women desiring to be of service in the war should be encouraged to enter regular training schools rather than to take a brief course as nursing aids.

3. Professional nursing standards should not be lowered.

4. The establishment of Army training schools for nurses should not be undertaken on a large scale, on account of the probable unfavorable reaction on the civil hospitals, but one or two Army training schools might be established experimentally.

5. A corps of partially trained women might advantageously be organized to serve as attendants in Army hospitals.

6. Accredited civil hospitals in cooperation with the American Red Cross should undertake the training of nurses' aids for gratuitous service only.

Familial Mammary Cancer.—Leschcziner reports the instance of a mother and three daughters all of whom developed cancer of the breast, dying therefrom. As has been noted before in familial cancer the disease appeared very early in life, the ages being 21, 14, 19, 22. The course, however, was slow with late metastases. Three of the cancers were examples of colloid.—*Medizinische Klinik.*

Medicolegal Notes.

Certification and Registration.—The Texas Court of Civil Appeals holds that, under the State statute, Pen. Code 1916, art. 750, making it unlawful to practise medicine without registering authority with the district clerk in the county of residence and providing that absence of such record is prima facie evidence of want of such certificate, the state must prove such absence from the record in an action for practising medicine in violation of the statute. The defendant's claim that the evidence showed he was engaged as a masseur and exempted under article 754 of the Code from the provision of article 750 requiring registration for the practice of medicine was held not sustained as a matter of law; his occupation being a question of fact for the jury.—*Denton v. State (Tex.)*, 201 S.W. 183.

Limitation of Time for Commencing Actions for Malpractice.—The California Court holds that an amended complaint, alleging that the plaintiff entered into a contract with the defendant, a corporation operating a hospital and carrying on therein the general business of furnishing medicine and medical and surgical treatment, ambulance and hospital care to the sick and injured, by which the defendant agreed to furnish the plaintiff medical and surgical treatment when the same should be necessary; that the plaintiff suffered a fracture of certain bones of her leg, rendering surgical treatment necessary; that the defendant undertook through its chief surgeon to render and furnish such treatment; that the surgeon was incompetent, and failed and neglected to use proper care, diligence, and skill in reducing the fracture; and that by reason thereof the plaintiff's leg was shortened and its use impaired—shows that the gist of the plaintiff's action, notwithstanding the statements as to the contracts, was the negligence of the defendant's chief surgeon and not breach of contract. The California statute requiring actions for injury to or death of one caused by the wrongful act or neglect of another to be begun within a year, therefore applied to the action, which must be commenced within one year after the negligent act.

In the recent case of *Marty v. Somers*, 169 Pac. 411, in which a rehearing has been denied by the California Supreme Court, this precise question arose upon an identical state of facts. There the contract of employment was directly with the physician, who was alleged to have negligently performed the operation which caused the plaintiff's injury, and the court there held that the statute above mentioned operated as a bar to the action. The authorities from other jurisdictions dealing with cases of alleged malpractice on the part of physicians are not uniform in their rulings as to whether the action is one arising upon contract or tort. But the case of *Lotten v. O'Brien*, 146 Wis. 213, 131 N.W. 362, bears instructively on the present case. Its facts were similar. It appeared that the employment of the physician continued for some time after the date of the negligent setting of the plaintiff's broken arm. The court held that the action sounded in tort, and that the cause of action accrued when the negligent acts were committed, without reference to the time of the physician's discharge. As the action in the present instance was not commenced within a year after the negligent act, judgment for the defendant was affirmed.—*Hardy v. Liberty Hospital Corp.*, California Supreme Court, 171 Pac. 98.

Exemption of Hospitals from Taxation.—The South Dakota Supreme Court holds that a hospital which received sick persons, other than those afflicted with contagious diseases, extending treatment free to paupers, charging for its services to others to the extent of what they were able to pay, devoting all its property to the purpose of treating its patients, who had been approximately 95 per cent. pay patients and 5 per cent. charity patients, using any surplus funds to keep up and improve its property and pay interest on bonded indebtedness, and maintaining a nurses' training school, was a "corporation or society organized and conducted exclusively for charitable purposes," a public charity, whose property was exempt from taxation under the South Dakota statute.—*Lutheran Hospital Assn. of South Dakota v. Baker*, South Dakota Supreme Court, 167 N.W. 148.

Military Medicine.

SOME PROBLEMS OF NUTRITION IN THE ARMY.*

FOOD has been defined as a well-tasting mixture of materials, which, when taken into the stomach, is capable of maintaining the body in any desired state. The choice of these mixtures in the form of menus, their preparation, their digestion and fate in the body, constitute the science of nutrition. If we had definite knowledge of every food substance and the transformation it undergoes in the body, just what purpose it fulfills and how it fulfills this purpose and what becomes of it afterwards we should have a *completed* science of nutrition. A person is satisfactorily nourished when he is maintained in a physical and mental status.

In our Army the first requisite was to create a body of well muscled men and this is being rapidly achieved. In the muscle-up period a plentiful amount of muscle-forming materials, the best of which is beef, is required. The first legislation fixing the components of the Army ration is dated November 4, 1775, when the Continental Congress fixed one pound of beef and one pound of bread as the allowance for each man per day, "three pints of beans or peas at a price not to exceed \$1.00 per bushel, one pint of milk, half a pound of rice or one pound of Indian meal per week, one quart of spruce beer or cider for each man or nine gallons of molasses for each company of men per week." The ration also included candles and soap. The ration fixed July 16, 1798, is in some respects the same as we have to-day. In 1818 Calhoun who was Secretary of War recommended that the liquor components of the ration be discontinued. This was concurred in by Surgeon General Lovell. Congress, however, failed to act, and the liquor continued as a component of the ration until 1838. In 1817 Andrew Jackson who was Commander of the Army became so impatient with the contractor system that he organized a commissary department for his own army entirely without authority from Congress. This resulted in legislation dated April 11, 1818, which laid the foundation of our modern Subsistence Department. In 1832 coffee was for the first time made a part of the ration. The ration which prevailed throughout the Civil War, fixed by legislation dated August 30, 1861, was as follows:

Beef 20 ounces.
Bread or flour 22 ounces.
Potatoes 16 ounces three times a week.
Beans, rice or hominy "in proportion with above."
Then for each company of men or 100 rations:
10 lbs. coffee.
15 lbs. sugar.
4 qts. vinegar.
4 lbs. soap.
1½ lbs. candles.

Besides the "garrison ration," fixed by legislation dated January 11, 1911, the American Army has the reserve ration, the travel ration, and an

*Abstract of a paper read by Major John R. Murlin, Sanitary Corps, National Army, Chief of the Division of Food and Nutrition of the Surgeon-General's Office, at the April meeting of the College of Physicians of Philadelphia.

emergency ration. The last named has been well defined "a substitute for nothing." The Division of Food and Nutrition in its effort to find a satisfactory emergency ration has not been entirely successful but believes that the most satisfactory form of concentrated ration is hard bread supplemented by potted beef or ham, dried beef or sardines, and when there is opportunity for the use of a portable cooker, three ounces of sliced bacon should be added. The ration forming the basis of feeding in training camps does not prescribe what the men shall eat. It is merely used as the basis of money allowance for the ration. A long list of substitutive articles is carried by the Quartermaster Department but the soldiers must not spend more than the amount of money represented by the cost of the garrison ration, with certain definite percentages of substitutions, at the time and place where they are stationed. If the men do not like what the Quartermaster has in store they are at liberty to take money from the Quartermaster in lieu of rations and buy materials outside. This is at the discretion of the commanding general. On the whole it must be said that the mess system in vogue in the American Army works well. The work of the Division of Food and Nutrition is not to supply food for the Army. Its duties are largely of an advisory or inspectorial nature. It is authorized to inspect all the food of a camp with especial reference to its nutritive value; to seek to improve the mess conditions; to determine the actual consumption of food and amount of waste and to report these facts to the Division Commander. The Division now contains 65 officers and some 50 enlisted men. A Nutritional Survey party, consisting of four officers and several enlisted men spends from two to four weeks in a camp studying food conditions and making recommendations and then returns to observe improvements. One contingent has gone abroad to report to General Pershing for similar service in France. Already the Food Division has been able to improve food conditions and has already gathered a considerable mass of information regarding the actual consumption of food and the amount of waste. Recent reports from Camp Funston and Camp Sevier show that waste has been reduced to a practically negligible point. Company commanders at their discretion can compel a man to eat at the next meal anything he has left on his plate. We find that the most economical way of serving men in large numbers is by the squad system in which the squad leader shall have authority over the serving of his men. Our work has given the first instance in warfare in which the actual amount of food consumed is estimated directly in the camp and field. This is made possible by our system of feeding men by companies. Meat is the most economical repair material for muscle and other active tissues. The British Army allows 1 lb. of meat per man per day; the French Army, ¾ lb.; the Italian, ½ lb. Our allowance is 1¼ lb., but the actual consumption in the camps in this country does not exceed ¾ lb. The question may fairly be asked whether the Government would not be well advised to reduce the quota of meat and replace the amount thus saved with sweets, provided as a part of the ration. The dehydration of vegetables is a question of great in-

terest to the Army and the Quartermaster Department has placed orders for dehydrated potatoes, onions, and carrots for the use of General Pershing's Army. By simply soaking in water and boiling in the same water these vegetables are brought back to the condition of fresh vegetables and often cannot be distinguished from them. The saving of time in the company kitchen is also a highly important element. The Division of Food and Nutrition has already found a method of making meat powder by dehydration of these food products. At the request of the American Red Cross the Food Division prepared an American prisoners' ration which could be shipped to the Red Cross Headquarters at Bern, Switzerland, and packed in parcels not to exceed 11 lbs. This was sent three times every two weeks. The list was somewhat as follows: Rice, sugar, dried beef, pork, and beans; peanut butter, soda crackers, evaporated milk, milk chocolate, desiccated strawberry, jam, nutmargarine and dried figs. At the request of the Red Cross was also prepared a ration to be known as the invalid ration. The following ration has been approved by the President and adopted: Unpolished rice, yellow cornmeal, sugar, potted chicken, Julienne, or compressed soup tablets, dried milk powder or Horlick's malted milk, beef extract, minute tapioca or other form of prepared pudding, crackers, tea, milk chocolate, marmalade, fresh fruit or fruit juice. These articles, however, are regarded as only supplementay to those of the regular ration.

Latent Syphilis and the Traumatisms of War.—Vignolo-Lututi writes at length on this subject in *Il Policlinico* for February 17. He calls attention to the tendency of tertiarism to attack the point of least resistance, as scrofulous glands, alcoholic liver, mouth and throat of smokers. Such area of lessened resistance are also furnished by traumatism of all kinds, including slight irritation. As an illustrative case he mentions an officer of 28 years, the bearer of many wounds. One of these, on the right shoulder, which had presented nothing peculiar while healing, began all at once to assume special characteristics, while certain manifestations appeared in the immediate vicinity and began to ulcerate. The wound and the superadded lesions were seen to be gummatous. This kind of behavior is well described by Fournier in connection with "bleeding" wounds. It was found that the officer had been infected six years earlier and had received very irregular treatment for three years. His general resistance had doubtless been lowered by years of military life and just why only one of a number of wounds had attracted the disease does not admit of explanation. The Wassermann of this patient was found to be strongly positive and the specific lesion disappeared rapidly under calomel hypodermics. The author saw a similar case before the war, in a woman of 40 who had received numerous contusions as the result of a fall. One bruise in the right leg was transformed into a vast gummatous ulcer. She had been infected twenty-two years before, at the time of marriage. The Wassermann was positive. The patient was inoculated on the arm with matter from a chancre and a gumma developed, an experience first described by Fouger and Landsteiner.

Queyrat and Pinard once described a case in a boy of seven, who had been kicked by a horse and had developed *in situ* an ulcerated tertiary lesion. They inoculated the boy with matter from a chancre and in 21 days a gumma appeared in the inoculated point. The appearance of provoked lesions in latent syphilis has been explained by a theory of lowest local immunity. An attempt has been made to distinguish between monosyphilide and polysyphilide periods of latency. The former would naturally occur at a late period of the disease. However, there is also a late polysyphilide period and this again may be subdivided, according as the lesions develop at different points of local irritation or appear spontaneously. In the latter case the general immunity is weakened. In regard to lowered local immunity it is known that spirochetes may persist in certain localities without any evidence of a tissue reaction in which state they could be regarded as saprophytes. Irritation of such localities could arouse them to virulence. From another angle the organisms may exist passive in the deeper tissues—bone marrow, for example—and then for some reason enter the circulation and be deposited in an active state in the skin or elsewhere. Under such circumstances multiple lesions could arise like ordinary metastases. In the author's cases he is forced to conclude that spirochetes must have pre-existed in the wounded tissues in which developed the gummous manifestations.

Campaign for Organization of Volunteer Medical Service.—The General Medical Board of the Council on National Defense has started a campaign to organize all physicians ineligible for camp or field duty into a Voluntary Medical Service Corps. The members of this corps will be classified according to their ability to serve and will render aid to existing governmental agencies upon request of the Army, Navy, or Public Health Service, American Red Cross, or Council of National Defense. It is hoped that every physician who is unable to enroll in the Medical Reserve Corps will join the Volunteer Medical Service Corps. Applicants for service in the Medical Reserve Corps who have been rejected because of physical defects that may be overcome are urged to have such defects remedied and therefore become eligible. The general management of the Volunteer Medical Service Corps is vested in a Central Governing Board, which is a committee of the General Medical Board of the Council of National Defense. The procedure for joining is simple. The applicant returns his filled blank to the Central Governing Board in Washington, and it is then referred to the proper State Executive Committee for its recommendation as to the qualifications of the applicant, and as to the kind of work for which he seems most fitted.

Red Cross Makes Record.—During the month of April, the American Red Cross surpassed all previous records since it took up its activities in France. During the month nine rest stations on the American lines of communication and seven on the French lines provided 408,000 meals. Nine metropolitan canteens supplied 454,000 meals. A complete new hospital with 200 beds was estab-

lished in a chateau immediately behind the front. A hospital of 500 beds is being erected near Paris. Three more dispensaries have been opened near ports. Eighty beds have been added to an American hospital near Paris, 75 at Neuilly, 100 at Military Hospital No. 1, a like number at Military Hospital No. 2, and 60 at Military Hospital No. 3. Convalescent homes have been opened at Cannes and Biarritz. Much assistance has been given to a large number of French hospitals, with special attention to those caring for American wounded. These hospitals received 2,500 surgical instruments together with an immense amount of equipment in other lines. For Americans at the front a shower bath was established with equipment for removing vermin; this has a capacity of 25,000 men weekly. In addition laundries and field kitchens have been installed in several camps, and a large quantity of tobacco and other supplies for the soldiers distributed.

Jersey City and Hoboken Hospitals Taken by the Government.—St. Mary's Hospital at Willow Avenue and Fourth Street, Hoboken, three blocks from the Government piers, is to be taken over by the Federal authorities for the sole use of military and naval patients. This will be the first complete Government hospital at the Jersey port. The 600 patients now in the hospital are being removed to hospitals in Jersey City and North Hudson. Following close on this announcement came another stating that St. Francis Hospital, East Hamilton Place, Jersey City, would also probably be taken over by the Government. Contemplating that demands may be made to turn over at least part of the City Hospital for the care of soldiers and sailors, the Jersey City Commissioners have ordered that work be rushed on an addition to that institution. The new wing will give an added capacity of 150 beds and will cost \$150,000.

Government Takes Over Sea View Hospital.—At a recent conference Health Commissioner Copeland, Mayor Hylan, and Lieutenant-Colonels Hornsby and Kramer reached an agreement whereby the Sea View Hospital, Staten Island, conducted by New York City as a tuberculosis hospital, has been taken over by the Government. The patients of the city will be moved to the city's tuberculosis hospital at Otisville, N. Y., where the army has agreed to erect additional buildings for the city. The Government will occupy the Sea View Hospital as soon as accommodations are ready for the patients at Otisville.

Clifton Springs Sanitarium Not to Be Taken.—The Government has had under consideration for some time the advisability of taking over the Clifton Springs Sanitarium for a military hospital. It has now announced, however, that the present need is not so imperative as to demand taking over the property yet.

War Department Asks Large Appropriation for Medicine.—The War Department has asked Congress for an appropriation of \$33,000,000 to provide for the medical care of the forces now under arms. This estimate is in addition to appropriations already made for the new army totaling \$130,000,000.

Women's Ambulance Corps Authorized.—Two women, Miss Ethel Langdon Drake, an American,

and Mrs. Mary E. Symonds, an English woman, arrived in New York a few days since on an unusual mission. They have come with the authority of General Petain to organize a women's corps of ambulance drivers to be attached to the Sixth French Army. Mrs. Symonds wears the Croix de Guerre and a gold medal of the Foreign Office for valorous services in driving an ambulance under fire. They claim that the need of men is far more urgent than is generally supposed and that many women can drive an ambulance as well as men. Among the qualifications necessary for women ambulance drivers are poise and capacity for individual action, together with perfect health and physical ability. Applicants must be between the ages of 25 and 35.

Gives House to Red Cross.—Jacob H. Schiff has given a house on his estate near Seabright, N. J., to the War Department and the Red Cross to be used as a rest home for nurses worn out by service at the front. The house is ready for immediate occupancy and will soon be taken over by the Red Cross.

Dr. Alexis Carrel of the Rockefeller Institute, New York, has been appointed by the French Government to the rank of Commander of the Legion of Honor. This decoration was bestowed upon him by M. Mourier, Under Secretary of State for Medical Service, in the presence of a number of noted personages.

Movable Surgical Units for American Army.—Movable surgical units such as are in use in the French Army are to be used for the care of the wounded in the American Army. These surgical units are transported on two motor trucks and contain everything needed for an operating room. The first truck contains a steam engine, which drives a dynamo for the radioscope and the electric plant and provides steam for an elaborate system of heating pipes. One side of each truck forms a sterilizing chamber in which six trays of instruments can be sterilized every half hour. The other truck carries the radio apparatus and a portable barrack for operations, together with all the appliances, also nine surgeons and physicians and thirty attendants and nurses for the staff. The surgeons work in groups of three in eight-hour shifts, so that operations can be conducted continuously. The value of these mobile units can scarcely be overestimated since the medical experience of the war goes to show that early treatment of the wounded is the vital desideratum.

Venereal Diseases in the American Expeditionary Forces.—A cablegram to the *New York Times* credits Major Hugh H. Young, Director of the Division for the Control of Venereal Diseases, with the statement that the American Army is freer from venereal diseases than any other army in the world. In making plans for this department of medical work in France, it was calculated by the medical authorities in Washington to have ten one-thousand bed hospitals in which a million men could be treated, but with 500,000 men in France there are only 500 cases of venereal disease needing treatment instead of the expected 5,000. In other words, instead of having one per cent. of our soldiers in hospitals with this class of disease the actual number is only one-tenth of one per cent.

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THE VOLUNTEER MEDICAL SERVICE CORPS.

THE response to the call of the United States for physicians has been gratifying. The Medical Reserve Corps—1,400 before the war, and many of these holding commissions only by courtesy—has increased to nearly 30,000, and it is expected that 5,000 more will be added within the next year. But there are many physicians anxious to display their patriotism who are not able to serve in that body; either they are too old, have dependents, have some physical disqualification, or are performing some public service which cannot be dispensed with. The question arises, how can such men best serve? And the answer is, by joining the Volunteer Medical Service Corps.

The Volunteer Medical Service Corps is made up of physicians who would be in the Medical Reserve Corps were it not for a disqualification such as age, sex, or physical disability. No more physicians of over 55 years will be taken in the Medical Reserve Corps, for example, but they may join the other body. Many physical defects which do not hinder the physician materially from pursuing the practice of medicine may yet prevent him from becoming a military surgeon, and he can then apply to the volunteer body. Women physicians, too, will find a sphere of usefulness there. It must not be imagined that there is no standard of acceptance in this organization, or that candidates for it are not carefully scrutinized, for the reverse is true. In the first place, it must be ascertained whether or not the applicant is qualified to join the Medical Reserve Corps, and, if so, he can by no means join the other body. Just as strict an inquiry is made into the physician's professional and personal qualifications in one as in the other, and it might almost be said to be a home Medical Reserve Corps.

Many physicians who are willing to serve, and who are not able to join the Medical Reserve Corps, are anxious to know what sort of duties they are likely to get in the volunteer body, whether they will be summoned at inconvenient times, be obliged to make long trips, and so on. The fact of the matter is, the service rendered is entirely voluntary, and each man, on entering the body, is asked what work he is best suited for and to what extent demands can be made on his time. The kind of service

members of the volunteer body will probably be called upon to render may perhaps be illustrated by several examples. Thus, a physician, well known in his community as a diagnostician and internist, may live near a military camp, and the medical officers there may call him in occasionally as a consultant. Or he may be a surgeon, and be called upon now and then to do an operation somewhat beyond the skill of the military surgeons stationed in that particular place. He may be asked to render some aid in the examination of candidates for the Medical Reserve Corps, to attend the sick child of a soldier away at war, etc. In short, he is recorded by the Government as being located in that particular place, ready to help in any way he can. These calls for help are not likely to be frequent, and, before being issued, inquiry is made as to whether they are likely to inflict a hardship upon the physician or not.

Insignia have been devised for this branch of the service which have been commended by a well-known sculptor and approved by the Secretary of War. The designer, we record proudly, is a physician, Dr. Robert Dickinson of Brooklyn, N. Y. The emblem is a graceful representation of the letters V. M. S. C. above a caduceus. Instead of the trite round shape, this button is in the shape of a shield, about one and a half inches across. It is to be worn in the lapel.

The five thousand physicians who have already applied for commissions in the Medical Reserve Corps, but who have had to be rejected on account of some disqualification, such as age or physical defect, will be the first ones enrolled in this body. Next, applications will be sent to all members of leading medical societies who are over 55 years of age. And after that efforts will be made by Dr. Edward P. Davis, the chief of this organization, to enroll all the reputable physicians of the United States who cannot be taken into the Medical Reserve Corps. It is hoped that all physicians who are not able to take commissions in the latter body will at once apply for the Voluntary Medical Service Corps and do their bit that way. Only by utilizing to the last man all the medical resources of our country can our profession do its duty. The crying need of our Allies is now for doctors rather than fighting men, and we must help them as well as our own forces.

THE NATURE OF INDIGESTIBLE FOOD.

THERE is still much confusion among many minds as to the nature of food that is most likely to give rise to digestive and nutritional disturbances. Indigestible food has been taken to mean food that neither the stomach nor the intestinal tract will digest and which as a result gives rise to digestive disturbances. It is often said that the gastrointestinal tract evidences its rebellion to some foods by these symptoms. Except, however, for possible mechanical irritations, caustic effect, or blocking of the gastrointestinal continuity, no symptoms need arise

merely from the failure of digestion of food introduced into the tract. Usually such food will pass unchanged, unless through torpor of the intestinal canal it remains to ferment or to decompose. In infants whose mechanical powers are still somewhat limited, food that they cannot digest will remain to act as a mechanical irritant until expelled. Likewise food that remains to ferment and to decompose will produce symptoms from poisoning by the decompositive products. Except for these circumstances abnormal digestive conditions in infancy are caused by food that is acted upon by the digestive organs but whose products are not well borne by the immature metabolic system. But digestive disturbances are always caused by foods that by nature are digestible. Foods that are capable of digestion by the gastrointestinal ferments are also the ones most likely to suffer decomposition either in the intestinal tract, when not digested, or for some reason outside of the digestive tract before introduction therein. Ordinarily, adults do not suffer from the presence of food that is not digested and that is simply passing through the alimentary tract.

Within limits the presence of food that is not digested is good for the system because it acts as body for the fecal material and entangles within itself other obnoxious materials in its passages through and out of the body. Much solid matter of this kind often excites peristaltic action which would otherwise be dormant. The ingestion of food which by nature is entirely digestible and in consequence is also entirely absorbed is the cause of much constipation because there is not left enough residue for fecal matter. It is a mistake in the choice of food from the economical standpoint to utilize only that which has the maximum amount of food value. Much must be chosen for its non-digestible qualities. Of course, the foods that are essentially indigestible, and which have the least percentage of food value, are the woody, fibrous, tendinous, colloidal, and like substances. The nutritive content is usually a small part of the bulk of the material which contains it. In speaking of overeating it is never overeating when much indigestible material is consumed, but rather when it is digestible material that is taken in larger quantities than needed for the maintenance of the organism. So long as the digestive ferments will digest so long will the organism have the benefit of the food digested. When because of the excess of food taken in it is no longer digested it can act either as food that has no digestible qualities or it can remain to ferment or decompose and through the products of decomposition act as poison to the organism. On the other hand indigestible food is usually incapable of much decomposition and almost no excess can do harm except mechanically.

Among the foods that are essentially indigestible and which are of value in the prevention and cure of constipation are the green and fibrous vegetables, the shells of grain, fibrous capsules of fruit, etc. Meat has a great deal of indigestible connective

tissue fiber and it is for this reason that the protein value of some meats is not as high as that of some of the leguminous vegetables, cheese, etc. This liberality with indigestible foods applies only to adults. In infants almost any material may become irritating to the young mucous membrane, although in the case of older children it is essential to include some of the indigestible elements in their foods. It goes almost without saying that food idiosyncrasies occur with foods whose major portion is digestible and absorbable. Idiosyncrasies can occur only when there is absorption of the food after its digestion or decomposition.

THE SYMPTOMATOLOGY OF STAPHYLOCOCCIC INFECTIONS.

MODERN researches have shown that staphylococemia varies in its symptomatic evolution according to the age of the subject, and that two types are quite evident. The first is characterized by important general symptoms and by multiple subcutaneous abscesses or deep-seated pus collections in the cellular tissue. The second type is characterized by pemphigoid eruptions which, from their gravity, are susceptible of causing death. In the adolescent a generalized staphylococcic infection means osteomyelitis, but in the adult a staphylococemia is diagnosed with difficulty owing to the variability of the localizations of the infectious agent, the evolution of the process assuming the superacute, acute, subacute, or chronic form.

Unquestionably, to the superacute form belong deaths occurring in carbuncle or furunculosis eruptions, the organism in the primary focus possessing such virulence and such toxicity of its soluble products that secondary lesions have not the necessary time in which to develop. The onset is like that of a pneumonia with all its train of well-known symptoms, while in the acute forms a typhoid state manifests itself. In most instances a carbuncle, a batch of boils, or some other patent manifestation of staphylococcic infection will be found. At the onset the symptoms are somewhat the same as in the superacute type, but less serious. There are chills, headache, nausea, and general lassitude, while the temperature rapidly reaches 103° to 104° Fahr. The patient then looks like a subject of typhoid fever, with vomiting and diarrhea, meteorism, and enlarged spleen and liver, with occasionally a subicteric tint of the skin and scant urine containing urobilin and albumin. Dyspnea is intense and the pulse very rapid, irregular, and small. The temperature remains at about 104° Fahr., but may offer marked irregular oscillations following either a remittent or an intermittent type.

At this phase of the process death may occur, but should the organism resist, the coccus will become localized in the various viscera. Should the individual still resist with some success, multiple abscesses or suppurating arthritides appear, and an acute pyemia becomes established.

In the chronic forms of the process, with sub-

acute attacks, the lesions in the cellular or bone tissues predominate. When less serious, the infection gives rise to successive focal developments to the infectious agent, and the outcome of the case will be repeated abscess formation, covering several weeks or months in duration. In the more chronic forms, the virulence of the microbe may last for years, occurring in outbursts of the symptoms, separated by intervals of relatively good health. But the fact must not be overlooked that an increase in the virulence of the staphylococcus may arise and the case assume the aspect of the acute form with the development of various visceral lesions, which may end in death. Therefore, in every case of staphylococcal septicemia the prognosis must invariably be guarded, and although some recoveries have occurred, the number of fatal outcomes is very great. The temperature has an influence on the evolution of the process, the continued type being of more serious import than the remittent. The apyretic form is still more favorable. The prognosis is rendered very somber when pronounced adynamia is present.

The particular variety of staphylococcus has been supposed by some to be the reason for the variable virulence of this morbid process, the aureus being considered the most pathogenic, after which comes the citreus, and lastly the albus. But the visceral lesions are in reality to be held responsible, and in order of priority come endocarditis, pulmonary lesions and those of the nervous system. From the morbid traces which it leaves behind, staphylococemia lays the etiological foundation for a number of general diseases and it has been maintained that among these are arteriosclerosis and muscular atrophy.

ARSENICAL CANCER.

ARSENIC has been on several occasions an object of suspicion as an exciting cause of cancer. At first sight, the suspicion seems to be based on sound premises, or, at least, not to be devoid of reason. Taken in considerable doses for a protracted period, arsenic irritates the mucous membranes as well as the skin, moreover, producing a watery discharge from the eyes and nose and a brown discoloration of the skin. Now, it is generally believed that constant irritation is an exciting cause of the localization of cancer, and many cases have been cited in support of the contention. It has been further suggested that the habitual ingestion of highly spiced foods and the continual consumption of alcohol in the form of spirituous liquors may play a part in the localization of the disease. Therefore, the idea is by no means far fetched that arsenic, which is an irritant, may act similarly. The matter is discussed in a paper read before the London Dermatological Society, by Dr. Charles E. de Silva and published in the *Medical Press*, March 27, 1918. De Silva is inclined to scout the view, although he allows that there are some grounds for it. He is of the opinion that if arsenic had any tendency to cause malignant degeneration of the skin on which it acts as an irritant during its elimination, after

circulating through the tissues and glands which absorb so much of it, cancer is more likely to occur chiefly in the stomach, intestines, and liver, as the result of direct primary irritation during its absorption in much larger quantities than is eliminated by the skin. The breast, skin of the head, face, and neck, the lips, mouth, and uterus should be particularly liable and not escape. But there is no proof of the development of arsenical cancer in these specially liable parts of the body. Yet another strong argument against arsenic being the cause is the fact that cancer has not been reported as a common sequel of chronic arsenical poisoning among drinkers of arsenical beer, or in diseases where it is administered in gradually increasing doses for long periods, as in chorea, pernicious anemia, malaria, lymphadenoma, epilepsy, asthma, etc. In short, the evidence against the supposition that arsenic is an exciting cause of cancer in the human subject is weighty if not actually convincing. The conclusion then reached by de Silva is that arsenic is only responsible for the production of the keratotic condition, or preparation of the favorable "soil"; in other words, determines the localization of the disease.

News of the Week.

Traffic Rules for Physicians.—The first of several new traffic regulations planned by Deputy Commissioner John A. Harriss became operative in this city on May 15. This ordinance authorizes the issuance of special cards to physicians, which will permit their motor cars to stand in crowded streets when on urgent medical calls.

New York City's Water Supply Protected.—A bill has been signed by Governor Whitman creating the Mohansic Lake Reservation from the territory upon which the State had formerly planned to maintain a hospital for the insane and a reformatory for delinquent boys. This finally disposes of a proposition to risk contamination of the water supply of New York City that has for the past five years been a subject of debate and of legislation. This fortunate outcome of the affair is largely due to the efforts of the Merchants' Association, which has always vigorously opposed the erection of these institutions on the New York watershed.

To Reopen Children's Infirmary.—A meeting was recently held at the home of Mrs. Philip M. Lydig for the purpose of initiating a campaign to raise a fund of \$200,000 for the New York Infirmary for Women and Children, which was forced to close its doors last March because of lack of funds. Addresses were made by Dr. Simon Flexner, Dr. Willy Meyer, Dr. S. Josephine Baker, and Dr. Samuel W. Lambert. Emphasis was laid on the special need of caring for women and children during the period of the war.

German Invents Drug to Dull the Edge of Hunger.—The Berlin newspapers of recent date contain advertisements by a German chemical firm of a newly invented preparation which, "though not forming a substitute for the minimum daily sustenance, is an excellent preparation for stilling premature hunger, and enables one to hold out until the next meal time."

Industrial Conference Urges Disease Preven-

tion.—The National Industrial Conference Board, which met in Boston on May 12, presented a report on "Sickness Insurance and Sickness Prevention" which urges the prevention of disease wherever practical, rather than compensation for losses incurred by sickness. The report says: "To fail to apply preventive measures to such illnesses, disabilities, or conditions as will almost certainly respond, and instead to permit them to go uncorrected until the victim becomes a charge on society is absurd. Certainly if the State can contribute to the support of the individuals after they become incapable of caring for themselves, it can contribute to prevent them from becoming incapacitated."

Government Urged to Take Up Public Health Problems.—The National Industrial Conference Board has been studying the question of public health, and has compiled data on the prevalence of sickness among the American people. A report which this organization has submitted claims that of every 100 residents of the United States at least one is afflicted with tuberculosis, and a larger percentage with organic heart disease. General Crowder makes the statement that of 2,500,000 men examined for military service 33 per cent. were found physically unfit. An investigation by the Public Health Service, with the authority of Congress, is proposed, and the annual physical examination of all persons urged to determine on a course of prevention. The report submits the result of surveys made in ten typical communities in the North and South showing that on an average 2.02 per cent. of the population were sick and 1.88 per cent. were unable to work. The statement is made that there are at least four feeble-minded persons in every 1,000, and that feeble-mindedness is responsible for from 25 to 50 per cent. of the inmates of our prisons and jails, and that from 15 to 30 per cent. of the inmates of almshouses are feeble-minded. The conclusion drawn is that the highly successful results of prevention in certain of the common diseases justifies Federal action along this line.

New York Health Drive.—The Health Commissioner announces that the health drive which the New York City Health Department is planning will begin on May 26 and will last a week. The purpose of the drive will be to rid the city of all rubbish piles and dump heaps and unsanitary accumulations due to neglect and carelessness.

Special Child Welfare Meeting.—A special meeting of the Section on Pediatrics of the New York Academy of Medicine was held on the evening of May 17, which was devoted to a consideration of the subject of Child Welfare Work in France. Dr. Pierre F. Armand-Delille, major in the Medical Corps of the French army, delivered an address in which he reviewed the history of child-welfare work in France and told what was being done at the present time in the way of child-welfare work and the care of mothers. Dr. William Palmer Lucas, director of the child-welfare work under the Red Cross, in France, described the work that the Red Cross was doing for the women and children of France, illustrating his talk with motion pictures and lantern slides. Dr. Herbert B. Wilcox presided at the meeting.

Dr. Antoine Depage has arrived in this country, and will attend the meetings of the American

Surgical Association in Cincinnati and the American Medical Association in Chicago.

Dr. Benjamin T. Terry has resigned his position as director of the Brooklyn Laboratories of Pathology.

Dr. Geza Kramer has been appointed Medical Superintendent of the Sea View Hospital, Staten Island.

Dr. S. Dana Hubbard of the department of epidemiology has been appointed to take charge temporarily of the Bureau of Public Health Instruction of the New York Department of Health made vacant by the resignation of Dr. Charles F. Bolduan.

Gifts and Bequests.—The United Hospital Fund has distributed \$150,000 among the hospitals of this city on the basis of the actual free work done by each hospital. This is \$35,000 more than has ever been distributed before. The Montefiore Home received the largest share of this fund, \$13,406, and the Mount Sinai Hospital the second largest share, \$11,457. The women's auxiliary to the fund announced that it had contributed \$29,500 as the result of a special appeal showing the necessity of continuing hospital work at this time.

The Long Island College Hospital, as residuary legatee, receives \$265,944 as its share of the estate of the late Charles W. West.

New Competitive Examination for Chief Medical Examiner.—The Municipal Civil Service Commission of New York City has voted to cancel the existing eligible list for the post of chief medical examiner, which pays \$7,500 a year. A new examination will be held, and the present incumbent of the office, who is holding the place under a temporary three-months' appointment, will have to take the examination again if he desires to become a permanent candidate for the office.

Medical Society Elections.—The MICHIGAN MEDICAL ASSOCIATION, which held its annual meeting at Battle Creek, on May 7 and 8, elected the following officers: *President*, Dr. Arthur M. Hume of Owosso; *First Vice-President*, Dr. W. Sam Shipp of Battle Creek; *Second Vice-President*, Dr. C. C. Miller of Cadillac; *Third Vice-President*, Dr. J. C. Chester of Emmett; *Fourth Vice-President*, Dr. F. W. Garber of Muskegon.

The SOUTH ESSEX (MASS.) MEDICAL SOCIETY, at its annual meeting at Nahant, on May 7, elected the following officers: *President*, Dr. James J. Egan of Gloucester; *Vice-President*, Dr. Carolus M. Cobb of Lynn; *Secretary*, Dr. Hamlin P. Bennett of Lynn; *Treasurer*, Dr. George Z. Goodell of Salem.

Obituary Notes.—Dr. ALFRED LYNDON JACKSON, a graduate of New York University Medical Department, in 1897, died at his home in New York City, May 12.

Dr. THOMAS HOLLINGSWORTH ANDREWS died at Philadelphia on May 8 at the age of 75 years. He was graduated from Jefferson Medical College in the class of 1864. During the Civil War he served with the Sanitary Commission and later as assistant surgeon in the United States Army. He was intern to the Pennsylvania, Episcopal Philadelphia and Charity Hospitals. He was for a time chief of the Surgical Clinic at Jefferson Hospital and demonstrator of surgery and of anatomy in the college. He served two terms as Coroner's Physician. He was professor of anatomy in the Wagner Free

Institute of Science. He was surgeon to the outpatient departments of the Pennsylvania and Howard Hospitals. He had been a Fellow of the College of Physicians of Philadelphia, a member of the Philadelphia County Medical Society, of the Medical Jurisprudence Society, of the Pathological Society of Philadelphia, of the Philadelphia Obstetrical Society, of the Philadelphia Academy of Natural Sciences, of the Medical Society of the State of Pennsylvania and of the American Medical Association.

Dr. FRANK JUDSON BARDWELL died at Tunkhannock, Pa., on April 14 following a surgical operation, at the age of 50 years. He was graduated from Yale University School of Medicine in the class of 1891. He was a member of the Wyoming County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. DAVID GILBERT YATES died at his home in New York City on May 10, aged 48 years. He was a graduate of the New York University Medical School, in 1898, and at the time of his death was visiting surgeon at the New York Eye and Ear Infirmary and attending physician at the Manhattan Eye and Ear Hospital. Dr. Yates was a member of the American Medical Association, the American Laryngological Rhinological and Otological, the New York Academy, and other organizations.

Dr. MARTIN FLEMING, who retired from the practice of medicine some years ago, died at his home in New York City, on May 11, aged 71 years. He was a graduate of the College of Physicians and Surgeons, New York, and for many years attending physician at Bellevue Hospital. Dr. Fleming was a member of the New York Academy of Medicine and of the Medical Society of the County of New York.

Correspondence.

OUR LONDON LETTER.

(From Our Own Correspondent.)

NATURAL SCIENCE IN THE EDUCATIONAL SYSTEM OF GREAT BRITAIN—A STATE DENTAL SERVICE—THE RADIUM INSTITUTE—FEEDING OF LABORATORY ANIMALS—BOTULISM(?)—DEATH OF PROF. MICHELL CLARKE.

LONDON, April 25, 1918.

A COMMITTEE was appointed in the summer of 1916 by Mr. Asquith, then Prime Minister, to inquire into the position of natural science in the educational system of Great Britain. The reference of the committee was especially to that position as evidenced in the curricula of secondary schools and universities, and the members were asked to advise—though not in so many words—what measures were needed to promote the study in these institutions of such obviously neglected subjects as chemistry, physics, and the natural phenomena of geography, astronomy, and climatic conditions. That it was intended to elucidate from a carefully chosen body of experts advice possessing practical bearings was shown by the fact that the committee was asked, while paying due regard to a liberal education and the claims of pure science, to direct their counsels specifically to the relations which ought to

exist between science in its application and all industries and professions. The committee was presided over by Sir J. J. Thompson, the famous physicist, who is both president of the Royal Society and master of Trinity College, Cambridge, and the notable medical members of the body are Dr. Henry Head, the well-known neurologist, and Prof. E. H. Starling. The committee have rendered a valuable and practical report, the first of whose principal conclusions is that natural science should be included in the normal course of the school education of all boys and girls up to the age of about 16, and that periodical inspections should be made of all schools to see that the courses are maintained at such a standard that they could be accepted as a qualification for entry into the professions. With special reference to the medical profession it is recommended that a "First School Examination" should be instituted at which all candidates should be required to satisfy examiners in both mathematics and science, adding that this examination ought to be recognized by the General Medical Council as qualifying for entrance to the medical profession. This recommendation has more far-reaching significance than appears on the surface, especially if the General Medical Council could find means to make such a First School Examination compulsory upon all intending medical students who have not passed some obviously more stringent test. For at the present moment the commencement of the medical curriculum proper may be anything from full graduation at Oxford and Cambridge, or the passing of such difficult tests as those exacted in the Matriculation of the University of London, down to the inadequate examinations held by the College of Preceptors or by certain Royal Corporations. A First School Examination, the passing of which would, by one single standard, admit all students to all professions, would be a real blessing to our over-examined youth. A further recommendation with regard to the relation of science to medical education is one suggesting that medical students should be allowed to take their "First Professional Examination," which generally implies a knowledge of a certain amount of chemistry, physics, and biology, before entering the medical school. In this way no student would join a medical school until he was ready actually to go to the strictly professional subjects of anatomy, physiology, and the biological or pharmaceutical developments of chemistry. Now the legal duration of the medical student's education in Great Britain must be at least five years, and at the present time one year of this period (generally more) is consumed in the study of chemistry, physics, and biology. Two more years are usually required for the mastering of anatomy, physiology, and pharmacology, in the first two of which subjects our examiners are always exacting, leaving only two years for the acquisition of all clinical knowledge, both theoretical and practical, if the student is to qualify in the shortest legal period. It is needless to say that although the law says that no medical student shall become a qualified practitioner in less than five years, circumstances make it almost inevitable that over six years will be fully taken up by the student's education. Indeed, I believe the average duration of studentship is little short of seven years. Undoubtedly the length of the

curriculum, as dictated by the pressure of study and not by the terms of the Medical Acts, presses hardly upon the purses of parents and guardians who have to support the students, and permission to take the first professional examination before entering a medical school would be a great boon to many, but the great awkwardness is that the boon would not be universally distributed. There are all over the United Kingdom not a sufficient number of schools providing adequate instruction in chemistry, physics, and biology, to enable their pupils to pass tests in these subjects. Notably in unlucky Ireland the secondary schools are few and bad. The permission to take the first professional examination before entering a medical school would therefore be valid only for some students, not for others, as many lads, for lack of opportunity, would be compelled to resort to their medical school for their instruction in the preliminary ancillary subjects, and they would not save the year of medical education which would be saved by those more fortunate in making an early start. But the General Medical Council is a standardizing body for the whole country, and cannot make by-laws which do not bear with equal force upon all students alike. So that this valuable recommendation of Sir J. J. Thompson's committee—and it is a most valuable and practical one—will not be adopted without considerable difficulty.

The examination of recruits has led to a general eye-opening as to the condition of the teeth of our country, and it is not surprising to find a scheme for a State dental service designed to meet what is evidently a State default. Such a scheme has recently been codified by Major F. W. Broderick in the columns of *Public Health*, and his proposal to meet existing ills by the creation and distribution among the population of "dental units" composed of dental surgeons and dental mechanics, as far as they go, are sound. Undoubtedly in this way the present position would be improved, but our widespread dental troubles require the interference of preventive medicine. A State dental service should form part of a general State medical service to be of lasting benefit, and the bigger idea is still in the stage of ideas.

A report of the work carried out at the Radium Institute under the medical superintendence of Capt. A. E. Hayward Pinch has just been published with the authority of the Executive Committee of which Sir Frederick Treves is the chairman; and within the limits of the work it is an extremely satisfactory document. To form an adequate judgment of the results of the activities of the Institute it is important to remember that operable cases of malignant disease, rodent ulcer alone excepted, are as a rule declined, though the rule is waived in instances where patients have absolutely refused to submit to operation. The feature of the report is the inclusion of the history and records of patients whose treatment began seven or eight years ago, so that when prolonged relief (one would like to say "cure") has been the apparent result, there is evidence from which to judge the value of the claim. The term "apparent cure" is used throughout the report in relation to cases of malignant disease as representing a condition in which all traces of the original lesions have disappeared, in which there is

no sign of any recurrence, and in which the patient as far as can be determined by thorough and careful examination is free from any indication or symptom of the disease. It will be admitted that the limitations imposed upon the words "apparent cure" lean to the side of severity. A summary of cases during the year 1917 showed 241 improved cases, 104 not improved, 69 apparently cured, and 22 cured. Forty-eight were examined, but for some reason or other not treated. Twenty-eight voluntarily abandoned treatment during the course, while there were 44 deaths. As bearing on the charitable side of the Institution it may be mentioned that of the 6,000 separate treatments administered during the year, over 4,000 were given to necessitous patients free of all charge. Among the conditions where the most good seems to have been done may be mentioned epitheliomata of the vulva, early carcinoma of the uterus, rodent ulcer—of all forms of malignant disease this is the one which is most amenable to radium treatment—and various forms of sarcoma. Mediastinal tumors have also benefited by treatment at the Institute, notable results having been obtained in patients who have presented themselves suffering from dyspnea and orthopnea, accompanied by severe venous congestion and disturbances of the sympathetic and recurrent laryngeal nerves. It is probable that the majority of these growths were lymphosarcomata. Keloid, lupus erythematosus, lichenification of the skin, and nevi have all improved under the treatment. The number of patients suffering from carcinoma of the breast applying for treatment exceeded during the year that of any other sufferers from malignant disease, but as the patients in whom operation is practicable are invariably advised to have recourse to surgery, it follows that those treated at the Institute were, as a rule, in a very advanced state of disease with extensive lymphatic involvement. In some of these cases, however, good results have been obtained, often in complete contradiction to carefully made surgical predictions. The report is of value in two directions, for on the one hand it shows how much practical good may follow the intelligent use of radium, and on the other it is a frank confession that we have in radium no magical cure of cancer. And that is the position which is too often attributed to radium by the lay press, to the profound disappointment of many sufferers.

Under the Defense of the Realm Act, the Ministry of Food has sanctioned the acquisition (notwithstanding any preventive legislation) by those who are licensed to carry on medical research by animal experimentation of foodstuffs necessary for the animals in question. Every licensee is required to keep a record of the quantities of food he so acquires.

Three epidemics, having almost exactly the same association of symptoms, have recently broken out respectively in the north and west and later in the south of London, and in the district of Sheffield, while a disease possibly of the same nature has also manifested itself in Paris. The obvious symptoms are an acute ophthalmoplegia associated with asthenia and other nervous manifestations. The first outbreak, which occurred at the end of March, and to which I have already referred, was apparently scattered over the north and west of London, and

seven cases fortunately came, almost as a group, under the attention of Dr. Wilfred Harris, physician to St. Mary's Hospital and neurologist to the Third London General Hospital. The first of these cases was an officer under the care of Captain Sir John Broadbent at the hospital, who called in his neurological colleague for consultation. All the seven cases were profoundly ill and had certain features in common; namely, an incubation period of under twenty-four hours, a distressing collection of mucus in the nasopharynx owing to disorder of the buccopharyngeal glands, ophthalmoplegia externa and interna, and various gross disarrangements of vision. All presented, as well as dysphagia and aphonia, disturbances of the circulatory and respiratory systems, indicative of bulbar paralysis, and five had retention of urine. In only one of the seven cases was there actual paralysis of swallowing. Of these seven cases one proved fatal when no obvious changes were found post-mortem. In the case of the officer first seen an organism was grown from the stools and urine resembling in morphological characteristics the *Bacillus botulinus*. Almost simultaneously a series of cases presenting analogous features came under the attention of Dr. Arthur J. Hall, Professor of Medicine at the University of Sheffield, and Physician to the Sheffield Royal Hospital. Professor Hall's cases at first sight were divisible into meningitic and asthenic types, and the unusual clinical picture presented led to inquiry into some common origin, with the result that cold, trauma, ear disease, rheumatism, syphilis, diphtheria, and cerebrospinal disease were all eliminated. Professor Hall saw that it was reasonable to connect the cases with some poisonous elements in the food or some deficiency of essential ingredients, but on investigation obtained little evidence to support the theory. At this time, however, his attention was called to the cases which had come under the care of Captain Wilfred Harris, with the result that the similarity between the Sheffield epidemic and the form of poisoning due to the consumption of food infected with the *Bacillus botulinus* became clear. This week the medical officers of the Lambeth Infirmary admitted a series of cases suffering from an epidemic disease of obscure origin, all showing signs of toxic bulbar paralysis, several of whom had been diagnosed before admission to the institution as polioencephalitis. In these cases the condition was almost similar to the meningitic type described by Major Hall, the symptoms of bulbar paralysis and meningitic irritation predominating. Simultaneously a case closely resembling those described by Captain Harris was reported to the *Lancet* by Leonard Dobson and an account of another case was contributed to the same journal by Dr. Farquhar Buzzard, who declined to describe his patient as suffering from anything more definite than "toxic encephalitis." With regard to the attribution of these cases to the action of *B. botulinus* on other than clinical grounds in the first case which came under Captain Harris's attention, the symptoms commenced after meals of sausage and lobster, while one of Professor Hall's patients definitely attributed her symptoms to tinned food. It is obvious that in all cases admitted to general hospitals or infirmaries in England at the present time there will be great probability of their having eaten

tinned food, and the action now taken by the local Government Board is, therefore, very reasonable. For Dr. A. W. J. MacFadden has issued from the Board a request to all medical officers of health, having such cases brought to their notice that they should send to the Board full particulars with regard to food history, the Board having at the same time made arrangements to examine for those officers any samples of food material which they have good reason to suspect is the origin of any of the cases. In Paris the epidemic has occurred chiefly among children, and it would not be safe to assume we are here dealing with the same condition until the *B. botulinus* has been discovered either in portions of food actually eaten by the patient, or through one of the usual methods familiar to bacteriologists. It will be taken for granted that the authorities in the United States are equally alive to the possibilities with which they may have to deal, for in one case at least the symptoms followed upon the use at table of tinned meat prepared in the States. But it must be allowed that Dr. Farquhar Buzzard's caution in not assuming that *B. botulinus* is a common cause of these cases has sound scientific reason. There is nothing like a consistent story in any proportion of the cases of the symptoms having followed from the eating of tinned food. *B. botulinus* implies, translated literally, that the sausage is the usual medium, but all tinned food and potted meats may shelter the bacillus. This reference to the exact meaning of a classical word reminds to mention the drole error into which the English lay press was betrayed in an attempt to introduce the subject to their readers. Some of the best daily journals described the cases as "vulvar" paralysis.

The death occurred recently of Dr. John Michell Clarke, professor of medicine and acting vice-president of the University of Boston. Professor Clarke was one of the best known provincial neurologists in the country. He contributed freely to Allbutt and Rolleston's "System of Medicine" and to Quain's "Dictionary of Medicine," to *Brain*, the *British Medical Journal*, and the *Lancet*, writing always from the clinical point of view as a thoroughly practical therapist as well as academically learned. Professor Clarke was 58 years of age, and seemed to have a long course of usefulness still before him, and his death is a real loss to medicine.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

THE UNIVERSITY UNION IN PARIS—SUPERSTITION IN THE TRENCHES—CHAIN OF HOSPITALS BEHIND THE LINES—SCIENTIFICALLY FEEDING THE NATIONS.

PARIS, April 8, 1918

EARLY in the summer of 1917 there appeared in the daily papers evidence that certain graduates of the larger American universities residing abroad were moving to unite their members into some sort of a social organization, to meet at least once a year at a dinner, to keep the members in touch. Growing out of this movement sprang the idea of organizing all of the American colleges and universities into an union, centered in Paris, which now has its headquarters in the Hotel Royal Palace, at 8 rue de Richelieu. With the first notice of an endeavor to

organize the separate institutions, the writer thought it a good idea to try to bring the members abroad of the New York University together and took the matter up with Chancellor Elmer E. Brown, who favored the project, which is about to be put into execution, and this university will doubtless become also a member of the University Union.

The movement has developed so rapidly and met with such instant success that recently Mr. Anson Phelps Stokes, chairman of the American Board of Trustees, came to Paris to give it personal attention and assistance. Mr. Stokes is not only the present chairman of the American Board, but he is the founder, the original prime mover, of the enterprise. Mr. Stokes is secretary of Yale University. All American university men in France welcome him informally, as the French university authorities have welcomed him formally. He comes to inspect and encourage the union, which now numbers more than 100 American institutions. Its directors in Paris have done admirable work. Professor Nettleton of Yale and Professor Lansing of the Massachusetts Institute of Technology are backed by a Paris executive committee which represents in addition four other great universities, and an advisory council of twenty-four from many additional institutions.

It is well that such a cooperative establishment should bring to the attention of the French the real variety and the fine rivalry of American institutions of learning. Hitherto little has been known of this. The Harvard exchange professorships and the generous activities of certain Harvard men living in Paris have served to link the name of Harvard with American higher education; while other great and ancient institutions such as Yale and Princeton and the flourishing State universities of Virginia, Michigan, Wisconsin, California, the newer graduate foundations, Johns Hopkins and Clark, have been names hardly known beyond professional circles. Harvard has deserved her fame. But recent events are bringing out the name and fame of others of our famous seats of learning. Princeton, for example, claims the President of the United States; her own president, John C. Hibben, has been one of the pioneers in the education of the United States in the questions of the war, and one of the two resident American members of the Institute of France hails from Princeton.

I understand that the union is preparing plans for a permanent establishment for students in Paris after the war, which will not only provide a "hospice" for American students here, but through its splendid organization in the United States attract to France the multitudes of young men and women who aforetime went to Germany. It is to be hoped these plans may be fully realized, and all the agencies working to this common end may rally about its administrators, bidding them continue their good work.

A more superstitious lot of men than the soldiers who are fighting for civilization on the western battle front could not be found. The professional baseball player in America has "nothing on" the Allied soldiers. There isn't a soldier among the millions who won't balk at lighting the third cigarette from the same match. The boys smile at their own child-

ishness or whatever one wishes to call it, but nevertheless they say they will "light another match, even if matches are scarce."

But there is another superstition which is taken far more seriously. The soldier who goes "over the top" the first time after he has had a leave does not expect to return. Any British, French, or American soldier will give you the names of his friends who were killed the "first time over" after coming back from a furlough. And so it happens that, notwithstanding the hardship of the life at the front and the keen appetite the enlisted man has for a few days' tranquillity and security, tens of thousands of soldiers decline to accept a leave. They don't like this "over the top" when they return. Before they have had leave they don't mind—that is, they don't exactly mind—but it is indeed with many misgivings and unquestionably a weak heart that they go over when they come back from leave. There is another phase to this superstition which has deeply engraven itself upon the minds of the soldiers. If a soldier "trades leave" with another, he, the man who proposed the trade, is marked for death the first time he "goes over." An Australian who has been at the front since the first battle of Ypres says that he has known fourteen Australians who were killed after they had traded leave.

In the midst of constant death it is perhaps the most natural thing in the world that there should be superstitions among the soldiers. There are some more sacred than others about which the boys hesitate to talk. If a letter from a mother arrives on the day a raiding party is sent out the members of the party—particularly the man who received the letter—are liable to be captured. Strange deduction this, but the men have plenty of time for sombre thinking and introspection. A man from Queensland has constantly in his pocket a sixpence which was given to him in Australia by a young woman. It has a hole in it. He says he knows it is his keeper. "I wouldn't lose it for all the money in England," he says.

Dr. John C. Baldwin of Johns Hopkins Hospital, Baltimore, is in Paris for the moment, having recently returned from Evian, where he has been temporarily directing the two hospitals of the American Red Cross in connection with the service of repatriation. Dr. Baldwin says that at the present time eleven convoy trains arrive weekly from Germany, via Switzerland, each bringing about 650 repatriates.

The work for children repatriated from behind the German lines is only one of the services of the Red Cross for the civilians of France. With the establishment of two health stations at Amiens, to which Dr. Baldwin is soon to set forth, there will be completed what amounts to a chain of hospitals stretching back of the lines practically across the entire map of France. The surgeons at one of these health stations will be in contact and consultation from time to time with the staff of the nearest hospital, and that staff will be in communication with the next nearest, and so on, so that this chain stretches from Amiens to Nesle, from Nesle to Grécourt (where is the Smith College unit, recently incorporated with the American Red Cross), from Grécourt to Blerancourt, where Red Cross work is in collaboration with the American

fund for French wounded, from Blerancourt to Chalons-sur-Marne, where the A. R. C. and the Friends are working hand in hand, and from Châlons to Toul, the center of a network of dispensaries held weekly in the various villages nearby. This idea of neighborhood clinics radiating from a field base and made possible by the omnipotent Ford, which enables a small staff to reach a relatively large and scattered population, is a new factor in public health work, French or American.

Work for the civilian population on very much the same lines as the Red Cross follows at Nesle and at Toul and is operated by United States army surgeons throughout the American zone, which completes the chain.

There was recently held at the Paris Faculty of Medicine on Inter-Ally Conference to study the question of the scientific feeding of the Allies. It was presided over by Mr. Victor Boret, Minister of Agriculture and Supply, assisted by M. Vilgrain, Under-Secretary of State for Supply. The conference is composed of professors of the Faculty of Medicine and of technicians delegated by Great Britain, the United States, France, and Italy. In opening the conference, M. Victor Boret made some important remarks. He said in sum: The Ministers of the Allied nations recently assembled in London decided to bring about this scientific conference with the object of studying the conditions by which it is possible to obtain the best results from the very limited resources which the Allies possess for their alimentation, and to share them out judiciously, taking into account the considerations dictated by physiology and political economy.

The chemical composition of foods and the study of food rations will serve as a basis for the work of the conference, with the object of the measures to be taken to assure sufficient alimentation for the population of each country. The conference will also occupy itself with the feeding of animals, particularly those which contribute in furnishing part of the food of men. The object of the conference is to proportion the stock of food to the needs of all, and to do this it must consider the general resources of each country and ascertain whether, when combined, there will be the quantity needed. When sharing these resources account must be taken of the conditions and habits of these countries, in order to avoid any useless change. For example, in regard to the distribution of wheat it must be taken into consideration that France is the country where normally the greatest quantity of bread is eaten. In the present circumstances, each individual in each country must reduce his requirements to a minimum and reduce his consumption.

This problem can be solved only by method in the use of food and human labor. To obtain the greatest benefit from our limited resources we must sacrifice normal food rations to scientific rationing, seeking to obtain from each individual the best working results with a minimum alimentation, just as the maximum of motion with a minimum of fuel is required from a well regulated machine.

The American delegates to the inter-Allied Scientific Conference on Supply are Professor Russel H. Chittenden of Yale, Professor Graham Lusk of the Cornell Medical School, and Mr. John Lawrey Simpson, delegate of the Food Administration.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

May 9, 1918.

1. Meningococcus Carriers: Preliminary Report from First Naval District. William R. Redden.
2. With the R. A. M. C. in France. M. A. Harrington.
3. Hospitals and Vocational Training. Richard P. Borden.
4. Spontaneous Pneumothorax Complicating Pulmonary Tuberculosis. Herbert F. Gammons.
5. Recent Progress in Psychiatry. Henry R. Stedman.

I. Meningococcus Carriers: Preliminary Report from First Naval District.—William R. Redden presents the results of an investigation into the question of meningococcus carriers in the first naval district. Such carriers were isolated on the basis of agglutinations in 1/10 or 1/50 dilutions of polyvalent antimeningococcus sera on slides, followed by gross agglutinations in tubes, the final readings being taken after twelve hours in the incubator at 55° C. and twelve hours in the ice box. Over three thousand cultures were examined, three hundred of which were positive. Of this group about 40 per cent. agglutinated specifically in 1/10 antimeningococcus serum, and about 60 per cent. as high as the 1/50 dilution on the slide. It was found that results of gross agglutination in tubes rarely altered the positive findings obtained on slides. Repeated examinations of a group of one hundred carriers showed that only 16 per cent. were ready for discharge at the end of the minimal isolation period of twenty-one days; that 7 per cent. remained positive over forty days; that 6 per cent. showed positive cultures after three successive negatives; that 49 per cent. showed positive cultures after one or more negatives, thus demonstrating a persistent and intermittent type of carrier; and that a carrier may show a pure culture on one examination, on the next day only a few scattered colonies in a mixed culture, and on the third a pure culture of meningococci. Treatment was of no value. A sharp decline in the number of positive cultures from the carrier group was noted during two weeks of warm weather. From a study of thirteen groups of "contacts" and six groups of "non-contacts" the author arrived at the following conclusions: Under good hygienic conditions groups of naval men, if only moderately well selected on the basis of possible contact with a known case of cerebrospinal fever, show from 6 to 8 per cent. carriers. Under poor hygienic conditions such groups may show from 17 to 22 per cent. carriers. Among groups of naval men well selected on the basis of possible contact with a case of cerebrospinal fever, and living in close contact with each other, 20 to 35 per cent. appear to be carriers; but when only a small group of guards, isolated from the rest of a crew, is considered, only 11 per cent. are positive. One group of one hundred men taken at random from a camp where there had been no case of cerebrospinal fever, and where living conditions are excellent, showed 9 per cent. carriers as contrasted with 25 per cent. which appeared in a group of one hundred taken from overcrowded barracks where a number of cases had occurred, and where from 20 to 25 per cent. carriers had been found on previous examinations. In another non-contact group of seventy-nine men representing a naval student body living in barracks under good hygienic conditions 9 per cent. were carriers as contrasted with the 1 per cent. found among one hundred women students of Simmons College and the first and second year Harvard medical students. The author points out that the important factors in the increase in carriers from 1 to 2 per cent. among civilians to 20 to 35 per cent. among recruits, are: contact with known cases of cerebrospinal fever; unhygienic conditions such as come from crowded barracks; severe physical labor, coupled with exposure to extremes of heat and cold, and, finally, contact with carriers of meningococci.

New York Medical Journal.

May 11, 1918.

1. A Bacteriological Study of Cigars. Randle C. Rosenberger.
2. Some Phases of Endocrinology. William V. P. Garretson.
3. The Unconscious. Adolph Stern.
4. Diatheses in Children. A. Hymanson.
5. How the Health Department May Aid in Diagnosis and Treatment of Meningitis. Josephine B. Neal.

6. The Relation of Carbohydrates to Protein Synthesis (Concluded). N. W. Janney.
7. Tumor of the Cerebellopontine Angle. E. David Friedman.
8. Immunization Against Colds. J. G. Dwyer.

1. **A Bacteriological Study of Cigars.**—Randle C. Rosenberger has made a bacteriological study of 118 cigars, taken from twenty-eight different stores where they had been, in many cases, exposed to the air and dust of the store, and from the pockets of individuals. Most of the cigars were of popular brands, which sell at 5 or 10 cents each. Cultures were made from the mouth end of the cigar as soon as possible after purchase, and in some cases tobacco was taken from the center of the cigar and placed in the sterile bouillon. Without exception abundant bacterial growth was demonstrated within twenty-four hours. Spreads were made from the cultures and were stained with methylene blue and by Gram's method. In the majority of instances spore forming organisms developed, among them being *B. mycoides*, *B. simplex*, *B. cohenrens*, *B. subtilis*, *B. megatherium*, *B. albolactis*, *B. mesentericus fuscus*. Streptococci were found in four instances, but were not obtained in pure culture. *Staphylococci albus* and *aureus* were isolated in pure culture in fourteen instances, but guinea-pig inoculation produced no lasting effects. A small motile organism resembling *B. coli* in morphology was found in cultures from twenty-five cigars, but only two gave indol production and fermented various sugars. Cocci resembling the gonococcus were obtained from a cigar taken from the pocket of an individual. The bacterial flora were just as abundant in the case of cigars wrapped in paper or in tinfoil; and in cultures made from the inside of the cigar, the spore-bearing organisms were more abundant than nonsporiferous bacteria. Rosenberger points out that though no virulent pathogenic or pyogenic organisms were demonstrated, the occurrence of staphylococci makes it evident that the practice of moistening the end of cigars with the mouth or tongue, or twisting the end with the moistened fingers should be forbidden—a practice which certainly exists in the small manufacturing plants; and that the selection of individuals for making cigars should be just as strict from the point of view of skin diseases, tuberculosis, etc., as in the case of waiters or dairymen. He also suggests that the end of the cigar should be clipped with a cutter and not bitten.

8. **Immunization Against Colds.**—J. G. Dwyer points out that the most potent general cause of colds is intestinal poisoning of a chronic nature, which leads to an alteration of the vasomotor control, with the possible addition of a local cause to keep this active. Local causes may be divided into two classes, malformations of the nose, and chronic disease of the frontal sinuses; then there is the cold which is simply the manifestation of a general condition, such as grippe. The ordinary cold in the head is most often due to bacterial infection. These bacteria usually run in groups; the author has found them in normal nose strains of *Bacillus mucosus capsulatus*, pneumococcus No. 4—pathogenic for white mice—*Micrococcus catarrhalis*, and the various strains of cocci—such as the *Streptococcus hemolyticus* and the *Staphylococcus aureus* and *albus*. Very often two or more of these are found, or one in pure culture, and the question arises whether these are present simply as saprophytes or are capable of producing disease under favorable circumstances. During a cold cultures from the secretion, even on the richest media, are frequently negative. The explanation of this may be that the bacteria are destroyed by the acidity of the secretion except at points high up in the sinuses, where it is impossible to get a culture, or it may be that the lesion is caused by a filterable virus. The fact that Tuncliffe was able to produce a typical acute coryza by inoculating herself with such a virus would seem to lend color to the latter theory. The difficulty of isolating the influenza bacillus may also have some bearing upon this. Dwyer states that immunization against colds is feasible, and in some of his cases it has lasted for two years and more. Subjects, however, must be carefully chosen so as to exclude those who from some local or general cause would be likely to develop repeated colds, when failure which was due to such cause might be wrongly ascribed to the vaccine. Very poor results were obtained from the administra-

tion of vaccine to those suffering from or developing a cold. In administering the vaccine the author's procedure was as follows: The patient's nasal flora was investigated and a vaccine prepared of the organisms found, with the addition of some freshly isolated strains of the more common organisms. (The method of taking the culture is important. It is best to take same from the nasopharynx if possible, and if any sinus disease is present cultures should be taken from there.) The immunization should be carried on for quite a long period; the author's practice has been to give about 15 or 20 doses at intervals of five to six days. He has treated about forty patients in this way, and is favorably impressed by the results obtained.

Journal of the American Medical Association.

May 11, 1918.

1. A Surgeon's Impression of Trigeminal Neuralgia, Based on Experiences with Three Hundred and Two Cases. Charles H. Frazier.
2. The Cause of Lumbar Puncture Headache. Russell G. MacRobert.
3. Further Observation on a Transposed Metatarsal Bone. W. L. Brown and C. P. Brown.
4. Operative Treatment in Selected Cases of Chronic Peripheral Facial Paralysis. William Sharpe.
5. A Comparison Between Clinical and Roentgen Findings in Diseases of the Chest. Henry Dwight Chapin.
6. The Liver and Its Cirrhoses. William J. Mayo.
7. Importance of Sigmoidoscope in Diagnosis of Disease in Terminal Colon and Rectum, with a Discussion of Two Hundred and Fifty-one Cases. Golden Lewis McWhorter.
8. The War Neuroses. William B. Terhune.

2. **The Cause of Lumbar Puncture Headache.**—Russell G. MacRobert suggests a new factor as a cause of lumbar puncture headache. He points out that to obtain fluid by puncture the dura and the arachnoid must be pierced. A visit to the operating or post mortem room will soon convince one that a puncture in the rigid dural membrane, unlike that in a vein, usually persists as a clean-edged round hole, and since the spinal fluid is always under some pressure in its sac what is there, he asks, to prevent a continuous leakage into the epidural space of the spinal canal, following the extraction of the needle? MacRobert has become convinced that closure of the puncture hole usually takes place when the arachnoid tissue, as it drops from the point of the departing needle, is swept against the dura mater, by the pressure of fluid within. In this way the dural hole is blocked by an intact area of the arachnoid membrane. The delicate arachnoid tissue, however, may cling to the needle and be pulled through the hole in the dura. There it impinges and forms a spout or wick for the drainage of the whole cerebrospinal fluid sac, and also prevents the rapid healing of the dural opening. In this case all the fluid secreted by the choroidal glands during seven or eight days, the time apparently necessary for the opening to close by tissue growth, will be lost by leakage into the epidural space. It is apparent, therefore, that the amount of fluid collected in the test tube will be no evidence whatever of the loss that really occurs. This was demonstrated clearly in the author's experience by a case in which he was obliged to interrupt a lumbar puncture after the membranes, in all probability, had been pierced, without collecting or seeing any fluid; nevertheless, the patient developed a typical lumbar puncture headache which lasted with severity for eight days. From these facts he concludes that it is the continuous epidural leakage of cerebrospinal fluid through a patent puncture hole that is the primary and essential causative factor of the headache. The leakage results in loss of the supporting fluid cushion at the base of the brain, which may be regarded as the secondary causative factor in the production of the headache. Pressure of the meninges by the brain weight, against the irregular bony surface of the skull, which would ensue when the patient sits up, might be considered sufficient cause for headache, but MacRobert has another explanation to offer. He believes the sudden onset of severe headache is due to the sudden heightened intracranial pressure due to rise of pressure in the cerebral veins and that its relief, when the patient lies down, is due to the fall of pressure when the weight is removed from the veins on the clivus. Then in the course of a week the puncture hole heals, the integrity of the brain cushion or water bed is re-established, and

the headache, being a purely mechanical affair, disappears. He refers to the case in which sudden death followed spinal puncture in brain tumor or other intracranial conditions, when the withdrawal of fluid deprived the base of the brain of support, and allowed such forcible descent of the pons on the clivus of the occipital bone that prolapse of the medulla through the foramen magnum occurred, and points out that the basilar plexus on the clivus of the occipital bone is formed by an extensive anastomosis of flat venous plexuses, and is connected on either side with the cavernous and inferior petrosal sinuses and with the neighboring blood channels. The other venous channels that drain the cranial cavity at the base are rigid inelastic tubes, and they are thus safe from closure by pressure. The basilar veins, on the other hand, depend on the cushion of cerebrospinal fluid to keep off the pressure of the pons, which is directly above. When the patient sits up the cushion of fluid is absent and the weight of a good part of the brain is suddenly imparted through the pons to this communicating plexus. The blood about to leave the skull is impeded and the resulting congestion causes a sudden rise of venous pressure.

Berliner klinische Wochenschrift.

February 25, 1918.

The Gastrointestinal Disturbances of War.—S. Korach has noted the great frequency of achylia and hypohydrochloria. They represent 35 per cent. of all gastric troubles as against 15 per cent. of hyperacidity. Of these affections, some were present in the patient before the war, but many subjects certainly acquired the disease during the war. While admitting the neuropathic element in play in these cases, Korach attributes these "temporary exhaustions of an insufficient mucosa" to many other causes, such as hasty eating, insufficient mastication, abuse of tobacco or coffee, dehydration from sweating, etc. In other instances emotions (fright, etc.) have produced serious disturbances of the gastric secretion, so that these more or less acute processes increase in frequency during action at the front or when units are being hastily transferred from one front to another. From the viewpoint of prognosis the acute form of achylia is far better than the chronic as a vegetable diet and salt water cure will control the former process. Korach considers that patients with gastric or duodenal ulcers are incapable of active service, even those who appear to be cured by medical treatment or gastroenterostomy, etc. From the writer's point of view some cases are needlessly operated on, and he has seen these neuropaths or psychopaths unquestionably ameliorated by the war.

The Diathermic Treatment of Gonorrhea and Other Affections.—H. E. Schmidt considers that this procedure unquestionably assures the best realization of heating the deep structures, and causes a direct hyperemia. In gonorrhea, diathermy cannot kill the gonococcus as this organism is probably more resistant when in the tissues than in cultures. One should define a just status of the question, between the enthusiasts and detractors of the method, and generally speaking, it should be combined with some more directly antibacteriologic procedure. Obstinate prostatitis is perhaps the best indication for the treatment, while in anterior urethritis quite as good results are obtained by simply heating the penis between two electrodes placed on each side of the member. Among other affections in which diathermy gives good results are muscular and joint pain, but it is less potent in sciatica and other neuralgias. It can also be employed for the removal of warts and other minor cutaneous operations.

Münchener medizinische Wochenschrift.

February 26, 1918

The Signification of Cerebral Gas Emboli in Essential Epilepsy and True Shock.—Kohlhaas, starting from Hering and Brauer's observation on pneumothorax and the ophthalmoscopic researches of Wiehand and Becker, observed the passage of gas bubbles in the arteries of the fundus oculi. The writer, therefore, concludes

that from the viewpoint of both surgery and medicine, these data are of utmost import. It is certain that air may pass from the veins into the general circulation without being retained in the lungs, even when the septum between the right and left heart is closed. From these very questionable deductions which lack anything like a sound basis, the writer desires to apply this pathological process to essential or symptomatic epilepsy and he wants his readers to believe that intestinal worms may gnaw the veins of the intestine, with the result that gas emboli arise! He says that puerperal eclampsia and traumatic shock result from the same mechanism by rupture of the abdominal veins!

Vascular Affections in Paratyphoid.—K. Sick points out the relative frequency of vascular localizations in paratyphoid fever. They more commonly arise at the end of the febrile period. They may manifest themselves by the special characters of the roseola in B. paratyphoid, when the eruption covers the body in the form of very large, disseminated spots. Such an eruption indicates a participation of the arteriolæ. The frequency of muscular cramps in the calves, as well as edema, would appear to indicate a deep phlebitis.

A Simple Means for Controlling Serious Intestinal Hemorrhage in Dysentery.—E. Maret advises the use of the following prescription:

R

Plumbi acetat, 10 grains.

Gummi arabic, 1 oz.

Alb. ovi, No. V.

Aq. dest. ad, 1000 c.c.

M. Ft. emulsio.

S. A tablespoonful every two hours.

Deutsche medizinische Wochenschrift.

February 28, 1918.

The Results of Freund's Operation for Pulmonary Emphysema.—E. Bircher refers to the happy effects that may be derived from Freund's operation, namely resection of the costal cartilages, in order to amplify thoracic expansion and to favor expansion of the lungs. Bircher reports thirty cases thus dealt with and says that in 80 per cent. the result was either a cure or an amelioration. (The cure was calculated according to the return of working capacity of the individual and the disappearance of the broncho-asthmatic phenomena) the following percentages being offered in evidence: Cures, 20 per cent.; improvement, 62.7 per cent.; stationary, 13.3 per cent.; deaths, 3.3 per cent. The ultimate outcome of the patients was likewise satisfactory. In 6 all respiratory disturbances disappeared—in one case for six years and in 2 for four years. The operation was bilateral in one case and a durable improvement resulted. Speaking of the indications, Bircher points out that surgeons tend more and more to reduce the indications first formulated by Freund. For example, Sauerburch believes that this procedure should only be employed in young subjects with a rigid chest wall and emphysema but the writer limits the operation to cases of "asbestos degeneration." The youth of the patient may render the operation useless by favoring a rapid ankylosis of the operative wound.

Five Day Fever and Neuritis of the Cauda Equina.—R. Cassirer reports a case of five day fever which was particularly long and serious, presenting at the same time the clinical picture of a neuritis of the cauda equina. Lumbar puncture gave issue to a normal fluid and Wassermann was negative both in the blood and cerebrospinal fluid. The thermic rises were regularly accompanied by a return of the pain. The writer believes that the neurotic process is similar to the tibial pain and hyperesthesias frequently encountered in five day fever. The pains may, for that matter, result from a trophic ulcerating process in the bone and the writer thought that he was able to detect a thickening of periosteum and a disfluence of the spongy structure of the tibia in his case.

Wiener medizinische Wochenschrift.

March 16, 1918.

The Pathogenesis of the Pemphigus Bulla.—F. Samberger, in his article continued from the previous

issue, states that the human skin, as in the case of some animals, possesses a respiratory function, but that generally it is in a rudimentary state. In certain circumstances (asphyxia from burying in sand, for example) this function may become active and produce an intense cutaneous congestion with formation of lymphatic exudates and pemphigus may then appear in these circumstances. The writer has observed a case of hydrorrheic dermatosis in which the hydric exudate was preceded by the sensation of shortness of breath and air thirst. The application of oxygen water to the skin had the most happy effect on the dermatosis, likewise upon the paroxysms of dyspnea. Such clinical data lead the writer to believe in the part played by cutaneous respiration.

On Trachoma.—L. Königstein remarks that this affection has extended over all Austria, but is especially frequent in Galicia and in decreasing frequency in Roumania, Istria, Dalmatia, less so in Bohemia, Moravia and Silesia. It is only contagious when secreting. The writer only met with contagion by direct contact with healthy eyes and he believes that contagion by aerial transportation is out of the question. The infectious agent is yet unknown; the intracellular formations which have been described have also been found in gonorrheal ophthalmia. These facts should draw one's attention as to a possible relationship between the two affections, a relationship which has already been implied in the old term of "chronic ocular blepharorrhea."

Le Progrès Médical.

March 9, 1918.

The Adrenalin Determination of Cardiac Resistance.—Loeper, Wagner and Dubois-Roquebert allude to the great frequency of tachycardia and cardiac erethism early in the war which led to many tests of cardiac function. While nothing new has come to light, old tests have been systematized. A source of confusion is the part played by cardiac and systemic effort, for with general failure of forces the heart too must suffer. The simple way of testing the heart is by increasing peripheral resistance, and to secure the latter one may compress the large peripheral arteries or place the subject under the influence of adrenalin. The latter drug is known to raise the blood pressure by 2 cm. of mercury through vasoconstriction. In this test it should be possible to control the heart's shadow for the presence of dilatation. The dose is 1 mgm. and the interval 1 hour, or, better, there should be a series of half-hour exposures with one hour as optimum. One hundred subjects were examined, the authors beginning with simple and passing to the more complicated cases. In the first types the cardiac areas showed no change for at least an hour, but later in a few cases the heart appeared to have undergone slight contraction. But in the true cardiac subject, with valvular lesion or hyposystolia, the shadow at once augmented, as a rule completely. Hence the two extremes were well differentiated, for the tachycardiac and erethetic heart was shown to be sound and at the other extreme far from sound. The two extremes comprised nearly all the cases, for of 50 subjects 21 showed no augmentation and 23 marked dilatation (17 of the entire heart). This leaves but 6 intermediate cases in which there was a slight contraction. The authors hold that there should therefore be no trouble in distinguishing between the two types in practice.

More Paradoxes of Smell.—An earlier article on this subject by Voivenel was noted editorially in the RECORD. In the present contribution he discusses the "odor of Don Juan," and at first the indefinable charm possessed by certain males for the opposite sex who have none of the ordinary attractions of handsome men. A case is cited of a cold woman who readily repelled the latter type but was quite powerless to resist one who had no other weapon but some obscure stupefying influence. Such characters are found in literature as well as life and naturally in both sexes. Physiology may be able to solve the enigma through the subtle power of odors. Don José thus fell a victim to Carmen. The odorous object which always gives off yet retains its power can only suggest a radioactive substance and

the power of the infinitesimal obtains in both substances. It has long ago been noted that only the virile, essentially vigorous male subject exhales a specific smell. For women the claim is made that an "odor of chastity" is recognizable. St. Phillip of Neri could judge of men as to their sexual life by their smells. In modern times it has been claimed that a sexually excited male smells like chloroform. At puberty girls begin to show great interest in artificial perfumes and often favor perfumes and flowers which have an amorous suggestion. Such activities are of course unconsciously motivated. Perhaps it is the fetid odor of the snake which hypnotizes its prey. When a woman at last "meets her master" the decision doubtless rests upon some action set up in the olfactory apparatus.

La Presse Médicale.

March 4, 1918.

The Carabelli Tubercle.—Jeanselme writes at length on this subject. When Sabouraud rediscovered this anomaly in the guise of a stigma of inherited syphilis he provoked many replies, most of which were hostile. The dentists showed that Carabelli described this anomaly in 1844 but on account of its clinical unimportance it has been ignored. It represents an arrest of development, perhaps, but is present in nearly one-half of all subjects. The discoverer called his find a supernumerary cuspid on the palatine face of the first upper permanent molar; but it differs from other supernumerary cuspids in not forming part of the grinding surface of the tooth. In 1890 Galippe, the authority on stigmata, found a similar formation in the molars of the milk teeth. The author, in the course of an independent study, has found the anomaly to be eminently familial in incidence. In some of Broca's skulls from a small Basque village thirty per cent. showed it in typical form. In this particular habitat inbreeding is common. In other Basque villages, curiously, the tubercle was rarely encountered. It may be seen in crania from all parts of the world and in neolithic and paleolithic skulls. Sabouraud was moved to include this formation among syphilitic stigmata because of its association with other dental stigmata, with clinical evidences of a non-dental character and a positive Wassermann. The author says that he has not been able to verify this, for his non-syphilitic controls showed the tubercle, as did also those of some of his colleagues, in a sufficient number. In quite a long series of undoubted heredosyphilitics the frequency was not greater.

Certain Views of Shock.—Luzoir writes upon a subject of immediate importance, for the French surgeons are skeptical about shock as an autonomous condition and would substitute shock like states of various sources. In Gwathmey's book on Anesthesia he finds a minute study of shock *per se*, which varies only with the cause. The practical view of shock as something which can in part be averted by anoci-association is conceded by French surgeons. This psychic component is naturally not the whole of shock. Peripheral irritation and the action of large doses of poisons are separate components. The less severe burns cause more shock than the deeper ones. Crile has shown that irritation of organs may raise or lower the temperature, according to the organ tested. There is a shock component in severe poisonings whether corrosive only or true systemic intoxications. Crile has shown that duration of an operation must be a shock factor and this introduces the anesthesia component. The general anesthetics are peripheral irritants as well as poisons, hence doubly disposed to aid in the production of shock. Moreover, during a long operation the subject is exposed more or less to the air and loses heat, although subnormal temperature is a symptom of shock. Gwathmey isolates anesthetic shock from surgical shock—it may readily be studied in non-traumatic cases and with a variety of anesthetics. Operative shock can hardly be studied without anesthesia, but shock under mild anesthesia is due to the incompleteness of the anesthesia, plus—in certain cases, such as laparotomies—manipulation and tugging of the viscera, this mechanical element acting as a hindrance to respiration.

Book Reviews.

NEUROSYPHILIS. Modern Systematic Diagnosis and Treatment. Presented in One Hundred and Thirty-seven Case Histories. By E. E. SOUTHWARD, M.D., Sc.D., Bullard Professor of Neuropathology, Harvard Medical School; Pathologist, Massachusetts Commission on Mental Diseases; Director, Psychopathic Department, Boston State Hospital; Vice-President, American Medico-Psychological Association, and H. C. SOLOMON, M.D., Instructor in Neuropathology and in Psychiatry, Harvard Medical School; Special Investigator in Brain Syphilis, Massachusetts Commission on Mental Diseases; Acting Chief-of-Staff, Psychopathic Department, Boston State Hospital. With an Introduction by JAMES JACKSON PUTNAM, M.D., Professor Emeritus of Diseases of the Nervous System, Harvard Medical School. By Vote of the Trustees of the Boston State Hospital, Monograph No. 2, of the Psychopathic Hospital, Boston, Mass. Price, \$5.00 net. Boston: W. M. Leonard, 1917.

ONE who dips into this volume has the sensation of passing through the wards of a well-filled hospital in the company of a clinician who is a fluent and interesting talker. The book is a harmonious medley of the brilliance of Southard with the solidity of Solomon. It is a postgraduate course in nervous syphilis. One hundred and thirty-seven patients pass in review, analyzed to the minutest detail, their symptoms explained, questions are asked and answered and the social as well as the medical aspects of these cases are clearly expounded. It is, in fact, a series of neurosyphilitic clinics analogous to the psychiatric clinic of Professor Kraepelin; each patient stands out so vividly in the mind. After going over the entire field of usual syndromes, the authors devote a hundred pages to "puzzles and errors" and thirty cases illustrating medico-legal and social aspects of the disease. The treatment is discussed very fully with its unaccountable failures and its brilliant successes. Lastly, many neurosyphilitic aspects of the present war are described. The book as a whole is not only interesting but valuable. One reads it with the absorption of a novel and turns to it for reference when an obscure case comes along. It is a text book of the future—not the dry bones of a didactic discussion, but the rich juices of clinical material.

HYSTÉRIE-PITHIATISME ET TROUBLES NERVEUX D'ORDE RÉFLEXE EN NEUROLOGIE DE GUERRE. Par J. BABINSKI et J. FROMENT. Collection Horison. Deuxième édition revue et augmentée. Price, 4 Francs. Paris: Masson et Cie., 1918.

The first edition of this work was reviewed with appreciation in the MEDICAL RECORD. This edition is said to have been exhausted in a few months. In addition to certain changes in the text, there is a special section devoted to addenda and also a formal reply to criticisms of the first edition—or rather of certain views of the author—which were made in several recent textbooks on war neurology.

AN INTRODUCTION TO THEORETICAL AND APPLIED COLLOID CHEMISTRY. "The World of Neglected Dimensions." By Dr. WOLFGANG OSTWALD, Privatdozent in the University of Leipzig. Authorized Translation from the German by Dr. MARTIN H. FISCHER, Eichberg Professor of Physiology in the University of Cincinnati. First Edition. Price, \$2.50. New York: John Wiley & Sons, Inc. London: Chapman & Hall, Ltd., 1917.

COLLOID chemistry is a topic about which we hear much at the present time. Most people, however, have but a hazy idea of what the subject means, and are repelled by the somewhat heavy and uninviting literature which abounds. The present volume consists of five lectures delivered by the author in this country and in Canada during the winter of 1913 and 1914. These lectures are thoroughly interesting and attractive, and cannot fail to appeal to every reader. It would be a good plan to read the fourth and fifth lectures first, so as to get an idea of the applications of colloid chemistry. To take only those subjects which are of immediate interest to the physician: The building up of the living tissues from the products of ab-

sorption, cell life and all the vital processes in the body, the maintenance of water in the tissues, the phenomena incident to fertilization and the early development of the embryo, the process of growth, the nature of muscular contraction, the problems of secretion, edema, inflammation, and nephritis are only some of the more important problems whose solution depends on colloidal chemistry.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia. Assisted by LEIGHTON F. APPLEMAN, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Price, \$6.00 per annum. December 1, 1917. Philadelphia and New York: Lea & Febiger.

THIS number of *Progressive Medicine* contains articles on: Diseases of the digestive tract and allied organs, the liver, pancreas, and peritoneum, by M. E. Reh-fuss; Diseases of the kidneys, by J. H. Austin; Genito-urinary diseases, by C. W. Bonney; Surgery of the extremities, shock, anesthesia, infections, fractures, and dislocations, and tumors, by J. C. Bloodgood, and Practical therapeutic referendums, by H. R. M. Landis. The volume is of more than ordinary interest, because the whole of the section on surgery is devoted to a discussion of Military Surgery. In some hundred and fifty pages Dr. Bloodgood gives a valuable résumé of the recent literature and work on this subject, which is not only of present interest, but which will also have marked influence on surgery in time of peace. This chapter contains a number of good illustrations, and the whole number is of permanent value.

THE EXCEPTIONAL CHILD. By MAXIMILIAN P. E. GROSZMANN, Ph.D. Educational Director of the National Association for the Study and Education of Exceptional Children. Author of "A Working System of Child Study for Schools," "The Common School and the New Education," "The Career of the Child from the Kindergarten to the High School," "Some Fundamental Verities in Education," "The Study of Individual Children," etc., etc. Containing a Medical Symposium, with contributions from a number of eminent specialists. Price, \$2.50 net. New York: Charles Scribner's Sons, 1917.

THE chief criticism of Dr. Groszmann's book is that it contains too much. The object seems to have been not to further the knowledge of a definite subject, but to present all which has been written on abnormal children and any subject even remotely connected with their examination, care and training, delinquencies, and development. The result is a conglomeration of quotations, abstracts, trite and prolix discussions of more or less apposite subjects, articles "lifted" whole from medical magazines, etc. Dr. Groszmann would have benefited himself and his school and the profession more by the concise presentation of some of the valuable experience he has undoubtedly acquired in his large experience with abnormal children.

THE CONDUCTION OF THE NERVOUS IMPULSE. By KEITH LUCAS, Sc.D., F.R.S., Fellow and Lecturer of Trinity College, Cambridge. Revised by E. D. ADRIAN, M.B., M.R.C.P., Fellow of Trinity College, Cambridge. With diagrams. Price, \$1.50. London and New York: Longmans, Green & Co., 1917.

WE approach this posthumous work with a mingling of interest and respect. It is a worth-while contribution to physiology of a man who lived for science and died for his country. Keith Lucas was killed in an aeroplane accident in October, 1916. Among his effects was the present monograph, unfinished evidently, but containing much valuable research work. The phenomena of conduction of the nervous impulse, with its problems of summation and inhibition, as demonstrated in the central nervous system, has had a host of investigators, but the peculiarities of peripheral nerve conduction have been more of a *terra incognita*. Lucas throws light on these dark places and he has had the good fortune to be edited by a sympathetic disciple whose own work is not less noteworthy. This study takes rank beside any of Sherrington.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Twelfth Annual Meeting, Held in Albany, May 21, 22 and 23, 1918.

(Special Report to the MEDICAL RECORD.)

HOUSE OF DELEGATES.

Monday, May 20, 1918.

THE PRESIDENT, DR. ALEXANDER LAMBERT, IN THE CHAIR.

President's Address.—DR. ALEXANDER LAMBERT opened the meeting with an informal address, in which he said, in part, that when he accepted the honor of the presidency of the society he little thought that he should spend the entire period for which he had been elected so far way, but that the society could not have had in his place any better helper than Dr. Halsted. The society had lost nothing by his absence and had gained a great deal by having Dr. Halsted in his place. As he did not know what had occurred in the society during the past year, he thought they would be more interested in hearing what he had been doing in France. The questions which he had constantly been asked were: "What are your general impressions? Have you any idea how long the war is going to last? What does it really amount to?" One might answer these questions in a general way, saying that the moral effect of the war is beyond the appreciation of anyone, but the physical results had, as yet, by no means reached up to the moral effect. When the American troops first came to Paris the enthusiasm they created was unbounded. The people of Paris gathered along the sidewalks and fairly mobbed the American soldiers, hugged them, threw garlands of flowers, and broke the lines so that they were unable to reform for several blocks. That was an expression of what the people felt all over France. Dr. Lambert related an incident of one old French soldier who wanted to shake hands with him and thank him for coming over and who later brought a whole division to see him. The spirit and the morale had gone up as the months had gone along. To-day our soldiers over there were eager and anxious to fight. They had recently gotten into just a brush at Noyon. A gap was made in the French ranks and our men closed the gap and that without artillery, but simply with their bayonets. Later heavy American artillery arrived and they were still holding that point. The French were looking to us to come and help still further. Dr. Lambert said he was supervising the work of the American Red Cross, which, as they probably knew, was incorporated by Congress and controlled by representatives of the Departments of State, Treasury, War, and Navy. Its work was intended to be the volunteer care of the sick and wounded in the Army and Navy and to go wherever it was sent and to do whatever it could to help in any way. It tried, in as far as was possible, to fulfill the requirements laid down by the International Red Cross Convention of Geneva. It had succeeded to a large extent in doing this. It was also doing the work of establishing communication by mail between soldiers taken prisoner and their families. The Red Cross stood ready to help the army in any way it could, more especially on the side of amusement and recreation and hospital care. The Red Cross ceased to be Red Cross service when it was called into actual army service. As to the medical work, Commissioner Murphy showed the need for a research fund and he had obtained the co-operation of the British and French armies and a research meeting was held every month, where the medical men gave the best experience they had obtained during the three years of the war. This was a great help to our medical men, as they could go right to work with the best up-to-date 1918 surgery, instead of practicing surgery as they did before the war. Dr. Lambert said he would postpone going into medical details for the special section meetings. There was, however, one discovery worthy of record and that was that the origin and means of transmission of trench fever had been solved. Trench fever was characterized by severe

shooting pains in the muscles and regular recurrent fever. The research was carried on by a man who had worked with Leonard Wood in Cuba on the problem of yellow fever. Sixty men volunteered as subjects for experiment and in six weeks it was found that the louse was the cause of trench fever, both the ordinary louse and the trench louse. The value of this discovery would be appreciated when it was known that 10 per cent. of the English army had been on the sick list from this cause. The victims of trench fever did not die, but they were unfit for duty for from four to six months. Delousing would thus save for active service from 8 to 10 per cent. of the army. There was a drive against this research work by the anti-vivisectionists and the Christian Scientists, who took the stand that the Red Cross had no moral right to use their funds in this way. It seemed wise to the War Council to secure a special fund for research work if it were possible to do so, though at the same time not yielding the point to the anti-vivisectionists. About \$166,000 had been entrusted to him for research work and he had spent about \$30,000 when this decision was made. Through the generosity of Miss Grace Dodge he was given the \$166,000 for research work. He had come to ask aid for this work. They needed thirty, forty, or fifty doctors to assist them. The work had so occupied him that he had been unable to leave Paris to attend to other matters and his assistant was doing the work of half a dozen men. He had taken several doctors, but they had all been sent to the front and were doing excellent work and receiving the highest praise. His work, Dr. Lambert said, was plain, inglorious administrative work. The entire southern part of France would have to be redistricted. Then they had the task of breaking up epidemics of scarlet fever, mumps, and diphtheria and preventing them from getting into the camps. If men could come, but were unable to pay their own expenses, they would be given a lieutenant's salary, and if men could not come all the time, but could come for nine months of the year or even six or eight months, they would be acceptable and some one could be obtained to relieve them at the end of that time and in this way the work might be carried on continuously. One part of the service was to send out from a center a unit consisting of a doctor, a nurse, and a chauffeur, who would visit a group of villages, going to certain villages on certain days of the week. He did not want men of draft age who were needed in the army, but men who were young and vigorous, or if no longer young they must still be vigorous, as the work was hard and the climate severe. He could not take teachers from medical colleges. If such men came during the summer they would have to return in the fall to their teaching duties. In closing, Dr. Lambert said he had not done the work he had been elected to do, but this the society need not regret, as Dr. Halsted had increased both the membership and the influence of the society.

Report of the Secretary.—DR. FLOYD M. CRANDALL presented this report, in which he said that on January 21, 1907, the membership of the State society was 5,857. To-day there was an increase of 2,482. The membership of the society was increasing more rapidly than the accessions to the professions. This report also contained a letter of commendation of Dr. Halsted, who had responded to every call and performed every duty devolving on the highest officer. His duties as president of the American Laryngological Association, added to the duties of acting president of this society, had made a most laborious year, but Dr. Halsted had never been known to complain or shirk any duty.

Report of Committee on Scientific Work.—DR. THOMAS J. HARRIS of New York presented this report, which stated that in spite of the unusual conditions existing in the absence of many of the active workers of the society, which made the work of the committee somewhat difficult, it was their feeling that the program this year in every way compared favorably with those of previous years. Dr. Harris said he wished to bear witness to the wisdom of the radical change made five years ago by the inauguration of the section form of meeting.

Report of the Treasurer.—DR. FRANK VANFLEET of New York submitted this report, which showed a deficit

of \$2,877 for the year 1917. However, taking the accounts from the year 1906, some years showed deficits and some excess of income, and the excess of income during these years, as a whole, was \$5,096.

Report of Committee on Legislation.—Dr. JAMES F. ROONEY presented this report, in which he stated that the bills affecting the medical profession introduced into the Legislature during this winter were in very little wise different from those of preceding years. They might be grouped as (1) Public Health Measures, (2) Police Measures, (3) Sociological Measures, (4) Educational Measures, (5) Measures affecting the statute as to the practice of medicine. In Group 1 the only measures of general importance were two bills for the control of venereal diseases which were introduced, it is stated, as war measures at the request of the Surgeon General of the United States. One instituting a new Bureau in the Department of Health for the suppressing and curing of venereal diseases and the other for the purpose of securing the control of venereal diseases among the vagrants and prostitutes. In Group 2 was the bill introduced by the Committee of the Legislature for the investigation of the use of habit forming drugs. This act lessened very greatly the burden placed upon physicians in regard to prescriptions and distribution of drugs, but had three disadvantages—first, that of requiring an annual registration fee of all physicians; second, the institution of a separate bureau of drug control, the head of which need not be a physician or pharmacist and who was appointed by the Governor, with the consent of the Senate, for a term of six years, thus placing the whole narcotic situation practically in the field of politics; third, the bill removed from the class of privileged communications all those made by patient to physician as concerns the enforcement of the act, both as to statute and any additional regulations which might subsequently be promulgated by the commissioner. While a request was made for a hearing upon this bill before its passage, no hearing was granted by the Committee of the Senate having charge of the measure, but a hearing was granted before the Governor on April 24. Under Group 3 would fall the Senate bill introduced by Mr. Nicoll instituting a system of Compulsory Health Insurance. This bill this year purported to have been introduced at the instance of the Federation of Labor, but the same forces that had been urgent for this sort of measure were in reality the strength behind it. The most persistent of these was the American Association for Labor Legislation.

The society has been extremely fortunate in having been able under the antiquated system in use for the care of its interests in the Legislature not to have experienced serious injustice accruing to it by the passage of ill-advised and pernicious legislation for the past four years. It must, however, immediately become cognizant that this good fortune cannot recur year after year. It must realize that it has facing it three very determined forces bent upon securing their own interests regardless of the best interests of the public and of the medical profession; the sinister forces behind Compulsory Health Insurance; the activating energy of poorly informed so-called "sociologists" and "criminologists" on the question of drug addiction, and the extremely clever and highly financed forces behind which quackery was entrenched. The organization of the society was too loose; its efforts were too inordinate at present to present an effective opposition to these forces. This Committee heretofore recommended that a bureau for the study of medical legislation be established in Albany in charge of a competent person, preferably an attorney of experience in legislative affairs, for the purpose of collecting statistics and facts relating to public health and the medical profession as concerned legislation, who should be under the supervision and direct control of the society through the chairman of the Committee on Legislation. This bureau would be able to carry on the necessarily enormous work that is becoming almost impossible in magnitude for the chairman of this committee to carry during the legislative session. It would serve as a continuing and continuous administration of legislative matters; it would be a constant source of information as to the correlative work in other States and countries and this action would be well paid for in

betterment by a performance of what is coming to be one of the most essential features of organized medicine, that was a supervision over public health legislation which had thus far been too largely in the control of overzealous experts, part real and part self-constituted, whose vision had been acute at times, but not of necessity either broad or farseeing. It was further recommended that the society take some definite stand upon Compulsory Health Insurance and that it give a definite pronouncement as to its attitude on drug addiction, since it was essential that this be done to offset the villification and abuse that had been gratuitously heaped on the profession because of the defects of a very few of its unworthy members, by certain groups of persons in the community whose interests were neither unselfish nor sincere.

Report of the Committee on Medical Economics.—Dr. HENRY LYLE WINTER presented this report, which stated that the committee had studied the problem of Health Insurance, or Social Insurance, from various viewpoints. Considered as a medium for benefit to all or any of the social groups included within the scope of any plan so far advanced, it was, in their opinion, a failure. They reported, therefore, that this committee was opposed to Health Insurance. Realizing that the proponents of Health Insurance would continue their efforts to put some kind of a bill upon the statute books the committee had two tentative propositions to make. The first of these were similar to those adopted by the Medical Society of the County of New York and was as follows:

"1. The medical profession shall be properly and adequately represented on the commission, and on all committees, councils and other local boards which have to do with decisions affecting the relations of physicians with the various associations, societies, etc., working under the law, and upon all other medical matter.

"2. The commission shall prepare and publish lists of panels of physicians in all the districts who are willing to work under the act, and that every legally qualified medical practitioner shall have the right to have his name recorded on the list or panel.

"3. The sick insured person shall have the right to choose any of the panel physicians in any district to attend and treat him for his illness, subject only to the physician's acceptance of the patient.

"4. The insurance carrier shall make all contracts for medical and surgical attendance with bodies or associations of physicians in each district, to which association all panel physicians in that district must belong."

The second proposition was a tentative Health Insurance bill, which they believed would supply the worker with what he needed and enable him to pay for it, accepting from the employer only that aid for which the employer himself received full value in the better standards of health and consequently better efficiency of the employee, were, therefore, fundamentally different from prior bills and must appeal to the independent spirit and individualism of the American workman. At the same time these suggestions provided the workman with better medical treatment and increased instead of ruining the efficiency of the medical profession.

They believed that the expense to the employer incurred in their plan would prove a profitable investment by insuring a more complete return of the sick employee to health and his more prompt return to work.

Report of the Counsel.—James Taylor Lewis submitted this report, which stated that during the past year not a single case had been lost. Thirty-one cases had been finally disposed of during the year 1917. Thirty-eight new actions were brought during this year, but this did not include situations in which both husband and wife brought separate actions against the same defendant for the same case; the real number of cases brought was, therefore, in excess of this. In each year there were always one or two cases that stood out most interesting. During 1917 there were two such cases. One was a case where a patient claimed that having been sent to a hospital by her family physician and placed in the care of a surgeon, she was operated upon by him without authority from her

or her husband, for a cancer at the end of the radius, and that the operation was carelessly performed, which facts presented two very serious questions. Three different sets of attorneys appeared in this case, which was finally tried at the very end of the year; indeed, the verdict in favor of the doctor was rendered the day before Christmas. The case involved the transplantation of a piece of bone from the shin of the patient into her arm. The graft healed perfectly, but subsequently the original malady reappeared at the end nearest the hand, with a resultant serious deformity and erosion of bone. The involvement of the two serious questions—negligence and constructive assault, together with the success of the operation, even though an attack was made upon the doctor, makes this one of the remarkable cases of the year. The second case was one brought for the death of a child who was bitten by a mad dog, it was claimed. The trial of this action occupied about nine days and resulted in favor of the doctor. Briefly, the facts were that a little boy was attacked and bitten by a dog, and some six weeks later developed some of the symptoms of actual rabies. Unfortunately for the plaintiff's contention, there were other symptoms which appeared which did not coincide with the diagnosis of rabies, but did present a very plain case of poliomyelitis. A case of rabies as the foundation for an action for malpractice being so very rare, the counsel felt that he was justified in referring to this case in his report. It might be interesting to the members of the society to know that at last the Dental Society of the State of New York has awakened to the importance of organized malpractice defense. Inquiry had been made as to the willingness of the counsel of this society to defend the members of that very large and distinguished organization. After reviewing the other cases briefly, Mr. Lewis called attention to the fact that the counsel had been called upon from time to time to advise members on all sorts of subjects, and especially one of grave import, in which one of the well-known physicians of the State was attacked under the "Boylan Law" for not keeping a record of every quarter grain of morphine which he had received and dispensed. There has been an investigation in the State with reference to the sale of narcotic drugs, and there should be but one answer to the whole proposition, namely, that the Federal Enactment should be re-enacted in the State of New York just as it is, so that there will be no conflict of authority or law with reference to the purchase, sale, and administration of narcotic drugs by doctors.

Report of the Committee on Medical Research.—Dr. FREDERIC E. SONDERN submitted this report, stating that during the last session of the Legislature of the State of New York the usual measures to prevent animal experimentation were presented. The various members of the committee had given the chairman most hearty support and were also indebted to the Public Health Committee of the New York Academy of Medicine. There were no hearings on the bills and they were not reported out of committee.

Report of Committee on Prize Essay.—This committee reported that but one essay had been submitted for the Lucien Howe prize. This paper showed personal clinical observation and pathological study, and the entire article showed an intelligent and complete study of the subject. It was therefore awarded the Lucien Howe prize of \$100. The recipient of this prize was Dr. I. S. Welchsler of New York, his subject being "Ophthalmological Changes in Tabes and Paresis, Their Pathology and Their Special Relation to Cerebrospinal Syphilis, Studied in Reference to 122 Cases."

Amendments to the Constitution and By-Laws.—An amendment to the Constitution providing that all ex-presidents of the society should become life members of the House of Delegates was defeated. An amendment providing that one vice-president from each county society should become a member of the Council of the State Society was also defeated. An amendment which provided for raising the dues of members of the State Society from three to four dollars was also voted down, and a proposal to give the Council the power of taking a referendum vote of the membership of the society suffered the same fate.

These reports were accepted and the recommendations contained therein discussed separately.

Consideration of Recommendations Submitted in the Various Reports.—After a discussion of the question of establishing a legislative bureau at Albany, Dr. George W. Kosmak presented resolutions providing for the establishment of such a bureau on condition that the necessary funds were available. Dr. James F. Rooney moved that a committee of five be appointed by the president to whom all questions with reference to narcotic drug legislation be referred. Dr. Wendell C. Phillips made an amendment to this motion to the effect that inasmuch as they had a legislative committee the subject of narcotic drug legislation be referred to that committee together with the statement that it was the sense of the society that the narcotic drug law now in effect was iniquitous and should be repealed. These motions were adopted. A motion to adopt the first clause in the report of the Committee on Medical Economics was adopted, but in accordance with the wishes of the chairman of that committee the other propositions were referred back to the committee for further study. Several resolutions condemning health insurance were introduced, among them one instructing the delegates to the American Medical Association to oppose health insurance in whatever form it might be presented. A number of resolutions on the narcotic drug question were also submitted. All of these resolutions were referred to the Committee on Medical Economics.

Committee to Work for Increasing the Medical Reserve Corps.—Dr. LAMBERT stated that the American Medical Association had requested them to appoint a committee from the State Society to work in conjunction with the American Medical Association for the purpose of increasing the number of physicians in the Medical Reserve Corps. He appointed Drs. George D. Stewart, Frederic E. Sondern, Floyd M. Crandall, who were already on the State Committee of the Medical Section of the Council on National Defense. The American Medical Association had requested this action because in some States the State committees were not doing as much as they should to further the enlistment of men in the Medical Reserve Corps. The New York State Committee, however, was doing excellent work, and in order to avoid any friction that might arise from having two sets of men doing the same work, it seemed wise in this State to have the same men on both committees. Dr. Sondern would explain the work of that committee.

Dr. SONDERN stated that the New York State Committee of the Medical Section of the Council on National Defense had faithfully performed all the work asked of them by the General Medical Board. They had made an investigation of the hospital facilities of the State; they had classified the physicians of the State, and had returned a list of those who were available and desirable for service, and that was followed by a special medical census. They had conducted a recruiting campaign by having medical officers travel to every part of the State for the purpose of stimulating interest in the recruiting of medical men. They had also followed this work up afterward. They had had a part in having the present draft regulations put into effect and had secured the legislation permitting medical students to complete their medical courses and to remain in a hospital until the August following their graduation. This committee had also held general rallies and given motion picture exhibits to further enlistment, and had used its influence to start the campaign for the establishment of a volunteer medical service corps. They had supported the Owen bill, and assisted the cause for which they were working in every possible way. There was now a call for 5,000 more medical men in the army and 2,000 in the navy, and they had taken action to meet this call by sending a circular letter to all county societies and to all physicians who were classified as suitable for service. It might be of interest to know how the States were meeting the call for medical officers; Nevada headed the list, having given 26 per cent. of her medical men; Arizona came next with 23.4 per cent., then Montana with 22.5, Oregon with 21.4, Pennsylvania with 21.2; but New York with 18.6 per cent. stood tenth among the States.

Resolutions for Disease Prevention.—Dr. CHARLES G. STOCKTON of Buffalo said that the higher requirements in medical practice had reduced the number of

physicians below the actual needs before the war and the reduction would continue while the war lasted and hence it was necessary to have the highest possible conservation of physicians. Inasmuch as ignorance of the cause of disease and failure to get an early diagnosis and treatment were responsible for an increased amount of sickness he wished to present resolutions urging the cooperation of physicians in furthering a campaign for disease prevention. This would not only lessen the demands on the physician in civil practice, but that it would help our success in the war if those men at the front knew that their dependents at home were well. This would be no loss to the individual practitioner and a great gain to the world as a whole. These resolutions were adopted together with the suggestion that similar resolutions be presented before the House of Delegates of the American Medical Association and a committee of five be appointed to carry out the suggestions contained in the resolutions.

To Reduce the Size of Directory.—After considerable discussion and the consideration of a number of suggestions, a motion was carried which will reduce the size of the Directory by eliminating certain repetitions and unnecessary data which will limit its cost to from \$3,000 to \$3,500.

Election of Officers.—The following officers were elected to serve for the ensuing year: *President*, Dr. Thomas H. Halsted of Syracuse; *First Vice-President*, Dr. James F. Rooney of Albany; *Second Vice-President*, Dr. Marcus B. Heyman of Wards Island; *Third Vice-President*, Dr. William M. Dunning of the Bronx; *Secretary*, Dr. Floyd M. Crandall of New York; *Assistant Secretary*, Dr. Edward Livingston Hunt of New York; *Treasurer*, Dr. Frank VanFleet of New York; *Assistant Treasurer*, Dr. Harlow Brooks of New York; *Chairman on Committee on Scientific Work*, Dr. Parker Syms of New York; *Chairman of Committee on Public Health and Medical Education*, Dr. Joshua VanCott of Brooklyn; *Chairman of the Legislative Committee*, Dr. F. C. Conway of Albany; *Chairman of the Committee on Arrangements*, Dr. Dwight H. Murray of Syracuse; *Chairman of Committee on Medical Economics*, Dr. Henry Lyle Winter; *Chairman of Committee on Medical Research*, Dr. Frederic E. Sondern; *Delegates to the American Medical Association to Serve for Two Years*, Drs. Arthur J. Bedell of Albany, James W. Fleming of Brooklyn, Dwight H. Murray of Syracuse, George W. Kosmak of New York, and Frederic E. Sondern of New York; *Alternates*, Dr. Charles Stover of Amsterdam, J. Lewis Amster of the Bronx; G. S. Towne of Saratoga Springs, G. F. Cott of Buffalo, N. O. Brooks of Oneida.

Place of Meeting.—Syracuse was selected as the place of meeting in 1919. The date of meeting is to be decided by the council.

OPENING MEETING.

Held May 21, 1918.

THE PRESIDENT, DR. ALEXANDER LAMBERT, IN THE CHAIR.

Invocation.—Rev. R. H. BROOKS opened the One Hundred and Twelfth Annual Meeting of the State of New York with a brief prayer.

Address of Welcome.—Dr. ARTHUR BEDELL welcomed the society on behalf of the medical profession of Albany, and told of the plans arranged for the entertainment of the members of the society and their guests.

Address of Welcome.—Dr. JAMES R. WATT, Mayor of Albany, made a brief address of welcome on behalf of the city, in which he said he had been shown a copy of the by-laws of the society by one of the officers of the society and his attention was called to the ruling that no speaker was permitted to hold the floor for more than twenty minutes. He could not say whether this was done for his own benefit or for that of the audience, but he would not trespass on their time except to bid them welcome again to Albany. The society had been born in Albany and spent its youth and early maturity here and Albany welcomes them home again with a parental interest and a pride in their achievement.

Patriotic Address.—Mr. HERZOG of Albany, in the absence of the Governor, made a brief address. He said he had been asked to make an address on Thrift

Stamps, but that was one of the ways a man could "do his bit," or, rather, his best. He said that America wanted no peace until this war preparation was settled right and once for all. They wanted no peace until there should be no more violation of treaties. They wanted no peace until there should be no more murders such as they had witnessed in the sinking of the *Lusitania*. They wanted no peace until they could be assured that their women and children would not be treated as those of the Belgians and French had been treated. Mr. Herzog stated that he was of German descent, but that there was no one in America more patriotic than he and he wanted to bring home to the people the fact that they were not fighting simply the Kaiser, as was so often said, but they were fighting the whole German people. They had a public school in the south of Albany which was considered the best school in the city and 98 per cent. of the children were German. The reason they gave no trouble was because obedience was inbred in those children and the same was true of the German people. They were ruled by fear and were absolutely under the domination of the Kaiser. It was not the man who was of German descent and who had become Americanized that we had to fear, but the so-called American next door who said he was neutral. There was today no place in this country for the man who was neutral. Furthermore, the man who said anything that was not absolutely loyal to France, England, and Italy was throwing bullets at our own boys who were fighting for us. Some people said they could not afford to buy stamps or bonds. They were not yet awake. We did not know as yet what it meant to make sacrifices. We had still to learn the beauty and necessity of making great sacrifices.

Oration: The Psychology of the War.—Hon. JAMES M. BECK, LL.D., of New York City delivered a most eloquent oration which he prefaced by stating that under the present stress and strain incident to the war he could not sit down in cold blood and write an ornate oration or an academic essay, but that if his address were neither of these it at least had the merit of sincerity. It had occurred to him that perhaps a body of this kind would expect something more from him than merely a patriotic address, so he had decided to discuss the psychology of the war, not the psychology of the art of war but the psychology of the nations engaged in this war. He was persuaded that they would never understand the causes of this war until they understood the psychology of the nations participating in it, and what was more they would never understand the problems involved in reconstruction until they understood the psychology of these nations. To enter into the psychology of each of these nations would be a task too great for the time allotted to him, so he would resort to the art of analogy. The art of analogy occupied to literature the same relation as the motion picture did to the drama; it gave a maximum of impression with a minimum of effort. It gave an abstract truth in a visual form. Analogy had been employed by the master psychologist of all time, though he was not a professor of psychology and had never written learned books like a Munsterberg, but was one who knew how to depict all the great emotions of the human soul. There never was such a master of analogy as Shakespeare. He was such a master of his art that physicians thought he must have been a physician and lawyers thought he must have been a lawyer, but after all he had drawn most of his analogies from his own craft. The speaker said he had found in Shakespeare's plays 420 allusions to the theater. A number of these he quoted: "All the world's a stage and men and women merely actors." "This wide and universal theater of man presents more woeful pageants than are seen in the theater wherein we play." etc. Of all his analogies those drawn from history were most notable, yet he never put upon the stage such a stupendous tragedy of history as that which was now being enacted. This great drama now being enacted was one which had been drawn by this great protraiter of character in his play of Hamlet. Mr. Beck then proceeded to outline the plot of the play and draw his analogy with the present war situation. If one took the nations to-day and the characters of Hamlet the analogy was per-

fect. Prussia was the usurping king of Denmark, who, in the summer of 1914, found the whole world sleeping. There was never a brighter outlook for the fraternity of the nations than at that time; there was not the least cause for international friction. It was then that Prussia poured into the ear of the sleeping nations the cursed henbane which has cost the world the loss of at least ten million men, women and children. It must be observed that Shakspeare did not make the brother of the king of Denmark altogether bad. Of all Shakspeare's characters, Iago was the only one unreservedly bad. Claudius still has a consciousness that Heaven was not deluded when he said "My words go up, my thoughts remain below, and words without thoughts never to Heaven go." Prussia had to-day a gnawing remorse at its soul as was shown by the words of the Kaiser on three occasions "God knows I did not will it," though he knows well that God knows he did will it. But this was as nothing compared with the verdict the world had brought. It had put the brand of Cain on the brow of the German people and in virtue of this verdict the cause of the Allies had already triumphed for it had rendered an irrevocable verdict against Germany and even if Germany should triumph in arms she would be in the position of the murderer who had his victim strapped to his back and cried out: "Who shall save me from the body of this death." This was the burden which Germany must henceforth carry. Gertrude in the play was Germany in distinction from Prussia. Prussia was the royal family of Germany, the diplomats, the professors, capitalists, those in high places. Germany was the great people, chemists, biologists, laboring people, small traders, etc. While nothing was said except behind closed doors there was a distinct line of cleavage between these two classes, not only as to the policy of the war but even as to its righteousness. It was vital that we should make this distinction between Prussia and the German and the people. In dealing with Germany, however, we must go further than merely the Potsdam gang, we must say to Germany, as well as to Prussia, so long as you sit at the bar of the world cynical and unashamed and unrepentant, just so long we will not buy from you, we will not sell to you, and we will drive you from among the nations as Cain was driven from the gates of Paradise. But it must be remembered that Germany was not entirely hopeless so long as there remained such men as Carl Liebknecht.

To come back to our play, Laertes in the play was Austria. Laertes was the passionate, impulsive man who never stopped to think. Those were the qualities in Austria that were leading her to her doom. To bring out the analogy, the speaker related the events that precipitated Austria into the war and pictured Austria perishing in consequence of her impulsiveness just as Laertes perished by his own poisoned foil. Austria was gone forever, chained to the chariot of Prussian power. In the last part of the play Laertes stood craving forgiveness and Hamlet said to him "Heaven make thee free, but as for me I can never forgive." Rosencrantz and Guildenstern were, of course, Bulgaria and Turkey, and Polonius, with his graphophone type of intellect and lacking the creative impulse, was Russia, and Polonius was one of the greatest tragedies the world had ever known. Joffre had told the speaker, in 1916, that he knew the war would be over in a year because he knew the forces and equipment on the western front were more than Germany could withstand at that time, when she was also engaged on her eastern front with Russia. There crept into the stereotyped Russian mind such maxims as "Peace without victory," "Peace without annexation," "Freedom for all," etc. Russia had been traduced by socialism of the Bolsheviki type. Shakspeare could hold the mirror up to nature in even his minor characters in a most extraordinary manner.

We had in Horatio, the steadfast, loyal boy, with his clarity of vision and his nobleness of character, the prototype of France. What an apology the Anglo-Saxon race owed to France. She had been judged frivolous, bright, inconstant, exuberant like her own champagne. In these years of war her women and

children had cared for her vineyards. Let those remember who in years to come drank the champagne of the vintage of 1914 to 1918 that he was drinking what was made at the cost of the sweat and the tears of the women and the children of France. With a quiet, steady determination and without asking help from anyone France had lost 250,000 men and still stood steadfast against the mighty army of the invader. Words failed to picture this wonderful people so ennobled and glorified by sacrifice. Ophelia was, of course, Belgium with the one difference that Ophelia was weak and there was no one who would attribute weakness to Belgium. Belgium had held back the Germans as the Greeks held back the Persians at Thermopylae.

Fortingras, the Norwegian viking, comes in at the end and "makes mouths at invisible events." Fortingras was England. She saw no reason for entering a quarrel the issue of which was not clearly defined. She did not know whether India might not rebel, or South Africa, or Australia, or Canada, but when the appeal finally came she no longer hesitated. She entered the war on August 4, 1914, and by August 8 she had 100,000 men crossing the channel. England found quarrel in a straw when her honor was at stake and she had plighted her honor to Belgium.

Thus far, Mr. Beck said, he had depicted a play of Hamlet without Hamlet. Who was Hamlet? In his judgment Hamlet was our country, and in saying this he was not uncomplimentary to our country. Hamlet was one of Shakspeare's greatest characters and his favorite child. He was the scholar, the courtier, the soldier, but he had one fundamental fault, and that fundamental defect America possessed. It was hard to tell what the character of this country might be in the future but there was one fundamental fault in this country during the period which preceded our entry into the war. It must be remembered that every nation had a dual personality. It had the personality that was the aggregate of its living citizenship, and that which it inherited from its institutional history. America, in its personality of a living citizenship, was composed of one hundred million human beings, as Roosevelt expressed it a "polyglot boarding house." In its historical personality America was the result of its history from the landing of the Pilgrim fathers, through the war of the Revolution, the War of 1812, and on through the Civil War. In its personality of a living citizen, America was swollen with material prosperity. The lesson of history was that material prosperity and luxury were the cause of national decay. We came out of the Civil War a strong and vigorous people, chastened by sacrifice, but of later years we had become surfeited with material things, just as Hamlet came from Wittenburg "fat and scarce of breath," like every pampered son of luxury, his excessive physical life had sapped his mental power and will. That was the position we found ourselves in at the beginning of the war. In our traditions and outlook we were provincial so far as world politics was concerned. Until recently America's interest in the war was purely academic. History would regard with horror her attitude during the early years of the war. Our fault was that of Hamlet, we had developed the contemplative faculty to excess. He lacked the nice balance between inward and outward things. Just as the man who lived a gross material life was likely to act without restraint and act impulsively, so the man of prodigious mental activity might lose the power to act. He found "his resolution sicklied o'er with the pale cast of thought." Our detached attitude with reference to the war was the result of our historical experience. We had been the shuttlecock of European politics and this had led Washington to initiate a policy of detachment to which we had adhered. If we had met the crisis that confronted us at the time of the sinking of the Lusitania it was not too much to say that the cause of the Allies would have triumphed, and that the history of Russia would be very different. Our failure to be prepared and to meet the crisis in 1914 was not alone the fault of the Government, it was due to a psychological defect in national character, to excessive development of the introspective faculty, to having centered our observa-

tion on internal affairs until it was almost too late. Hamlet perished because of his dilatoriness; it was to be hoped that the analogy would not be carried to the end in our case, but that we would awaken ourselves to vigorous action and save our national life.

SECTION ON PEDIATRICS.

First Day—Tuesday, May 21.

DR. T. WOOD CLARKE OF UTICA IN THE CHAIR.

The Diarrheal Diseases of Infancy.—ROBERT SLOAN of Utica presented this paper, in which he discussed certain points in regard to the various diarrheal diseases of infancy which he had found of particular interest in private practice. Infants fed on the breast were not as subject to diarrheal attacks as were those artificially fed, neither was the diarrhea as fatal. When the mother was under the impression that she had insufficient milk for her child, it was the writer's custom to weigh the baby before and after feeding. This simple procedure showed the mother the amount of milk the infant received. If the infant was losing weight the mother's milk was analyzed. If this was found deficient artificial feeding might be substituted and the breast discarded entirely. Frequently the baby was put on artificial food, very badly managed in reference to all of its habits, and the physician was not called to see it until a severe diarrhea had developed. Usually after a thorough rearrangement of the child's, or better, the parent's habits, the child would make a speedy recovery. In a number of instances an infant would be able to take food of a most faulty character, inducing indigestion, colic, an malnutrition, yet in the cooler weather one met with no diarrhea or a diarrhea of a temporary and easily controlled form. Pure milk properly modified was undoubtedly the best artificial food for infants.

In February of 1917 there was an outbreak of diarrhea in the city of Utica which was very puzzling. Investigation of the cases showed that the majority of them took milk from the same farm, a milk which up to this time gave a count of 1 to 3,000 per cubic centimeter. A count taken at the time of the outbreak was from 300,000 to 1,000,000 per cubic centimeter. It was found that the hose used in connection with the milking machines had become contaminated. It was impossible to thoroughly sterilize the hose, no matter how carefully it was washed. Due to mechanical trouble in the milking machines, they suddenly stopped using them and the epidemic of diarrhea suddenly ceased. Other mistakes in diet and hygiene that predisposed to diarrhea were allowing a child to have all the candy it desired. The writer believed that sugar in the form of candy should be prohibited until after the fifth year. A great many infants were dressed too warmly. In the summer months all that was necessary for the infant to wear was a light flannel or linen garment. An infant should never be allowed to perspire, as it sapped the vitality and irritated the child. There was another form of diarrhea to be considered and that was the diarrhea of starvation. During the past two years the writer had had a number of these cases come under his observation and in only one instance was the baby breast fed. These children were the picture of starvation; they seemed to want their food, but were too weak to nurse. The respiration was very rapid, the pulse lost except with the stethoscope, the abdomen distended and tympanitic, the bowels very loose. The stool was liquid and of a light green color. It was this class of cases that had given him the most difficulty, and which most often proved fatal. Prophylactic treatment was, of course, best. The mothers should be educated in the proper care of the infant and it was essential to keep the infant under the closest supervision, so as to recognize and treat any digestive disturbance early. The infant during an attack of diarrhea in the summer should be kept out of doors, and restlessness allayed by a tub bath, starting at a temperature of 100° F. and gradually reducing it to 85° F. The writer has seen no benefit from taking the child to the seashore or other summer resort. The medicinal treatment was then usually advocated. In the starvation diarrhea no cathartic was administered, as the intestinal tract had been cleansed and the

infant could not stand it. The medication in this type of cases consisted of bismuth subnitrate, 10 grains for an infant one month old. The dietetic treatment which had given the best results was the feeding of undiluted whole milk, regardless of age, giving it at first with a medicine dropper. The writer cited several cases of infantile diarrhea of the starvation type.

Intestinal Intoxication in Infants.—DR. OSCAR M. SCHLOSS of New York presented this paper, in which he stated that infants suffering from a severe type of diarrhea, presenting symptoms of somnolence, coma or stupor, convulsions, and great prostration, to which the term "intestinal intoxication" had been applied, presented some important abnormalities. The blood was often more concentrated than normal, both in relation to the plasma, the corpuscles, and the amount of dissolved solids. There was a retention of nitrogenous waste products similar to that occurring in uremia. Such blood changes demonstrated the presence of diminished kidney function. This was not due to an anatomical kidney lesion, but to the depleted water supply of the body and the diminished blood volume. All the available evidence seemed to point to the fact that the acidosis met with in these cases was due to defective kidney function. There were three important considerations in the management of these cases. The fluid of the tissues must be replaced, the secretion of the urine must be reestablished, and the acidosis must be eliminated. The treatment directed toward the first and second of these conditions was identical and consisted in the administration of large quantities of normal saline or Ringer's solution. The amount should be sufficient to reduce the blood concentration to normal and to keep up a normal secretion of urine. A fairly accurate guide to the administration of fluid was the estimation of the hemoglobin by the method of Haldane. If the blood was more concentrated than normal the hemoglobin was increased and fluid should be given in such cases until the hemoglobin was normal. In most of the severe cases of intestinal intoxication it was necessary to give fluid intravenously, intraperitoneally, or subcutaneously. The intravenous method was not desirable except for one or two injections. Intraperitoneal injection of saline was a very satisfactory method, and in the writer's opinion was the method of choice. With the use of perfectly obvious precautions it was without danger. Fluid should be given until the blood concentration was normal and there was a normal secretion of urine. A valuable adjunct in promoting the secretion of urine was the intravenous injection of dextrose. This should be given in 15 to 20 per cent. solution, and from 3 to 5 c.c. per kilo body weight was sufficient. It should be given merely as an efficacious diuretic. Giving the intravenous injection through the longitudinal sinus was the method of choice. On Dr. LaFetra's service at Bellevue they were using a 20 to 21 gauge needle only ½ inch in length, with a short beveled point. With this needle transfixion of the sinus was practically impossible. All the injection should be given by gravity; the upper level of the fluid column should not be more than 1½ feet above the head of the patient. The acidosis which occurred in intestinal intoxication required special treatment based on the determination of the carbon dioxide tension of the alveolar air. In every instance the amount of sodium bicarbonate required should be determined from the carbon dioxide tension of the alveolar air or from the plasma bicarbonate. When the latter was determined the formula of Palmer and Van Slyke might be used to estimate the amount of sodium bicarbonate to be given. If these tests could not be made, all cases of intestinal intoxication should be given sufficient sodium bicarbonate to change the reaction of the urine to normal. Litmus was not a good indicator for this purpose, but the reagent of Neubauer was satisfactory. If the patient was not vomiting and the diarrhea was not severe, sodium bicarbonate might be given by the mouth in 3 to 5 per cent. solution. There might be some danger in giving too large doses of sodium bicarbonate, a danger sufficient to make it desirable to gauge the dose accurately. During the first twenty-four hours, until the water loss was replaced, the acidosis eliminated, and the secretion of urine reestablished, the diet should consist of cereal decoctions only. For the subsequent feeding there was nothing new to offer.

The Use of Dry Milk in Infant Feeding.—Dr. ROGER H. DENNETT of New York read this paper. Dry milk had been known abroad for many years; it was prepared by evaporation of fresh cow's milk. The resulting powder was preserved in cans and prepared for use by dilution in hot water. Numerous observers had obtained good results in infant feeding with the use of dried milk, especially in dyspeptic cases. The advantage of this food, which contained nothing but the pure milk substances, over proprietary foods of various kinds, was obvious. If such additions as sugar, starch, flour, etc., were needed, they could be added. It would seem as if dried milk was especially adapted to infants who had received some food injury and was more easily assimilated by them than raw milk or boiled milk mixtures. A close study of fifty cases in private practice had led the writer to the conclusion that dried milk possessed a great superiority over raw or boiled milk and that cases where the infant did not prosper on ordinary milk mixtures could be much improved by feeding with dried milk. The improvement was often marked and instantaneous. In cases where there was no constitutional disturbance, such as tuberculosis, syphilis, etc., the results were surprisingly good, vomiting having been easily controlled and increase in weight having followed at once. A weight chart was shown, illustrating the weight curve of the normal infant, compared with the weight curve (average) of fifty cases studied. When the dried milk was begun they averaged $3\frac{1}{2}$ pounds below the normal. By the time the food was discontinued they averaged normal weight. In commencing treatment with the dried milk, it was necessary to give less than the actual needs of the infant at first and gradually increase the tolerance to the food. This was a much quicker process with the dried milk than with raw cow's milk. No cases of scurvy or rickets occurred in this series, but all babies received orange juice as a routine supplementary measure. Cases with malnutrition recovered with unusual promptness under this regime. The lessening of bulk, the ease of sterilization, and the digestibility of dried milk were, Dr. Dennett said, very distinct advantages in the use of this preparation.

Report of a Case of Pica, with Unique Complications.—Dr. ARTHUR W. BENSON of Troy, N. Y., made this communication. The subject, he said, was of considerable interest, but the literature contained very few references. A report of a case was therefore presented. The patient, a girl of 7 years, returned from school on November 15 last, feeling ill and complaining of severe headache. Late in the afternoon she vomited the entire stomach contents. This was followed by a normal bowel movement, and a little later she passed what appeared to be a raw apple and tomato. There was severe abdominal pain and retching. From Thursday night to Saturday the bowels moved repeatedly. The movements were bright red blood and mucus and were accompanied with severe colicky pain. She also frequently vomited green material. No nourishment was retained and there was great prostration and exhaustion. On Sunday night, while on the bed-pan, a metallic noise was heard, and the child passed a piece of lead, 1.8 cm. long by 1.3 cm. wide and 0.4 cm. thick. This was grooved lengthways and a cuboidal prominence projected from the roughened surface. The sharp edges seemed to be mechanically responsible for the bleeding. It was discovered that this piece of lead was part of an ordinary kitchen knife, which was known to have been missing for at least two years. How it traveled through the gastrointestinal tract was not known. Shortly after the passage nausea and vomiting ceased and the child was ravenously hungry. The last bloody stool was passed eight hours after the expulsion of the foreign body. The movements decreased in frequency but continued to be streaked with tarry portions. As the bowels continued to move four or five times a day she was taken to the hospital and kept on meat-free diet with medication of calcium lactate 15 grs. t.i.d. A warm starch enema was given every morning. Patient was last seen on March 12 in good health with hemoglobin of 94 per cent. The past history of the child was instructive. She was a full term child, normally healthy, and there was no history of syphilis or of nervous or mental disease

among her antecedents. She was nursed for a few weeks only and then weaned suddenly and put upon uncertain mixtures of sugar, water and milk. She early developed an abnormal appetite, never satisfied, and a craving for highly seasoned food. From babyhood she was observed to swallow dirt, pebbles, fruit, stones, soap, etc. She devoured pencils and rubber ends with relish. Her intellect was precocious and she could memorize with startling facility. In disposition she was lazy, greedy, selfish, ungrateful, vindictive, and unreliable. She frequently bit and kicked her playmates. She evinced a shocking knowledge of sexual subjects, although her home surroundings were irreproachable. Such cases of perversion of appetite fell into three classes: (1) allotriophagia or desire for disgusting substances; (2) malacia or craving for highly spiced foods; (3) pica or eating of dirt, wood, soap, etc. The latter had been noted among animals, was common among the insane and among hysterical persons. In children it began at an early age, and was accompanied with marked deterioration of general health. Rickets, anemia, tuberculosis, might be predisposing causes. Observers had noted its association with nervous and digestive disorders. Holt had placed it among injurious habits of infancy such as masturbation, nail biting and head banging. Thomson, in outlining treatment, did not advise the use of medicines. He advocated: (1) withholding of substances for which a morbid craving was evinced; (2) rectification of digestive disturbance; (3) improvement of general health; (4) change of environment, and also keeping the children both busy and happy.

Complement Fixation Test with a Specific Antigen in Acute Poliomyelitis.—Dr. MARCUS NEUSTAEDTER of New York read this paper, in which he reviewed the difficulties of making a diagnosis when one was dealing with a polioencephalitis. The medical profession had felt all along that some additional test was necessary to point at least with some amount of certainty to the correctness of the diagnosis in this type of poliomyelitis. Having succeeded, in collaboration with Dr. E. J. Banzhaf at the Research Laboratories of the Department of Health in New York City, in producing an antipoliomyelitis horse serum by injecting two horses with the virus of poliomyelitis previously digested with trypsin, it occurred to them that they might possess in it an antigen potent enough to produce a complement fixation in sera and spinal fluids of typical and suspected cases of poliomyelitis. Such a specific antigen they had obtained by the method described in this paper. They had examined 152 spinal fluids and 60 blood serums of poliomyelitis cases, the cases being frank and suspected, in the febrile and afebrile stages. The duration of the disease was from one to forty days. The results of the tests showed that of 42 of the spinal fluids of frank and suspected cases of poliomyelitis 23, or 53.5 per cent., gave a positive reaction, and 12, or 27.9 per cent., a doubtful one, while 4, or 9.5 per cent., gave a negative reaction. Spinal fluids from cases of tuberculous meningitis, epidemic cerebrospinal meningitis, tertiary syphilis, and of other diverse pathological conditions were tested as well as normal spinal fluids, and only one gave a strongly positive reaction with the poliomyelitis antigen; seven were anticomplementary, and the rest were negative. Of 60 blood serums of various pathological conditions, none gave a positive reaction with the poliomyelitis antigen. In conclusion it might be said that an antigen had been found which probably was a specific and fixed complement, and hence was of positive diagnostic value in poliomyelitis. The result was in accord, Dr. Neustaedter said, with the production of immune bodies in a horse injected with the poliomyelitis virus digested with trypsin as described.

(To be continued.)

Cerebrospinal Meningitis Posing as Malaria.—Serr and Brette saw an intermittent type of fever in an abortive type of meningitis. The attack followed a lymphangitis of the foot. Only when stiff neck appeared was lumbar puncture practised with positive finds. Intraspinal antimeningitis serotherapy, by promptly curing the case, corroborated the diagnosis.—*La Presse Médicale.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

NEW YORK STATE BOARD OF MEDICAL EXAMINERS.

January, 1918.

ANATOMY.

1. Describe the thorax and name the bones entering into its formation.
2. Name the muscles of the gluteal region and give the origin, insertion, nerve supply, and action of one of them.
3. Describe the veins from the termination of the right internal jugular vein to the heart and mention all the vessels that empty into them.
4. Give the origin, course and relationship of (a) the internal mammary artery (*arteria mammaria interna*), (b) the deep epigastric artery (*arteria epigastrica inferior*). Describe their anastomosis.
5. Describe the ventral division of an upper thoracic nerve (*nervi intercostales*).
6. Give the microscopic appearance of nerve fiber.
7. Describe the crystalline lens (*lens crystallina*).
8. Describe the umbilical cord (*funiculus umbilicalis*) and name its constituent parts.
9. Give the location of the epigastric region and mention the viscera contained therein.
10. Describe the cervical portion of the gangliated cord of the sympathetic nerve (*pars cervicalis systematis sympathici*).
11. Describe the pituitary body.
12. Describe the semilunar valves, the tricuspid valve, the ileocecal valve, the valve of Vieussens and the epiglottis.

PHYSIOLOGY.

1. Is a muscle dependent on its nerve connection for the reception of a stimulus? Explain.
2. Describe (a) fetal circulation, (b) fetal respiration, (c) fetal digestion.
3. What is the function of (a) the cerebrum, (b) the optic thalamus, (c) the cerebellum?
4. What is the function of the calcium salts in the body? What food substance supplies the largest percentage of calcium salts at the time of life when they are most needed?
5. Describe the physiological process of the absorption of carbohydrates, fats and proteins in the small intestines.
6. Describe in detail the coagulation of the blood.
7. Describe the perversions of function that may cause icterus.
8. What controls the secretions of the stomach? How is this proved?
9. What is the respiratory quotient?
10. What are the avenues for the discharge of water from the system? Give the percentage of water discharged from each.
11. Discuss the physiology of equilibrium.
12. How is the cornea nourished?

ANSWERS.

ANATOMY.

1. The *thorax* is a bony-cartilaginous cage, which is bounded behind by the twelve dorsal vertebrae and the posterior part of the ribs; in front by the sternum and costal cartilages; on the sides by the ribs and intercostal spaces with the intercostal muscles. It is conical in shape, being broadest below. It contains the chief organs of respiration and circulation. The superior aperture transmits the sternohyoid and sternothyroid muscles, trachea, esophagus, thoracic duct, inferior thyroid veins, longus colli; innominate, left common carotid, left subclavian, internal mammary, and superior intercostal arteries; right and left innominate veins; vagus, phrenic, cardiac, sympathetic, and left recurrent laryngeal nerves; the apex of each lung also projects through the superior opening. Below is the subcostal angle. Its lower boundary is the diaphragm. The bones entering into its formation are: The twelve dorsal vertebrae, the sternum, and twenty-four ribs (twelve on each side).

2. The *muscles of the gluteal region* are: Gluteus maximus, gluteus medius, gluteus minimus, pyriformis, gemellus superior, gemellus inferior, obturator internus, obturator externus, and quadratus femoris.

OBTURATOR EXTERNUS. *Origin:* Body and ramus of os pubis, ramus of ischium, and obturator membrane. *Insertion:* Digital fossa of femur. *Action:* External rotator of thigh. *Nerve supply:* Obturator nerve.

3. The *right internal jugular vein* terminates (with the right subclavian vein) to form the right innominate vein; this latter is about an inch in length and passes from behind the inner end of the clavicle, downwards and inwards to the lower border of the first right costal cartilage, close to the sternum, where it unites with the left innominate vein to form the superior vena cava. This latter vessel is about three inches long, and descends almost vertically to the level of the upper border of the third right costal cartilage, where it enters the upper and back part of the right auricle of the heart. About the middle of its course it pierces the pericardium. The *tributaries of the right innominate vein* are: The vertebral, inferior thyroid, internal mammary, and first intercostal vein of the same side; the *tributaries of the superior vena cava* are: Right azygos vein, and pericardial and mediastinal veins.

4. The *internal mammary artery* arises from the first part of the subclavian artery and passes downwards, forwards and inwards, behind the inner part of the clavicle and the first costal cartilage. It then descends vertically behind the costal cartilages as far down as the sixth intercostal space where it divides into the musculophrenic and superior epigastric arteries. It lies about half an inch from the margin of the sternum. In front of it are the pectoralis major, and the upper six intercostal cartilages, intercostal muscles and intercostal nerves. Behind it are the pleura (above) and the triangularis sterni (below). Laterally are the two venae comites. The superior epigastric artery passes downwards, through the diaphragm, enters the sheath of the rectus abdominis lying at first behind this muscle and then entering it. In this muscle it anastomoses with the deep epigastric artery. The *deep epigastric artery* arises from the external iliac artery, about 1 1/4 inch above Poupart's ligament. At first it passes between Poupart's ligament and the lower border of the internal abdominal ring. It then passes beneath the rectus abdominis muscle and enters the sheath of this muscle over the semilunar fold of Douglas, passing vertically upwards between the muscle and its sheath; it then enters the muscle and about two inches above the umbilicus it ends in branches which anastomose with the superior epigastric branch of the internal mammary artery. The deep epigastric lies at first between the peritoneum and the transversalis fascia and is crossed by the vas deferens near the internal abdominal ring.

5. The *ventral divisions of the upper thoracic (intercostal) nerves* enter the intercostal spaces behind, and pass forwards with the intercostal vessels and lie below them. They are situated between the posterior intercostal aponeurosis and the pleura. At about the level of the angle of the rib they lie between the intercostal muscles and are sheltered by the subcostal groove of the superior rib. They are here below the vein and artery, and pass forwards till they reach the middle of the ribs, when they enter the substance of the internal intercostal muscles. At the anterior extremities of the ribs the nerves emerge from the muscle and pass inwards, lying first upon the parietal pleura and then upon the triangularis sterni, crossing the internal mammary vessels. When near the sternum they pierce the internal intercostal muscles, anterior intercostal aponeurosis, pectoralis major, deep fascia and skin, supplying the skin of the chest wall and mammary gland.

6. **NERVE FIBERS.**—"Medullated nerve fibers usually consist of three parts: (a) axis cylinder, (b) medullary sheath, (c) neurilemma. An *axis cylinder* is a cell process that carries an impulse away from the nerve cell. It is a slender cytoplasmic process and may be very long, as is the case with the motor fibers that come from nerve cells in the anterior horn of the spinal cord and extend, without interruption, to muscles in the distal parts of the limbs. The axis cylinder presents a

longitudinal striation, a fibrillar structure, that is supposed to be continuous with the cytoplasmic striation of the cell body. The fibrils are imbedded in a fluid protoplasmic substance, the neuroplasm, and the whole surrounded by a delicate membrane, the exolemma. Implantation cone is an elevation that is sometimes present at the junction of the axis cylinder and cell body. The *medullary sheath* (white sheath of Schwann) is a covering to the axis cylinder. This sheath never extends to the nerve cell, but begins a little distance from it. Nodes of Ranvier are constrictions of this sheath at regular intervals. The smaller the fiber the greater the distance between these nodes. Long fibers are slender, with long distances between the nodes; short fibers are coarse, with short distance between nodes. The *neurilemma* is a thin, structureless membrane that surrounds the medullary sheath. An oval nucleus is present in this sheath, midway between the nodes of Ranvier. At each node the neurilemma is constricted and touches the axis cylinder, which in turn may be slightly thickened at this point and may give off a collateral. Medullated nerve fibers with a neurilemma are found in the cranial and spinal nerves. Medullated fibers without a neurilemma are found in the brain and spinal cord. The neurilemma gives great strength to the fibers. Its absence in the brain and cord accounts for the pulpy soft nature of this tissue." —(Hill's *Histology*.)

7. "The *crystalline lens* consists of a biconvex transparent body inclosed in an equally transparent homogeneous capsule. It varies from eight to ten mm. in diameter, and is from three to four mm. thick from pole to pole. Its posterior surface rests against the vitreous, and its anterior surface against the posterior surface of the iris. The capsule is thickest at the anterior pole. The lens is enveloped at its periphery by the suspensory ligament and behind by the hyaloid membrane. The substance of the lens is arranged in concentric layers, composed of minute fibrils somewhat hexagonal on horizontal section, which dove-tail into one another. The external layers are soft, the next firmer, and the central form a hardened nucleus. Between the layers and among the fibers is an oil-like material called the *liquor Morgagni*, which permits change of form of the lens without friction. The anterior capsule is a tough, elastic membrane, lined on its posterior surface by hexagonal cells whose function, it is said, is to nourish the lens proper. The *zone of Zinn* is the *suspensory ligament of the lens*, and serves to retain the lens in place. It is a transparent, fibrous, perforated membrane, stretched between the ciliary processes and the lens. Between the folds of this ligament is the *canal of Petit*, encircling the equator and containing a fluid supposed to assist the nutrition of the lens." (Gould's *Compend on Diseases of the Eye*.)

8. The *umbilical cord* connects the fetus with the placenta. At the end of pregnancy its average length is about 22 inches, but it may vary very much either in excess or defect. It presents a spiral appearance, chiefly due to the winding of the two umbilical arteries around the umbilical vein. Its constituent parts are: Two umbilical arteries; umbilical vein; remnants of yolk sac, allantoic stalk, and vitalline duct; Wharton's jelly; and a covering, derived from the ectoderun.

9. The *epigastric region* is the middle region of the upper zone (of the nine regions into which the abdomen is arbitrarily divided). Its contents depend on the location of the lines (which differ in nearly every textbook). When the superior horizontal line is drawn between the cartilaginous ends of the tenth ribs and the vertical lines upward from the iliopectineal eminences, at right angles to the upper horizontal line, then the epigastric region contains the liver, stomach, gall-bladder, duodenum, and pancreas.

10. The *superior cervical ganglion of the sympathetic nerve* is a fusiform enlargement of the sympathetic nerve, about an inch in length, lying behind the internal carotid artery, and upon the rectus capitis anticus major opposite the 2nd and 3rd cervical vertebrae. It gives branches of *communication* to the 9th, 10th, and 11th cranial nerves, to the four upper cervical nerves, and to the middle cervical ganglion; and branches of *distribution* (1) to the internal carotid artery, forming the carotid and cavernous plexuses; (2) to the branches of the external carotid artery;

(3) to the pharyngeal plexus; (4) laryngeal filaments which join the superior laryngeal artery; and (5) the *superior cardiac nerve* to the cardiac plexus.

The *middle cervical ganglion* is of small size, and is connected with the 5th and 6th spinal nerves. It lies upon the curve of the inferior thyroid artery opposite the sixth cervical vertebra, and gives off (1) *thyroid* branches upon the inferior thyroid artery; (2) the *middle cardiac nerve*, and two or three descending branches of *communication*, which pass in front of and behind the first portion of the subclavian artery to form a loop known as the *ansa Vicussenii*, and join the inferior cervical ganglion.

The *inferior cervical ganglion* lies below the transverse process of the last cervical vertebra and upon the neck of the first rib, and may be seen just above the first portion of the subclavian artery between the origins of the vertebral and superior intercostal arteries, and behind the inferior thyroid artery. It receives *communications* from the 7th and 8th cervical nerves, and from the middle cervical and first thoracic ganglia. Its branches of *distribution* are two filaments to the vertebral artery, branches to the subclavian artery, and the *inferior cardiac nerve* to the deep cardiac plexus. (From Heath's *Practical Anatomy*.)

11. The *pituitary body* is a ductless gland, situated on the sella turcica of the sphenoid bone, under cover of the diaphragma sellæ; in the center of this latter is an opening for the passage of the infundibulum. It consists of two lobes, the anterior is the larger and belongs to the digestive tract; the posterior, which belongs to the nervous system, is connected with the tuber cinereum of the brain by means of the infundibulum.

12. "The *semilunar valves* guard the aortic and pulmonary openings. They consist of three semicircular folds attached by the convex margin to the wall of the artery at its junction with the ventricle, and are formed by a reduplication of the lining membrane strengthened by fibrous tissue. In the centre of each free margin is a little nodule, the corpus Arantii, the three meeting in the centre when the valves are closed. On each side of the corpora Arantii is a thin semilunar marginal surface, where the fibrous tissue is absent, called the lunula; these surfaces come in contact when the valves close."

The *tricuspid valve* is situated in the right ventricle at the auriculo-ventricular orifice, and prevents the passage of blood into the auricle during the ventricular systole. It consists of three flaps or cusps, connected by their bases to the auriculo-ventricular orifice; their free margins and lower surfaces give attachment to the chordæ tendinæ which connect them with the muscoli papillares. The valve is formed of a duplicature of the lining membrane of the heart, strengthened by connective tissue.

The *ileocecæ valve* is on the left side of the cecum, at the opening of the ileum into the colon. It consists of two semilunar segments, the upper of which is horizontal and is called the ileocolic; the lower is vertical, and is called the ileocecal. On each side is a ridge called the frenum.

The *valve of Vieussens* is a thin layer of white matter stretched between the two superior processes of the cerebellum and connected with the lingula of the superior vermiciform process. It forms the roof of the upper part of the fourth ventricle.

The *epiglottis* is a thin, leaf-shaped lamella of fibro-cartilage situated behind the tongue and above the larynx. Its free extremity is broad and rounded; its lower part is attached to the thyroid cartilage.

PHYSIOLOGY.

1. "The normal stimulus to muscular contraction during life is an impulse passing from the central nervous system along the nerve which ends in the muscle fibres. In a muscle-nerve preparation, the muscle contracts either when it is stimulated directly or when the stimulus is applied to the nerve. It was formerly supposed that even when the stimulus was applied to the muscle itself the latter did not respond directly to the stimulus, but contracted because this acted upon the nerve fibres running within the muscle. There is no doubt, however, that muscle can be excited to contract independently of impulses reaching it along nerve fibres (independent irritability of muscle).

Curare paralyzes the endings of nerve fibers in a muscle, and, when it is injected into an animal, stimulation of a motor nerve has no effect upon the muscle, whereas direct stimulation of the muscle causes it to contract." (Bainbridge and Menzies' *Essentials of Physiology*.)

2. *The fetal circulation*: "The arterial blood coming from the placenta to the fetus travels along the umbilical vein to the liver. After giving off several branches to the left lobe it divides into two streams, the larger joining the portal vein and thus entering the liver, the smaller passing directly into the inferior vena cava through the *ductus venosus*. In the inferior vena cava the blood carried by the hepatic veins and *ductus venosus* mixes with the blood which has circulated through the lower extremities. On entering the right auricle the blood of the inferior vena cava is directed by the Eustachian valve, through the foramen ovale into the left auricle, and from thence into the left ventricle. The left ventricle forces it into the aorta, and it is then distributed to the head and upper extremities, a small quantity only passing into the descending aorta. The blood which has circulated through the head and upper extremities returns to the heart along the superior vena cava, the blood then passing into the right ventricle and pulmonary artery. A small part of the blood in the pulmonary artery is conveyed to the lungs, but the major part passes through the *ductus arteriosus* into the aorta at the commencement of the descending portion. This blood is distributed to the lower extremities, a certain portion of it entering the hypogastric arteries and being conveyed to the placenta." (Ashby's *Physiology*.)

The Respiration of the Fetus.—"Unlike the circulatory organs, the fetal mechanism of respiration does not begin its work until after birth, when for the first time it can have air with which to inflate the lungs. The fetus, however, breathes, but oxygen and not air, and it excretes the carbon dioxide, inevitable product of its tissue-metabolism, into the maternal blood instead of into the atmosphere. Fetal respiration, then, is wholly internal respiration. The respiratory mode of mammalian embryos is practically the same as that of fishes, for although the former have no proper gills, still the gases interchange (through layers of maternal and fetal epithelium) between the liquid blood of the embryo and the liquid environment. In this case the environment is the circulation in the placenta of the mother. The fetal chorionic villi and the blood-filled sinuses of the decidua serotina of the placenta, extending inward from the uterine fundus, interknit with the greatest closeness. Thus, the villi of the fetal circulation, made up largely of capillaries, are quite surrounded by the large blood-sinuses filled with maternal blood. The circulation of the fetus, then, exchanges its two respiratory gases through the walls of capillaries just as does the adult circulation, save that instead of exchanging them with the alveoli the fetal blood takes its oxygen and excretes its carbon dioxide second-hand, as it were, from and into the maternal circulation."—(Dearborn's *Physiology*.)

The Digestive System.—"Very little is definitely known concerning the activity of the various glands connected with the alimentary canal in the fetus. A few observations have been made which show that the salivary and gastric ferments are present at birth, and according to some at a much earlier period. Trypsin also is stated to be present in the pancreatic secretion in the second half of pregnancy, and the fat-splitting ferment is in most cases present at birth. The amylopsin of the pancreatic secretion does not, however, appear till some time after birth. The large size of the fetal liver has caused it to be credited with important functions. It assumes its characteristic structure at about the fifth month, and at the same time begins to secrete a greenish-colored bile. The latter collects in the large intestine and forms the greater part of the meconium, in which bile-acids and bile-pigments can be shown to exist. It also collects in the gall-bladder, which is sometimes found fully distended in the full-term fetus. Before the secretion of bile no meconium is found in the intestines, but after the fifth month it collects in large quantities. Analysis shows that it contains, in addition to the bile-pigments and salts, a considerable amount of mucin, and secretions from the various intestinal

glands, more especially that of the pancreas. The presence of lanugo, vernix caseosa and epidermal cells within it confirms the opinion that the liquor amnii is swallowed at intervals by the fetus. In cases of occlusion of the bile-ducts the meconium is of a brownish color. In addition to its function in secreting bile, it is generally supposed that the glycogenic function of the liver is early established, and that the large size of the viscus is associated with the presence of large amounts of sugar in the tissues of the fetus. Some glycogen can be detected in its substance at birth. The principal waste substances, which result from the nitrogenous metabolism of the fetus, are excreted by means of the placenta into the maternal circulation, but a small amount of urea and uric acid is also passed with the secretions of the kidney into the bladder, and is thence probably passed at intervals into the amniotic fluid. That the bladder is frequently full during intrauterine life is proved by the familiar fact of the emptying of that viscus which so often takes place immediately after birth, but that any important excretory function is performed by the kidneys before birth has not been proved."—(Jellett's *Manual of Midwifery*.)

3. *The functions of the cerebrum* are (according to Starr): To receive impressions from the various sensory organs as conscious perceptions; to associate these various simultaneous perceptions into a mental image or concept; to retain these concepts as memories so that objects can be recognized or recalled; to give expression to thought in action and in speech; to restrain the flow of thought and to inhibit or control automatic and reflex acts.

Functions of the optic thalamus.—"The fibres that go to the occipital cortex have to do with vision; those that go to the temporal lobe have to do with hearing; the optic thalami have a probable relation to the expression of emotions; it is probably a primary center for sensations of touch, muscular sense, and perhaps for smell and taste."—(From Dana's *Nervous Diseases*.)

Functions of the cerebellum.—"Equilibrium and co-ordination of muscular movements."

4. *The function of the calcium salts in the body* is to give rigidity to the bones.

Milk supplies the largest amount of calcium salts at the time of life when they are most needed.

5. *Absorption of carbohydrates*.—"During digestion the greater part of the carbohydrate of the food is converted into the glucoses. These are comparatively small molecules which are readily dissolved, and easily passed through the columnar cells into the portal vein radical which lies beneath. It is possible that some maltose may be absorbed by the columnar cells, and that during its passage through those cells it is converted into dextrose before it enters the portal vein radicals. It is possible that in these columnar epithelial cells the glucose, which is being absorbed, is linked to the cell protein, and that, further down the cells, this loosely combined substance is split into two, the dextrose passing into the portal vein radical and the protein molecule remaining intact in the columnar cells and ready to combine with fresh glucoses to be passed through the cells. A small proportion of the dextrose, which is carried to the liver, goes on unchanged to the tissues to be assimilated, but the greater portion of the absorbed glucose on arriving at the liver is stored there by the liver cells as glycogen."

Absorption of fat.—"Fat is not absorbed as fat, but as glycerin and fatty acid or soap. It is generally accepted that the fatty acid set free in the intestine is dissolved by the bile salts, and in this way, together with the glycerin, is absorbed by the columnar cells, but that during absorption a lipase which is contained in the columnar cells re-synthesizes, by reverse action, the glycerin and fatty acid. In this way minute fat particles are found near the bases of the columnar cells, and these may be demonstrated by staining with a 1 per cent. solution of osmic acid. The fat globules are further taken up from the columnar cells by some of the lymphocytes, which are capable of exhibiting amoeboid movements, and which are found in the lymphoid tissue between the columnar cells and the central lacteal. The fat is then deposited in the central lacteal by these amoeboid cells, and in this way it gets into the general lacteal stream, and thence into the thoracic duct. The bile salts, which have been absorbed

by the columnar cells, in all probability get into the portal vein radical, and in this way are taken back to the liver to be excreted again in the bile. After a fatty meal minute globules of fat may be demonstrated in the blood plasma of an animal; but they disappear rapidly, possibly existing in a soluble and invisible form absorbed to the blood proteins before they are deposited in the fat depots of the body."

Absorption of proteins.—"The view previously held with regard to the absorption of protein was that during digestion protein was finally converted into peptone, and the peptone so produced was absorbed by the columnar cells over the villi, and built up again by these cells into serum albumin and serum globulin, the chief proteins of the blood plasma. The view generally accepted now is that protein is completely hydrolyzed into the cleavage products known as amino-acids in the intestine; and it is these amino-acids which, being smaller molecules than the original protein, readily pass through the striated free border of the columnar cells over the villi and so get into the protoplasm of these cells. Here a synthesis takes place, and some simple and aromatic amino-acids are converted by the columnar cells into serum albumin and serum globulin, the native proteins, and this protein is conveyed to the tissues."—(Lyle's *Manual of Physiology*.)

6. When blood is withdrawn from the blood-vessels of the living body, it first becomes viscid, then sets, and is converted into a jelly-like mass. This is due to the formation of fibrin. The jelly contracts forming the clot; and at the same time the serum is squeezed out from the clot. Various circumstances and conditions will hasten or delay the process of coagulation. In man, the blood generally becomes viscid in from two to three minutes; it forms the jelly-like mass in from five to six minutes; a few minutes later the serum begins to appear, and the whole process is completed in from twenty-four to thirty-six hours. The clot then floats on the serum. The process is thus summed up by Halliburton: In the plasma a proteid substance exists, called Fibrinogen. From the colorless corpuscles a nucleoproteid is shed out, called Prothrombin. By the action of calcium salts prothrombin is converted into fibrin ferment, or Thrombin. Thrombin acts on fibrinogen in such a way that two new substances are formed: one of these is unimportant and remains in solution; the other is important, viz., Fibrin, which entangles the corpuscles, and so forms the clot.

7. "Obstruction of the bile ducts (by parasites, foreign bodies, impaction of gallstones, inspissated bile or mucus, pressure from tumors of liver or pancreas, etc.) prevents the bile from entering the duodenum. The bile then enters the blood current and is carried throughout the body, thus producing the characteristic yellow tint of skin and mucous membranes, and the deep-yellow color of the urine."—(Scott's *State Board Physiology*.)

8. "The normal stimulus which excites the flow of the gastric juice is the presence of food in the mouth. If the esophagus of a dog is divided and the two ends are brought to the surface and fixed there, food may be masticated and swallowed by the animal, but none will reach the stomach. This sham feeding is followed by the secretion of gastric juice at the same time and in the same way as if the food reached the stomach. This fact points to the probability that the first secretion is due to a nervous reflex, a presumption which is further supported by the observation that, as in the case of saliva, even the sight or suggestion of food is followed by the appearance of gastric juice. The nervous nature of the stimulus is proved by the effect of division of both vagus nerves to the stomach, after which no secretion takes place on sham feeding or on showing food to the animal. Further proof is obtained by the production of secretion as a result of stimulation of the vagus. The nerve is divided in the neck, and four days later, when the cardio-inhibitory fibres have degenerated, the distal end of the nerve is stimulated by a tetanizing electric current. Five minutes after the commencement of stimulation the gastric juice begins to flow."—(Bainbridge and Menzies' *Essentials of Physiology*.) In addition to this, it should be added that a small amount of gastric juice is also secreted in response to a chemical stimulus excited by the presence of food in the stomach.

9. The *respiratory quotient* is the relationship be-

tween the volume of carbon dioxide which leaves the body in respiration and the amount of oxygen taken into the body and not reappearing in the expired air. It is generally represented by the equation

$$R. Q. = \frac{CO_2}{O_2}, \text{ and ordinarily this is } \frac{4}{5} = 0.8.$$

10. *Water is discharged from the system* as follows: By the kidneys, about 46 per cent.; by the skin, about 30 per cent.; by the lungs, about 20 per cent.; and by the large intestine, about 4 per cent.

11. *Physiology of equilibrium.*—"The body is constantly held in a state of balance, and no movement of any degree can be made in any part without a compensatory movement to preserve the center of gravity. The slightest variation in our position which would tend to the loss of balance is immediately perceived and immediately corrected. Furthermore, the balance is maintained by an interaction of visual sensations, labyrinthine impressions, and muscular sensations, all of which enter into this function, as can be seen by the disturbance of balance occasioned by double vision, or by labyrinthine disease, or by a loss of the muscular sense, as in locomotor ataxia. While consciousness takes cognizance of this complex matter of equilibrium, the primary centers which receive the impressions and regulate the activity that they arouse are located in the cerebellum. This is the great organ of equilibrium, and it therefore receives impressions directly from the eyes, from the semicircular canals, and from the muscles of the limbs. The most important impulses in the preservation of equilibrium, however, are derived from the semicircular canals through the vestibular nerve."—(Starr's *Nervous Diseases*.)

12. *The cornea* is not provided with blood-vessels. The capillary loops from the anterior ciliary vessels form a ring around the circumference of the cornea. Its nutrition is provided for by a system of lymph canals which are found in the substance of the cornea.

(To be continued.)

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THE PRIMARY CAUSE OF SHOCK.

ADDITIONAL EXPERIMENTS INDUCED BY THE WAR.

By FENTON B. TURCK, M.D.,

NEW YORK.

SINCE the war has demonstrated that shock is such a vital question, I have been led to undertake this new series of experiments, not only to shed more light on the etiology of shock, but to assist in the work of the production of immunity.

The war reports show that the wounded are seldom in a state of shock at first, not until two to four hours or more after the injury, and that the immediate or nervous shock is comparatively rare, (Quenu¹, P. Santy²).

The opinion is gaining ground that shock is due to some poison formed as the result of the injury, rather than to a nervous affection. The shock concept embedded in the psychogenic mesh has entangled in the past even the laboratory worker. Goltz tapped animals over different parts of the body until they died and ascribed the death to nervous vasomotor paralysis. Gutsch³ also concluded the same from his experiments. Fisher⁴ made the clinical application of these and like experiments to the syndrome of shock, and in our country Mitchell, Morehouse, Keen, Crile, and others have so emphasized the brain-nerve idea of shock, that we have lost sight of other conceptions. The war has proved the "hopelessness of shock" (Gray⁵) considered from this neuropsychogenic standpoint. The escapement from the thralldom of a fixed idea is scientific research.

If we transplant burned or lacerated wound tissue from an injured animal to another animal the latter dies from shock, while the original animal, with the burned tissue removed, survives. It must be removed early because injured tissue promptly begins to undergo self-digestion (autolyze). If the autolyzed injured tissue cells or their products are injected into an animal it dies from shock the same as the animal with the original injury (see protocols). Products of the nature of toxic albumins are formed by self-digestion of the tissues very rapidly; they give the biuret reaction and show the autolysis on microscopic examination, and when absorbed are deadly poisons.

These observations made in the opened abdomen of the animal in shock from injury or from the injection of the tissue products, show that the action of shock is staged in the splanchnic area, especially the upper abdomen, stomach, intestines, and liver. Sections of these organs taken in the prog-

ress of shock indicated that these excretory and detoxicating organs receive the first brunt of the reaction we call shock. The nervous system does not enter into this reaction.

Falling blood pressure and temperature, metabolic failure and loss of ferments, alkaline bases, CO₂ and O are secondary results.

Following this line of investigation of shock naturally leads up to the production of immunity. This has been done by repeated increasing doses of the *homologous* autolyzed tissue so that a high degree of immunity against shock can be established without symptoms. Heat of high degree applied so as to influence promptly the splanchnic area materially increases the immunity against shock if used early after the injury. Several practical methods for the application of heat to affect the splanchnic area in shock, devised by the author in the early nineties, have been used with excellent results.*

Pirogoff's term "traumatic torpor" or "wound stupor" to express the phenomena to which we have given the misnomer "shock," which originated in England, would better have been retained. The latter name, according to Captain Frazer and Cowell⁶, is to be deprecated, and Berger and Vignes⁷ protest against the blanket term shock because it adds an element of mystery to what is already known. Nerves are not "jolted" into a state of exhaustion, but there is a definite biological status produced, and stupor or torpor expresses more accurately the toxic influence that exists in "shock."

Roux of the Pasteur Institute repeats that there never was a war in which epidemics were so rare

*The study of surgical shock by the writer began in 1891 and 1892, during an interne service at the Alexian Brothers Hospital. There the service was largely emergency in character, and abdominal wounds and injuries were very frequent, often those in which the abdominal viscera were exposed. We at this time observed that when the abdominal viscera were exposed shock was produced even though there was very little hemorrhage; as in other extensive injuries, such as mangled limbs caught in machinery, the shock did not appear, as a rule, until two to five hours after the injury. At this time we found that heat applied within the splanchnic area especially was very effective in reducing shock. This led to the experiments on animals on the biology of shock, and further comparative observations in surgical cases. Through these it was found that not only acute, but certain chronic conditions were associated with phenomena similar to those found in shock. These investigations were published with the experimental data in 1894, 1895, 1896, 1897, 1900, 1903, 1906, etc., on up to the present time.

For instance, we found that peptic ulcer occurred as a result of autolysis, a chemical poison in the nature of a proteose resulting from the self-digestion of this injured tissue. More recent investigations on the biology of shock have been conducted under the Pearson-Dunn Research, and lately in my own research laboratory.

as in the present one, and he explains that these alarming conditions are avoided only by utilizing the protective measures prescribed by science. This achievement of preventive medicine stands out in bold contrast to the unparalleled prevalence of shock, of which Archibald, McLean, and others⁷ have despairingly complained, as the "hopelessness of shock." (Gray⁴.) Bernard⁸, in his lectures on "The Present Methods in Military Surgery" shows that in other wars (Russo-Japanese and Balkan) wounds were caused by smooth bullets, but in the present war by shells, projectiles, and grenades resulting in a mangling of the wounds and much destruction of tissue.

Shock is inevitable in all wounds, as Edward Johnson⁹ contends, but wounds of the thigh, buttocks, and trunk give the greatest degree of shock (Gray), and shell wounds of these parts, according to Hinds¹⁰ are of most frequent occurrence. The explanation is obvious, for the reason that when there is an explosion a man naturally crouches forward and the exposed parts are hit. Absorption from the wounds of the lower extremities and trunk possibly more readily affects the abdominal area, where the shock reaction takes place, because of the more direct connection by the vascular, lymphatic, and diffusion routes, by which the rich supply of toxic autolyzed cellular products is conveyed.

Bernard⁸ shows the limitation of therapeutics in shock shared by all military surgeons. He says "In case of shock, heat, saline, and adrenalin, camphor oil, and morphine are all used if required." The tourniquet and "débridement" (this consists of opening the wound and removing all dead and mangled tissue) are used for the purpose of stopping hemorrhage and infection. Are these not, in the light of experimental findings, chiefly means for the prevention of shock?

Pirogoff¹¹ expressed surprise when he removed a six-pound cannon ball from the thigh of a soldier that, though the femur was fractured, the soldier walked and experienced little or no shock. At the same time he notes that a heavy bomb passed close to the body of another soldier without touching him and yet death ensued. On postmortem examination "no apoplexy" was found, but the brain was said to be congested. No report was made of the finer changes of the other organs. This might be taken to indicate that shell shock may be of psychogenic origin, but in my experimental work it was found that placing an animal close to a centrifuge revolving at great speed to imitate a passing shell or ricochet, resulted in small lesions or multiple wounds in every organ of the body. Postmortem examination showed the same lesions in the liver and upper splanchnic area as are found in ordinary wound shock. Microscopic examination showed the usual findings in shock. The brain and spinal cord suffered but little from the shock. (See protocols "Shell Shock," figs. 24 to 28.)

Bauer¹² has recently made a careful clinical study of shell shock and concludes that a "medullary commotion effect" is produced on all the organs and tissues of the body, such as heart, liver, stomach, intestines, and bone marrow, causing purely inhibitory functional disturbance, these being quite independent of any psychogenic mechanism.

Disseminated areas of microscopic lesions throughout the body in experimental "shell shock"

in the aggregate, the author estimated, may produce an effect similar to that which occurs as the result of gross distinctive injuries inflicted by shrapnel. The same autolysis and intoxication follow as in gross lesions.

In 1893¹³ I made application of severe irritants, chemicals such as silver nitrate, to the gastric mucosa and found that it produced only a local reaction.^{15,16} Even trauma of the mucosa effected by the use of a wire brush healed promptly without shock symptoms,¹⁷ while simple exposure of the peritoneal side of the stomach to the cool air produced an area of definite, progressive congestion of the upper splanchnic vessels which could be observed with a magnifying lens until death supervened, and which were accompanied with the symptoms of shock, fall in blood pressure and temperature and depression of the vital functions.¹⁴⁻²⁰⁻²³ Rough handling or bruising the tissues only shortened the time of the development of shock symptoms.²⁵ Injury to the limbs of the trunk, if left unprotected, resulted in shock, in hepatic, pyloric, duodenal, and gastric congestion, and in death. It appeared that some protective process prevented shock when the injury occurred on the inside of the stomach, while injuries inflicted on the peritoneal or other parts of the body (parenteral), seem to leave the organism without protection, defenseless against the reaction.¹⁶⁻³⁰

Local injuries to the peritoneal side of the stomach or peripheral injuries were similar in effect to those produced by injections of proteoses,¹⁶ or such as occur when tissue cells undergo disintegration.²⁸ All the cells of the body contain ferments, proteases, and there are also ferments forming from extravasated leucocytes which cause proteoses to form.

The writer injected peptones obtained from the dilated stomach into the peripheral as well as the splanchnic veins.^{14,16,30} This seemed to cause a condition of shock and death similar to that accompanying cellular destruction resulting from exposure of the viscera to air, a mechanical trauma of the trunk or limbs, burns, and other injuries.

The question put forward in earlier papers by the writer was, "Why do the patient's physiological activities continue to fall after the irritation has been removed?" "There is a loss of function and depression of cellular activity." "Experiments seem to indicate molecular cellular changes are produced so that the side chains in the albumin molecule are altered."²³ As the result of injury some poison of the nature of a peptone seemed to be formed which I termed the "shock toxin."¹⁴

The rough handling of the viscera exposed to the air causes desquamation and disintegration of the endothelium lining the peritoneal cavity just as burns affect the skin. I took the resulting fluid or serum with the cellular products from the peritoneal cavity of the shocked animal and injected it into normal animals of the same species of the same litter, with production of similar shock symptoms and death.²⁸ Furthermore, the injection of this fluid taken from the peritoneal cavity with the disintegrated tissue caused the same train of shock symptoms as those produced by the injection of peptones from the stomach.^{23,16,28}

*An attempt was made to separate the toxic moiety from the proteoses derived from dilated stomachs by fractional coagulation at various temperatures.

Prolonged anesthesia in animals caused identical conditions which, as I have shown, are not due directly to the toxin of the anesthetic used, but to the cellular products of disintegration, so-called "metabolic changes."²⁹

The injection of emulsions of homologous muscle cells that had undergone autolysis,³¹ the autolysis being determined by histological examination of the muscle cells, caused symptoms of visceral dilation to occur similar to those which often accompany shock. So also did the injection of fatigue products obtained from the stomach muscles of homologous animals.³¹ Serum added to the muscle cells lessened the toxic reaction, yet shock was produced when homologous serum, from animals which had been in shock, was injected. The autolyzed cells that were disintegrated in the serum were apparently responsible for the occurrence of the shock.³²

Homologous emulsions made from the mucous membrane³³ of the pyloric end of the stomach of a dog and injected intravenously into a dog caused necrosis of the pyloric duodenal area. These pyloric lesions were frequently observed in shock produced in animals by trauma, burns, or surgical trauma or by protein injections.

In 1905 guinea pigs under morphine were shocked by the repeated faradic current resulting in the syndrome "wound shock" and death. The viscera and skin were removed, the muscle tissue was ground up, and the extract intravenously injected into rabbits' ears produced the same shock, falling temperature, visceral congestion, and death.

Other toxins than those formed from autolyzed tissue cells, such as diphtheria toxin, when injected into the mesenteric vessels did not give the same pathological picture as that produced in shock, or when pure peptones were injected.³⁰

My general conclusion has been that the phenomena of shock from all my previous experimental and clinical observations were shown to be due apparently to toxic proteoses formed by the digestion of injured tissues, that is, "shock toxins."³⁴ Natural immunity observed to a greater degree in some animals than in others led to methods of producing immunity against shock. Some suggestive observations were made of the antibody formation by injecting sublethal doses of homologous cellular muscle extract.³ We cannot consider shock as it occurs in this war without reference to the rôle of bacteria. It is claimed that "all war wounds contain germs from the first."

The relation of infection to shock is unique. The autolyzing tissue of a wound furnishes a rich soil for bacterial growth. Many microorganisms have no direct pathogenic properties,³⁵ but they increase the digestion (autolysis) of the devitalized tissue and a greater amount of toxic proteoses are formed aside from any toxin in the germ itself. *Bacillus coli communis*, though producing no extracellular toxin hastens autolysis of the injured tissue cells.³²⁻³³ Following this work on fetal liver cells added to a non-virulent culture of the *Bacillus coli* also *Bacillus welchii*, I later injected into animals fresh fetal cells incubated thirty minutes with non-virulent *B. coli* and it caused shock symptoms and death, while the animals injected with *B. coli communis* or the fresh fetal liver cells alone showed no marked symptoms, and the animals did not die.

EXPERIMENTS

Animal experimentation in shock is most valuable for an intelligent understanding of the treatment of battle wounds as they exist in this war. It enables one not only to produce practically parallel conditions but to establish a biological status which is most essential to a correct diagnosis of such wounds and the treatment to be employed. The following attempts to duplicate the conditions of "shell wounds," burns, and "shell shock," with or without ricochet, are valuable in the elaboration of the author's previous work.

In this series of experiments the shock symptoms, falling temperature, loss of reflexes, failing circulation and respiration, ending in death, are so manifest that they indicate sufficiently the true shock syndrome. The use of anesthetics was unnecessary when shock was established, because of the "stupor" due to the secondary effects of the poison which is usually absorbed from the wound tissue. Injected animals receiving the "shock poison" died promptly with or without an anesthetic.

Series I.—In the first series one or both legs of the animals were constricted with elastic ligatures to shut off the circulation. The thigh muscles were then bruised and the tissues mangled peripheral to the ligatures, thus liberating and disintegrating cells without hemorrhage. After variable periods, depending on the character and degree of the injury, cellular autolysis occurred. In the first group of experiments the free autolyzed tissue cells and their products were allowed to enter the circulation or tissues by releasing the constricting ligature. On releasing the ligature, but slight hemorrhage, due to the prolonged constriction, occurred. In some of the experiments the free substances evolved in the injured leg were massaged upward into the organism. This procedure caused shock symptoms promptly and severely, and in many cases almost dramatic in character, as evidenced by marked trembling, fall in blood pressure and temperature, rapidly failing circulation and respiration, and finally death.

Controls.—If the ligature was kept intact and absorption absolutely prevented no definite shock symptoms developed from the mangled tissue. Antiseptics and astringents were injected above or at the wound juncture above the ligature line; amputation of the bone was performed, with recovery.*

In another group in this same series the elastic ligature was not released, but portions of the muscle tissue were removed and weighed, the substance pressed out with a meat press, and injected intravenously into the same animal; or the tissue juices secured in situ from the leg, were diluted with salt solution or plain sterile water and injected into either the upper or lower veins of the same animal or one of the same species. The same shock syndrome developed here as in the series where the ligature was released and the products were massaged into the body circulation.

Series II.—Instead of injecting the autolyzed cells into an animal, the mangled muscle tissue from the thigh was inserted or transplanted into the

*There is a limit to this control, because of absorption at and above the ligature junction where autolysis takes place; and also no ligature can completely stop the diffusion of toxic products.

thigh (intramuscular) of another homologous animal, which invariably resulted in death from shock of the host (animal receiving the transplanted muscle). Amputation of the original denuded bone in the original animal was usually followed, with ordinary care, by recovery of the animal.

Series III.—In the third series of experiments fresh muscle taken from a normal animal was placed in an incubator or on ice under antibacterial conditions and allowed to autolyze. When autolysis was sufficiently advanced, as determined microscopically by the loss of nuclear staining, and also by the biuret reaction, the tissue was weighed, ground up in a mortar with plain sterile water or salt solution (the former being more effective), and the supernatant fluid was injected into an homologous animal.

Lethal doses caused immediate death within three minutes; with smaller doses the complete shock syndrome appeared in the classical order and death ensued in a few hours; with minimum dosage shock symptoms occurred but recovery took place.

Series I.

EXPERIMENT I.—*Cat No. 1* (Male). Weight, 4,300 gm.; time, 9.15 A.M.; temperature, 39.5° C.; temperature of room, 21° C.; anesthesia, ether.

9.30 A.M.—Temperature after etherization, 38.5° C. Animal placed on top of the radiator to keep warm. Esmarch pressure on internal iliacs and abdominal aorta to keep blood from lower extremities. Thigh and gluteal muscles bruised. Toe was cut to show that the blocking of the circulation was effectual.

10.15 A.M.—Temperature (esophageal and gastric), 36° C. (This change in method of taking temperature was made necessary by the cutting off of the circulation.)

11 A.M.—Temperature (intragastric), 35.5° C. 11.20 A.M.—Temperature (intragastric), 35° C.

Esmarch restriction released.—The bruised tissue was occasionally massaged to simulate condition brought about in transporting a shocked patient, thus increasing liability of bruised tissue substance getting into the circulation.

11.40 A.M.—Temperature (intragastric), 34° C. Anesthesia removed. 1.55 P.M.—Temperature (intragastric), 35° C.

Massage of lower limbs to carry products of disintegration into circulation. This was followed by the rapid failing symptoms of shock.

3 P.M.—Temperature, 32.5° C. Mucous membrane of the mouth pale and cold. Nose pale and cold. Ears cold.

4 P.M.—Temperature (intragastric), 32° C.; (rectal) 32° C. 5 P.M.—Temperature (rectal), 31.8° C. 6 P.M.—Temperature (rectal), 30° C.

Animal died. Abdomen opened. Hepatic lobules well marked. Congestion of the pyloric region. Lower small intestines and colon pale. Post-mortem examination showed the usual pathological findings of shock. (See Figs. 3 and 4.)

EXPERIMENT II.—*Rabbit No. 5.* Weight, 1,400 gm.; time, 9.15 A.M.; temperature, 40° C. before the anesthesia.

9.15 A.M.—(This animal had previously had injections of sheep cells.) Left leg tied off above the great trochanter as before. Legs mangled and bruised.

10.15 A.M.—Stopped anesthesia. Released the constriction and allowed the products to enter the blood. Animal became depressed, so that no anesthesia was necessary.

11 A.M.—Difficult shallow breathing; rapid heart; temperature, 35° C.

12.45 P.M.—Animal died.

Post-mortem examination showed the liver, pyloric end of the stomach, and small intestines congested. (See Figs. 5, 6, and 7.)

EXPERIMENT III.—*Rabbit No. 2.* (Female, pregnant.) Weight, 1,200 grams; time, 1.30 P.M.; temperature, 39° C.; no anesthesia.

1.30 P.M.—Injected 2½ c.c. of autolyzed rabbit meat substance into the ear vein. Before injection the rabbit was very active.

2 P.M.—Animal showed signs of apathy and shock. 2.30 P.M.—Eyes were dull, anemic; gums were pale. Rabbit took no interest in surroundings.

3.30 P.M.—Apathy so great that hind legs could be pulled back and they would remain in this position, although no paralysis was present. Respiration was shallow. Temperature began to fall as the anemic appearance of the gums became manifest. Eyes became dull. Reflexes diminished to touch. Great muscular debility and relaxation of the extremities. Pulse rapid and feeble. Greater insensibility to all forms of stimuli is manifest as shock symptoms continue. Sudden jarring of the animal arouses it and proves that it is not unconscious. As soon as left undisturbed it relapses into an indifferent attitude without any apparent interest in the surroundings. A normal rabbit placed beside the shocked animal demonstrates the marked differences in activity and behavior. By comparison a high degree of pallor of the mucous membrane of the mouth, conjunctivæ, and nostrils, which are blanched almost white, is observed. Pulse continues weak and rapid; breathing is difficult and labored. Ears are cold to the touch, as compared with those of the normal rabbit. Proximity of the normal rabbit creates no interest in the shocked animal; it rests in the usual indifference of shock. The animal does not respond to pinching, pricking, heat, or cold, except in a slight degree, moving to the side when the stimulation is excessive. Animal placed in cage. Refuses to drink water; remains in same position as placed. 9 P.M. rabbit died.

Record of Temperature, Rabbit No. 2.—1 P.M., before injection, 39.4°; 1.30 P.M., injection, 39°; 2 P.M., 38.5°; 2.30 P.M., 38°; 3 P.M., 37.5°; 4 P.M., 37°; 5 P.M., 37°; 5.30 P.M., 36°; 9 P.M., animal died, 34°.

Post-mortem findings: Stomach, pylorus, duodenum, and upper small intestines show usual congestion, liver markedly congested.

EXPERIMENT IV.—*Rabbit No. 3.* Weight, 1,500 gm.; time, 4.30 P.M.; temperature, 39.4° C. before anesthesia and injection; temperature of room, 17° C.

Procedure.—Opened abdomen of rabbit No. 3 under chloroform anesthesia. Examined liver and upper splanchnic area. Injected a drop of the autolyzed muscle substance from rabbit No. 1 into the liver. There was a slight turgescence reaction. Injection of 1 mm. of the same substance into the gastric vein, branch of the right epiploic vein. Shock symptoms soon developed, but gradually.

Observations.—Reaction was not sudden as in strict anaphylaxis, but soon the respiratory and cardiac symptoms of shock developed. The symptoms of true traumatic shock developed in the usual gradual, orderly manner. The splanchnic vessels became hyperemic, then turned to a purplish hue, with turgescence of the veins which became tortuous.

Anesthesia removed as soon as shock symptoms were established. Animal came out of anesthesia promptly, but shock symptoms soon supervened, as in animal No. 2 which had no anesthesia.

Vessels in the upper tract were more deeply congested than those in the lower. The gums, eyes, and nostrils all became pale as the ears turned cold. Muscular debility developed. Placing the animal under a bell jar to keep it warm, and also so that it would receive more carbon dioxide and less oxygen, did not prevent the progress of shock symptoms.

The viscera were covered and held by sutures in the abdominal wall arranged so that the abdomen could be opened at intervals for inspection. Although no anesthesia was in use at this time, the animal showed no signs of pain during these procedures. A condition of apathy developed and sensations were abolished.

Conclusion.—As the symptoms were not so explosive or violent in the whole course, it seems as if the autolyzed muscle has passed over into a less toxic moiety.

It seems evident that the introduction of 1 c.c. instead of 2½ c.c. produced a slower shock, less violent symptoms, but there was a steady progress of the symptoms which led to the same result. Finally, the respirations became more labored and the animal died after a few convulsive efforts to get air.

Temperature Record, Rabbit No. 3.—4.30 P.M., before

anesthesia and injection, 39.4° C.; 5 P.M., 38.2°; 5.30, 37.8°; 6 P.M., 36.2°; 6.30 P.M., 36°; 7 P.M., 35.8°; 8 P.M., 35.2°; 8.45 P.M., 34.1°; death of animal.

Post-mortem Findings.—See pathological description. Also note Figs. 18, 19, 20.

EXPERIMENT V.—*Rabbit No. 4.* Weight, 1,800 grams; time, 3.30 P.M.; rectal temperature, 39.5° C.; room temperature, 23° C.; anesthesia, chloroform continued with ether.

3.30 P.M.—Leg bandaged up to crotch and over the gluteal region, sufficiently tight to shut out all circulation from the entire leg, producing an ischemic condition of the tissues. Strong elastic Esmarch ligature above the neck of the femur and gluteal region. With strong, dull, flat forceps the tissues are crushed, mangled, and allowed to undergo autolysis in situ in the leg. Then the ligature is removed, the fur is removed, and the tissues are covered with a rubber bag.

Temperatures (rectal): 4.25 P.M., 39° C.; 5 P.M., 38.5° C.; 5.40 P.M., 37.5° C.

An extract was obtained of the mangled muscle tissue by the addition of salt solution, injecting 1 c.c. at 6 P.M. Anesthesia is removed.

The animal on emerging from the ether made some effort to jump, but soon lapsed into the usual nonchalance of shock symptoms. Reflexes more or less responsive to stimulants. Aroused by sudden approach.

Temperatures: 6.40 P.M., 36.2° C.; 7 P.M., 36° C.; 7.45 P.M., 35.8° C.; 8.20 P.M., 35.2° C.

Animal has been out of anesthesia two hours and forty-five minutes. There have been no pain symptoms. While it shows signs of activity when aroused, it readily lapses back into the shock symptoms. Ears are cold to the touch, there is blanching of the surface. Sudden turning off and on of the light causes sudden incoordinated struggles, followed by relapse into shock symptoms.

9.50 P.M.—Temperature, 35° C. Injected ½ c.c. of muscle products into the ear vein.

10.15 P.M.—Trembling marked over entire body; reflexes diminished; becomes more difficult to arouse the animal. Turning on and off of the light produces no effect.

10.45 P.M.—Injected 1½ c.c. into the ear vein.

11 P.M.—Animal now in profound shock.

12.15 P.M.—Incision made in abdominal wall for hasty inspection of liver and pyloric region before death. This region was found to be congested, while the lower portions of the intestinal tract were pale and bloodless.

12.30 P.M.—Animal died in profound shock, abdominal wound having been closed after above observation.

Post-mortem findings showed the usual splanchnic congestion.

EXPERIMENT VI.—*Cat No. 3.* Weight, 4,200 grams (large male); anesthesia, chloroform, continued with ether; time, 2.45 P.M.; rectal temperature, 40° C.; room temperature, 18° C.

Crushed the thigh and gluteal muscles with heavy pile forceps, without breaking skin or fascia, but with sufficient energy to excite leucocytes to wander into this area, with the idea of increasing muscle heterolysis by calling forth a greater amount of leucoprotease production before tying the leg with rubber ligature.

3.30 P.M.—Applied the elastic ligature and a cut of the sole of the foot showed all circulation was shut off by the ligature.

3.45 P.M.—Temperature, 35.5° C. Continuation of the crushing process, but not breaking the skin or fascia.

4 P.M.—Introduced instrument through small opening through the skin and mangled the muscle tissues under the fascia. *No bleeding.* Removed by excision 30 grams of the thigh muscle tissue. Put this in meat press and gently pressed out blood. Put tissue in press again under greater pressure to force out muscle plasma and products. This was to secure more of the autolyzed muscle substance than of blood serum, as the latter may interfere with the reaction.

4.30 P.M.—Injected 5 c.c. of this squeezed out muscle substance into the opposite femoral vein.

4.40 P.M.—Temperature, 33° C. The animal trembled, the heart was rapid and weak, and there was apparent fall of blood pressure with the fall in temperature. The head was kept low and the animal tipped up to keep the blood from filling the splanchnic area, as advised by

many clinicians. This did not prevent the failing symptoms, although it seemed to lessen the degree.

5 P.M.—Injected 2 c.c. of the extracted muscle fluid. Marked trembling followed promptly.

6 P.M.—Temperature, 32.2° C.

6.30 P.M.—Injected 2 c.c. of the extracted muscle fluid.

6.50 P.M.—Temperature, 31.2° C.

7 P.M.—Opened abdomen to inspect with lens the upper splanchnic area. The congestion observed in this area (liver, stomach, and duodenum) was fairly well marked, but in the lower splanchnic area there was pallor with the usual appearance seen in shock. Abdomen kept closed except for a moment of inspection.

7.45 P.M.—Animal died.

Post-mortem examination revealed the pathological findings of shock as shown in the illustrations.

Series II.

EXPERIMENT VII.—*Cat (Black; male).* Weight, 2,523 grams; temperature, 40° C. (rectal).

First Twenty-four Hour Period.—9 P.M.—Under anesthesia, upper and inner sides of the left leg were shaved. Under strictly antiseptic conditions ground muscle tissue taken from mangled leg of a cat which had been in complete shock was inserted or transplanted in between the muscle substance of the leg. With the blunt end of the knife and forceps the muscles of the leg were separated, avoiding laceration or hemorrhage, and 40 grams of ground muscle tissue was packed in its leg. The incision in the leg was then sutured. Cat out of anesthesia 9.30 P.M.

9.35 P.M., temperature (rectal), 38°; 10.15 P.M., 37°; 11.15 P.M., 37°

Shock symptoms approached gradually with the usual inactivity and weakness.

Following morning the rectal temperature at 5 A.M. was 36.5° C.; 9 A.M., 36.5°; 12 A.M., 36°; 12 P.M., 35°.

Animal very weak. Chronic shock symptoms, apathy sensations, and reflexes nearly abolished with great disability. Heart beats weak, respirations shallow, general pallor and coldness.

Second Twenty-four Hour Period.—8 A.M., temperature, 34.5°; 6.30 P.M., 34°. Shock symptoms complete. 8 P.M., animal died.

Post-mortem Examination.—Liver, stomach, upper part of small intestines show the usual shock picture of congestion and edema, with pallor of the lower splanchnic area. See histological findings, Figs. 9, 10, 11, 12, and 13.

Experimental Shock Produced by Burns.

EXPERIMENT VIII.—*Rabbit No. 1.* Burned over the back (under anesthesia). The burned area was removed and grafted on the back of rabbit No. 2. The normal skin removed from rabbit No. 2 was transplanted on the back of rabbit No. 1 in the burned area where the burned skin had been removed. *Result:* Shock symptoms developed in rabbit No. 2, receiving the burned skin transplant, and died in sixty-eight hours after presenting the symptoms and pathology of shock. The original rabbit No. 1, receiving the burn, recovered with but slight shock symptoms.

Ten grams of the burned skin was ground up, to which was added 10 c.c. sterile water, placed in incubator with antiseptic to inhibit bacterial growth. Eight c.c. of this burned skin emulsion was injected into rabbit No. 3. The shock was immediate, with staring coat, nystagnus, respiratory and circulatory failure. Death occurred in five hours.

EXPERIMENT IX.—*Cat No. 1.* Burned along the back spinal region. Light burn. Skin dissected transplanted to cat No. 2. The symptoms did not occur for four days. Absorption was delayed. Post-mortem examination revealed the usual findings of shock.

Injection of 2 c.c. of a 1 to 10 autolyzed emulsion of skin into cat No. 3 caused immediate shock symptoms, staring coat, nystagnus, contracted pupil, followed by great apathy; finally recovered.

In all the burned skin experiments it was clearly evident that the degree of shock depended upon the degree of burn and the extent of the skin trans-

plant. It was also found that the degree of shock was directly proportional to the dosage of the autolyzed cells.

Shell Shock Experiments.

EXPERIMENT X.—8.15 A.M. Guinea-pig 1 was

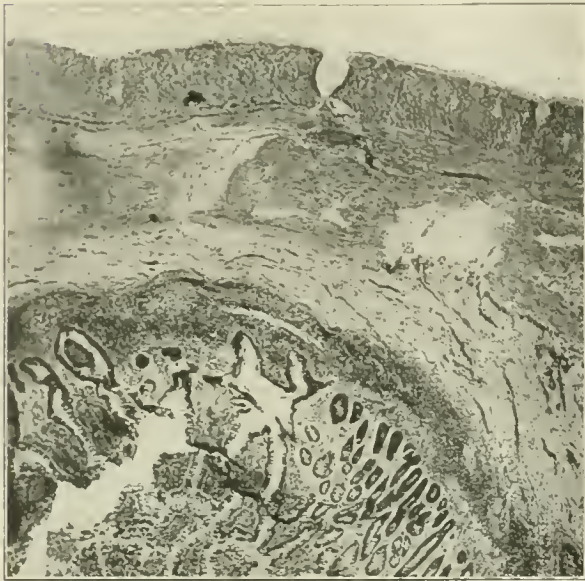


FIG. 1.—Low Power. Near pylorus; venous stasis in the submucous tissues, showing venules entirely empty, the plasma and corpuscles having diffused out into the perivascular tissues.

wrapped in a small cloth bag, bound to a small stand, and placed close to a centrifuge revolving 10,000 revolutions per minute. The projecting arm was to imitate a passing shell without touching the animal. Time in the chamber was thirty seconds.

Animal showed marked effect at once, observed for ten minutes, and replaced in the centrifuge chamber another thirty seconds. Removed the animal and found

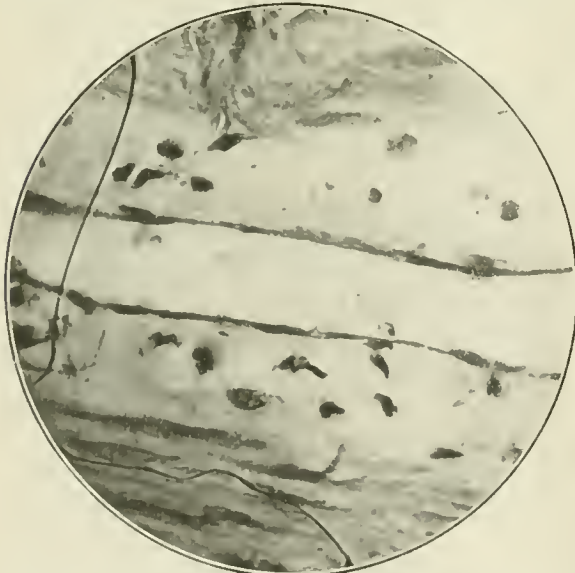


FIG. 2.—High Power. The plasma is shown diffused into the perivascular tissue, pushing it away from the vessel; the blood cells have extravasated and some of the corpuscles can be seen in the act of passing through the wall.

that, although blindfolded, it suffered high degree of shock symptoms; eyes dull, fur staring.

8.45 A.M.—Temperature, 35° C.

8.50 A.M.—Trembling was extreme.

1.05 P.M.—Temperature 36° C.

3.45 P.M.—Animal was in crazed condition, watched under a glass bell jar, began to eat feces, and chewed frantically at steel forceps under the jar.

Post-mortem 6 P.M.—Upper part of the intestines and stomach were markedly congested with hemorrhages. Liver showed extensive small hemorrhage areas. Kid-



FIG. 3.—Cat 1. From the pylorus; submucous venous congestion showing corpuscular agglutination.

ney and spleen were also hemorrhagic. Brain and spinal cord findings were practically negative, except that the membranes were congested. Medulla normal. Heart normal. Calculations of the area of the small hemorrhages evident throughout the body showed that it represented a greater degree of trauma than that produced by the thigh muscle injuries in the other experiments.

EXPERIMENT XI.—Guinea-Pig 2. Weight, 775 grams. Placed in centrifugal chamber thirty seconds. Repeated after five minutes. Fall in temperature as in previous experiments, with gradual recovery.

Ten days after the experimental "shell shock":



FIG. 4.—Cat 1. "Clumping" in the portal veins and marked distention of the intercellular portal capillaries; the periportal changes in the parenchyma are well marked.

Weight, 649 grams. Loss of weight, 120 grams. Kept under same food as before and with other animals. Coat rough and dull. Animal dull and listless, as compared with other animals.

Fifteen days after first "shell shock": Weight, 620

grams. Total loss, 155 grams. Continued on same food as before. Animal again placed in centrifuge thirty seconds. Animal in deep shock.

Post-mortem.—General findings of ordinary traumatic shock. Brain and spinal cord negative. (Fig.

the four important detoxicating and eliminating organs—liver, stomach, upper intestines, and lungs, show the brunt of the reaction. The kidney shows the later manifestations.

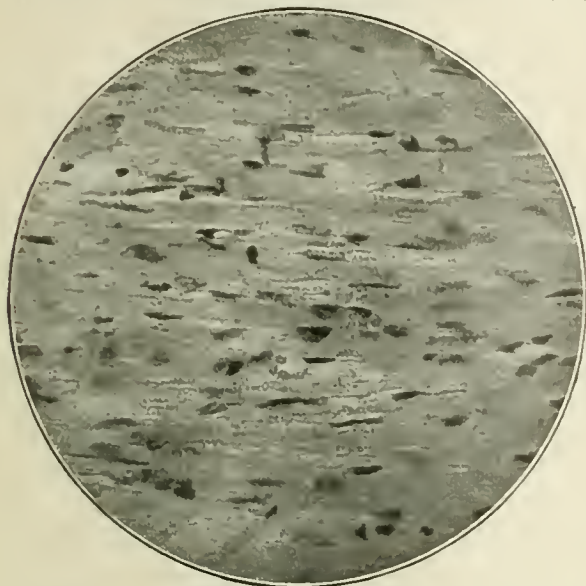


FIG. 5.—Rabbit 5. Autolyzing muscle tissue taken from the wounded area in the leg.

27.) Animal pregnant. Small embryo shows similar viscereal hemolysis, but brain and spinal cord are intact. (See Fig. 28.)

EXPERIMENT XII.—Guinea-pig No. 3. Weight, 760 grams. Shock in centrifuge. In chamber thirty seconds. Followed by usual shock symptoms, with fall in temperature.

Following day, weight 722 grams, and thereafter there was a gradual loss in weight.

For "shell shock" histological findings, see Figs. 24, 25, 26, 27, and 28.

These experiments are illustrations of hundreds of like experiments observed by the writer and are

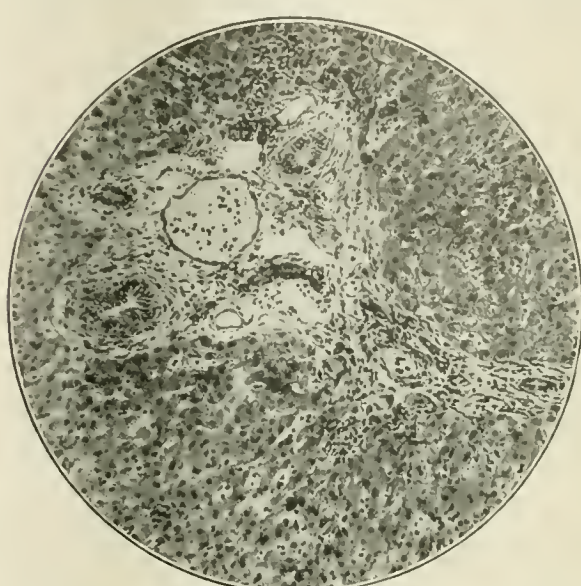


FIG. 7.—Rabbit 5. Liver; portal congestion and extravasation of blood and plasma. Periportal area shows autolytic changes.

When the reaction takes place as an acute condition it is seen to be vascular in character; later and in its more delayed condition the cellular elements take a decidedly primary part in the reaction termed shock.

In the liver we see the first changes in the vessels. In the stomach and intestines the first area involved is the submucous tissue, the "zona transformans." The endothelial lining of the pulmonary artery shows an early reaction. The cells that take part and seem involved at once are the endothe-

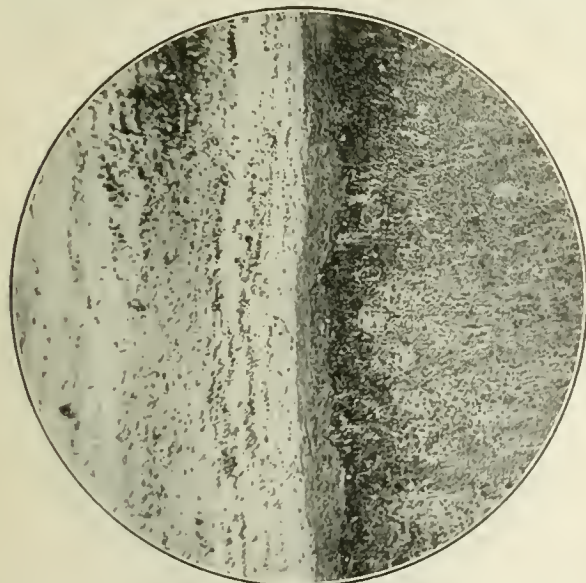


FIG. 6.—Rabbit 5. Section of stomach; blood escaping from vessels, passing with the serum into the surrounding submucous tissue.

to be interpreted by drawing a strict distinction between the primary conditions of shock and the secondary effects which follow. In all the experiments it is repeatedly seen, in both acute and immediate shock as well as in the more delayed process, that

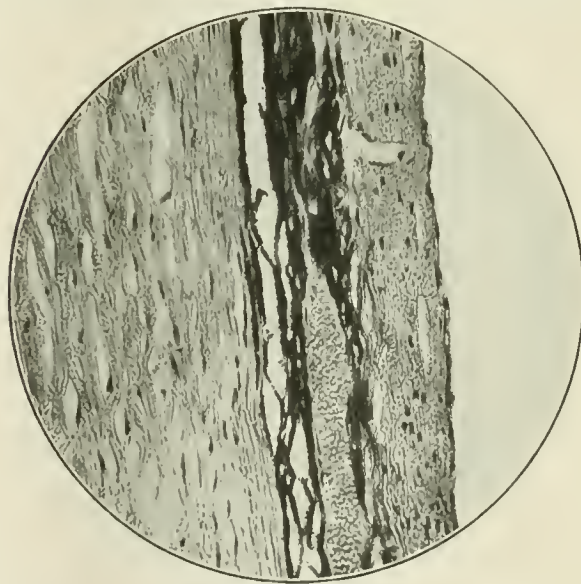


FIG. 8.—Retina.

lial cells of the small vessels; later the parenchyma of the organ is involved.

The injured tissue soon seems to undergo autolysis and absorption products form; these are carried into the system and must be disposed of. The elimi-

nating and detoxicating organs are the stomach and upper intestines, the liver, lungs, etc., in which the reaction which takes place is first seen.

The injuries in "shell shock" and those caused by

died from acute shock, immediate post-mortem examination and fixation of the tissues showed the final results, comparing well with the progress of shock as studied in various stages.



FIG. 9.—Cat 5. Stomach, pylorus: submucous tissue (zona transformans), showing marked venous engorgement with extravasated cells.

sudden positive and negative pressure are molecular in character and this causes the colloidal dispersion of the cells and fluids similar to what is obtained by the action of a toxin.

There is no evidence that the nervous system plays a role in shock. Whatever manifestations are there apparent are secondary.

General Pathology of Shock.—Many of the specimens shown in the accompanying illustrations were obtained from the tissues before death, before any change had occurred except the primary phenomena



FIG. 11.—Cat 5. Lung: blood "clumped" in the vessels with peripulmonary arterial congestion.

The specimens shown in Figs. 1 and 2 were taken from an animal before death and placed in a fixing agent, and although this experimental work was done in 1893, it is so characteristic of shock, that the specimen is again shown with both high and low power. This was taken from a series of experiments which were published, and in which the author concluded that the shock was due to a toxin of the nature of "self-formed peptone."

Since that time the experiments have been continued and indicate that whatever form of injury induces shock, the result is the same. This is not



FIG. 10.—Cat 5. Liver—portal zone; active venous stasis with periportal extravasation.

of shock. Small sections were immediately fixed in formalin or Zenker's solution; other fixing agents were used for special stains. For general purposes hematoxylin and eosin were used. Where the animal

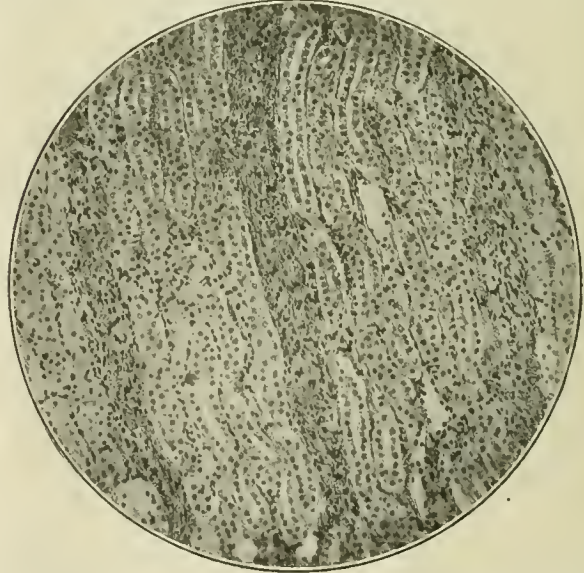


FIG. 12.—Cat 5. Kidney, low power; straight tubular venous stasis with "clumping" of the corpuscles.

surprising when we consider the colloidal character of the tissue, which follows the laws governing all colloids. The living tissue is the arena of colloidal catalysis and adsorption phenomena.

An apparently small exciting condition may precipitate the entire colloidal system. This T. Graham first showed in 1861.^{13a}

The colloidal dispersion changes in shock are in-

disaster has brought about all the changes in general pathology and we must include also the special pathological changes found in shock.

The "shell shock" animals show most interesting



FIG. 13.—Cat 5. Kidney, high power; glomerular region, showing hemorrhagic areas with agglutination of the sera and corpuscles.

indicated in every phase. First the injury, when peptization occurs soon after the lesion, the products of which are carried by vascular and diffusion routes into the organism, where the "mutual precipitation of two oppositely charged colloids" results in the fulminating reaction we call shock.

All the variations in viscosity have already been noted by many experimental observers in the study of shock, though rarely so interpreting their findings.

When the intense reaction is seen in the splan-



FIG. 14.—Cat 6. Stomach, pylorus; congestion of the submucous tissue (zona transformans).

nic area in acute shock, and also the emptied vessels with edema of the tissues, the falling temperature, blood pressure, and final bankruptcy of metabolism, we must conclude that a profound colloidal

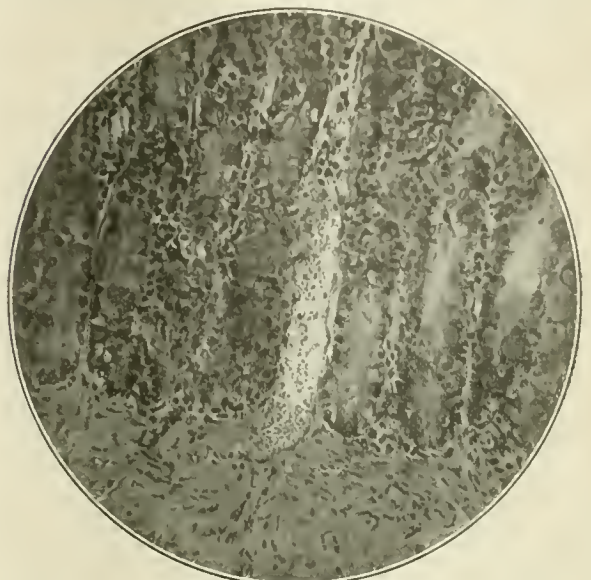


FIG. 15.—Cat 6. Duodenum congestion descending from the submucous tissue into the mucosa.

colloidal disturbances brought about by the positive-negative air pressure, accomplished by placing the animal one inch away from a single arm projecting from a centrifuge at high speed (revolutions 12,000 to 15,000 per minute).

All the viscera except the brain and spinal cord show marked congestion and hemorrhages. The embryo is not spared in this action except the brain and spinal cord which seem well protected against "air pressure," blows with an instrument, or other like physical injuries. Rabbit 3, Experiment No. 4, also shows the fulminating acute reaction caused by

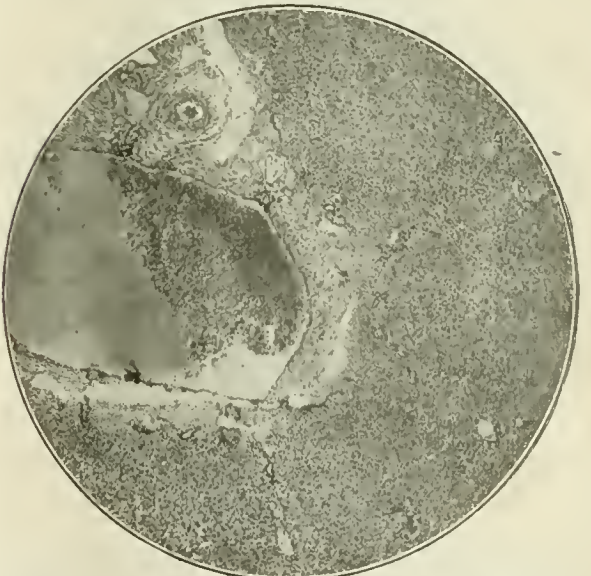


FIG. 16.—Liver; characteristic deformation in portal veins with the usual periportal changes.

injecting the "shock toxin" (autolyzed injured muscle emulsion) into the mesenteric vessels—intense gastric and duodenal submucosal congestion and hemorrhage. (Figs. 18 and 19; marked portal re-

action noted in Fig. 20). The value of this experiment is that the tissue was taken and fixed while the phenomenon was observed *intra vitam*.

Rabbit 6 shows the effects of immunizing doses

the body, except the brain and spinal cord. Skeletal muscles also escape to a great extent.

Hemorrhagic areas may appear in the membrane of the brain and spinal cord as a secondary phe-



FIG. 17.—Cat 6. Brain; shows no congestion and the cells appear normal, as is always the case in primary shock.

of the autolyzed muscle tissue. Two sublethal doses were intravenously injected and after the second dose the animal was opened and tissue removed for histological study. The liver, Fig. 23, shows the reaction similar to that found in fatal shock, though less severe in the degree of the portal and periportal reaction. The venous stasis in the submucosa of the pyloric region (zona transformans) gives the same picture of primary reaction as in fatal shock. When immunity is well established



FIG. 19.—Rabbit 3. Duodenum; submucous congestion.

nomenon. The aggregate lesions in these "shell shock" animals throughout the body amount to more "wound injury" than may occur from a lacerated wound of the thigh. In Figs. 24 to 28 the character and extent of the injuries are well shown. The same autolysis from these smaller multiple wounds seems to account for the chronic character of the symptom often observed in these experimental animals. They show also a gradual loss in weight up to the time of death, which varies according to the degree of injury and other factors.

Special Pathology.—In experiment Rabbit 5, Fig.



FIG. 18.—Rabbit 3. Stomach; high power; intense congestion and hemorrhage; the "acute" colloidal reaction is shown in the fulminating result of mesenteric injection of the "shock toxin" in producing its first effect in the zona transformans extending into the mucosa.

these reactions do not appear except in a very slight degree.

The experimental shell shock animals show a wide extent of diffused hemorrhagic areas throughout



FIG. 20. Rabbit 3. Liver; shows the portal and periportal reaction of acute shock.

5, is shown some autolyzing muscle tissue in the early stage of autolysis, plasmolysis, and nuclear changes, fading out stain reactions (hematoxylin and eosin).

The effect of absorption of the autolyzed muscle is shown in Fig. 6 by the extensive hemorrhagic congestion in the submucous tissue of the stomach wall (zona transformans).

zone; hemorrhagic congestion of kidney is shown in Figs. 12 and 13—low and high power.

In Cat 6 (experiment in acute shock), injection into the jugular vein of autolyzed muscle tissue

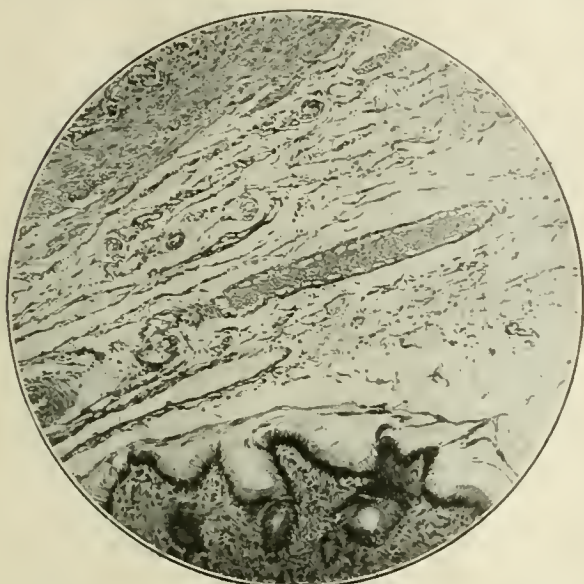


FIG. 21.—Rabbit 6. Shortly after the second intravenous immunizing dose of "shock toxin," pylorus submucosa shows the venous shock reaction as a "zona transformans colloidal reaction."

Fig. 7 shows the portal congestion of the liver which indicates active reaction.

Absorption reaction of shock is well shown in experiment No. 1, Cat 1, Fig. 3, pyloric submucosal congestion (zona transformans), and Fig. 4, active portal congestion of the liver.

In experiment 5, the mucous tissue from a flesh wound of a cat in shock was inlaid or transplanted



FIG. 23.—Rabbit 6. Liver; the portal zone reaction of shock phenomena and "clumping" well marked.

from an homologous animal in shock, caused death within three minutes.

In the stomach, Fig. 14, and duodenum, Fig. 15, the classical pathological picture of shock with marked congestion in all "detoxicating zones," of the viscera is well shown in the microphotographs. The brain, Fig. 17, is normal as is also shown in a more prolonged shock status.

Fig. 29 represents diagrammatically the phenomena leading up to and associated with shock.



FIG. 22.—Rabbit 6. Intestine; mild shock reaction, no marked extravasation.

into the leg of Cat 5. The absorption from this caused death from shock.

Fig. 9 shows stomach submucosal congestion. Fig. 10 portal congestion of the liver. Fig. 11 intense lung congestion in the pulmonary arterial



FIG. 24.—Guinea Pig 10. Shell shock experiments; submucous congestion.

Treatment.—Shocks produced by wounds, burns, exposure, handling of the viscera, artificial "shell shock," etc., all seem to result in one and the same condition, namely, rapid autolysis of the injured

cells, the products of such autolysis causing the classical syndrome of shock and death.

Repeated small injections of these autolyzed tissue cells or of their products result in such a high

writer has previously published experiments showing that the production of immunity to shock may be facilitated by the application of heat which influences the circulation in the splanchnic area. The



FIG. 25.—Guinea Pig 10 (shell shock). Liver; congesting portal veins with hemorrhagic streaks radiating from the portal zone.

degree of immunity that one hundred times the fatal dose can be injected without producing symptoms. Furthermore it has been shown that immunized animals are refractory to the usual procedures that induce shock.

Still another interesting fact revealed is that in immunized animals wounds heal more readily and seem less susceptible to infection.

These observations naturally lead up to the question of the possibility of the production of immunity



FIG. 27.—Guinea Pig 10 (Shell shock). Brain; shows no congestion and cells appear normal, as is seen throughout the nervous system in primary shock.

application of heat to be effective must be made as promptly as possible after an accident likely to produce shock and must be continuous. The attachment of an electrical heating device with a small storage battery to each stretcher on the battlefield would prove to be a practical and life-saving measure.

In 1896¹¹ the author showed the analogy of pro-

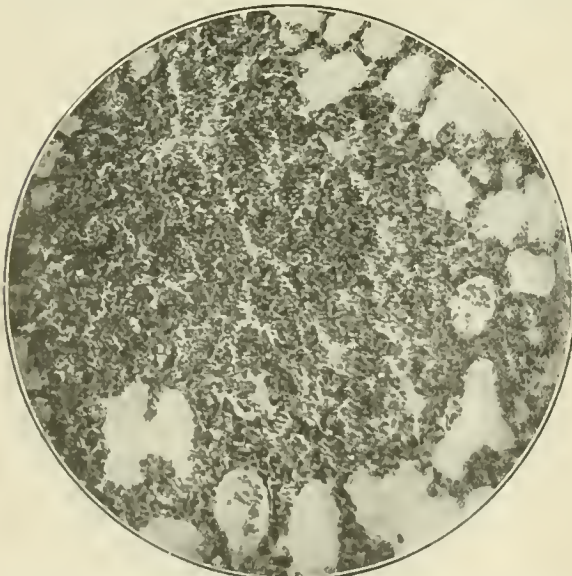


FIG. 26.—Guinea Pig 10 (Shell shock). Lung; marked hemorrhage; congestion; the mechanical action of positive-negative air pressure on the body sometimes has more effect in the lung than any other viscera.

to shock in the human. Experiments bearing on this point have been conducted and will be presented in the near future.

In the meantime it may be recalled that the



FIG. 28.—Guinea Pig 10 (Shell shock). Embryo; section through body from Guinea Pig 10 in "experimental shell shock" shows marked congestion with small hemorrhages throughout all the visceral area except the brain and spinal cord; the cord is well shown without congestion or hemorrhages either in the membranes or tissue.

teous intoxication and shock symptoms and that these were akin to snake poisoning.¹² In the case of snake poisoning the most effectual method of treatment is to tie up the leg or poisoned area, and re-

move the tissue; later injections and other methods of producing immunity are to be used. In the treatment of wound shock we may carry out the analogy. This may be done by the prompt application of

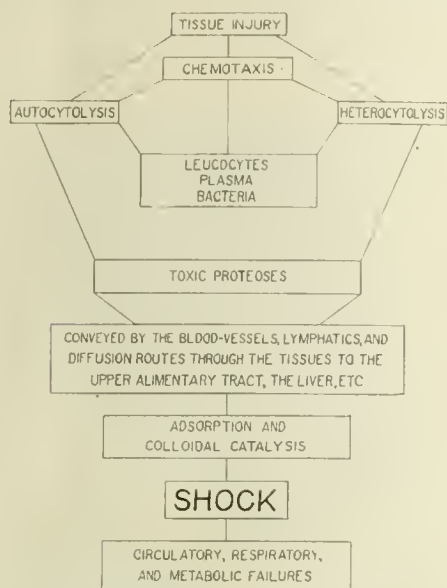


FIG. 29.—Graphic summary of the phenomena of shock.

strong antiseptic and astringents (such as formalin 15 per cent. and bichromate of potassium) to stop the absorption of the toxins and prevent bacterial growth,* and the administration of non-toxic and antiautolytic substances according to the indications. The prophylactic measures of the elastic ligature and of removing all autolyzing tissue that endangers the victim (débridement), are generally acknowledged to be the first indication in wound treatment. A full report on methods of treatment will soon be published with the experiments and findings in the production of immunity.

REFERENCES.

1. Quenu: "Shock in the Wounded," *Presse Médicale*, Feb. 7, 1918, 26, No. 8, p. 69.
2. P. Santy: *Lyon Chirurgial*, 1917, XV, 5.
3. Senn: *Practice of Surgery*, 1901, pp. 28-33.
4. Col. Gray (Aberdeen, Scot.): "Surgical Clearing Station, etc.," *N. Y. Med. Jour.*, Feb. 9, 1918, Vol. CVII, No. 6, pp. 264-66.
5. Capt. Frazer and Capt. Cowell: "Clinical Study of Blood Pressure in Wound Conditions," *Jour. A. M. A.*, Vol. 70, No. 8, Feb. 23, 1918.
6. Burger and Vigness: "Shock," *Progrès Médical*, Paris, Feb. 9, 1918, 33, No. 6.
7. Archibald McLean: "Observations with Particular Reference to the Conditions as Seen in War Surgery," *Annals of Surgery*, Sept., 1917, Vol. LXVI, No. 3.
8. Bernard of French Army: Lectures, "Present Methods in Military Surgery." Reported by C. O. Shirley, *Jour. Ark. Med. Soc.*, 1917, XV, 140. Abst. *Surg., Gynec. and Obs.*, April 19, p. 364.
- *The writer devised a spray method of fixing the tissues with various fixing agents, not only to stop necrosis and cellular exfoliation but thereby also to render the soil so unfavorable that germs would not grow when the fixing agents had been applied. (*Wiener med. Wochenschrift*, Nos. 1 and 2, 1895.) Formalin, methylene blue, chromic acid, bichromate of potassium, chloroform, etc., were used. The best fixing mixture the writer found was aluminum chloride, 1; bichromate of potassium, 2; formalin, 15; acetic acid, 20; alcohol, 35; water, 30. This acts instantly as an embalming fluid and stops autolysis and bacterial growth. The fixed tissue may be removed later and primary union obtained.
9. Edw. Johnstone: "Over the Top to the C. C. S.," *Military Surgeon*, Dec., 1917.
10. Hinds: "Medico Military Notes," *Military Surgeon*, Feb., 1918, p. 170.
11. Bauer: *Wiener med. Woch.*, Nov. 10 and 17, 1917. Abst. *MEDICAL RECORD*, Feb. 2 and 9, 1918. See also Wolfsohn, *Lancet*, London, Feb. 2, 1918, p. 177.
12. M. Jacoby: *Zeitschr. f. physiolog. Chem.*, 30, 149, 174, 1900.
13. The Committee on Physiology of the National Research Council and Special Investigating Committee on Shock and Allied Conditions in England. The Interallies Surgical Conference. No. 1, *Archives de Méd. et de Pharmacie, Militaire*, Paris, July, Aug., and Sept., 69, Nos. 1, 2, and 3. Also *Jour. A. M. A.*, Feb. 23 and March 2, 1918.
- 13a. T. Graham: "Philosophical Transactions," London, 1861, pp. 183 and 373.
- Author's Literature on Shock and Related Subjects.
14. Turck: "Surgical Shock," *Jour. A. M. A.*, 1897, p. 1160.
15. Turck: "Experiments and Technique of a New Hydrotherapeutic Method," *Louisville Jour. of Surgery*, July, 1898.
16. Turck: "Toxins of the Stomach," *N. Y. Medical Jour.*, Feb. 22, 1896.
17. Turck: "New Double Tube with Stomach Bag; Methods of Internal Treatment with Hot-Water Bag Introduced into the Stomach," *Jour. A. M. A.*, Jan. 11, 1896.
18. Turck: "Experimental and Clinical Observations of Erosions of the Stomach," *Ft. Wayne Med. Jour.-Mag.*, Jan., 1897.
19. Turck: "Experimental Gastritis," *N. Y. Med. Jour.*, Oct. 25, 1902.
20. Turck: "An Experimental Study of the Splanchnic Circulation and Its Relations to the Stomach and Intestines," *Trans. Amer. Gastro-Ent. Assoc.*, May, 1909. *Amer. Therapist.*, Nov., 1900.
21. Turck: "Treatment of the Abdominal Viscera Through the Colon," *Jour. A. M. A.*, Oct. 7, 1899.
22. Turck: "Further Observations on the Treatment of the Abdominal Viscera Through the Colon," *Jour. A. M. A.*, May 5, 1900.
23. Turck: "The Care of Patients During Surgical Operations; with Some Methods of Preventing Shock and Infection," *Int. Med. Cong.*, Paris, 1900. *MEDICAL RECORD*, Aug. 11, 1900.
24. Turck: *Wiener med. Woch.*, Nos. 48 to 51, 1901.
25. Turck: "Shock in Abdominal Operations," *Phila. Med. Jour.*, March 30, 1901.
26. Turck: *Proc. Pan American Congress*, Havana, Cuba, Feb., 1901, pp. 2, 3, 4, and 5.
27. Turck: "Improved Methods and Details in the Care of Patients During Surgical Operations," *Jour. A. M. A.*, June 9, 1900.
28. Turck: "The Immediate and Remote Causes of Death in Operations on the Stomach; Treatment Before, During, and After Operation," *Chicago Medical Recorder*, June, 1902.
29. Turck: "Shock Produced by General Anesthesia with Relation to Disturbances of the Blood and Gastro-Intestinal Tract," *Jour. A. M. A.*, May 2, 1903.
30. Turck: "The Effect of the Injection of Gastric Contents into Animals (Effects Shown in the Periportal Circulation—Comparisons Made with Diphtheria Toxins). *Trans. Chicago Patho. Soc.*, 1903, pp. 263-4. April 13, 1903, Vol. V, No. 13. Also *Bull. Med. & Chir. Faculty Maryland*, Dec., 1916, Vol. IX, No. 6, p. 89.
31. Turck: "A Study of Fatigue in Gastric Muscle," *Proc. Am. Gastro-Enterolog. Assn.*, Washington, D. C., May, 1903. *The Medical Standard*, Chicago, Dec., 1903.
32. Turck: "Combining Cells with Cultures of B. Coli Incubated Thirty Minutes Increases Cell Autolysis; Injected into Animals Produces Prompt Shock and Death." *Proceedings Am. Gastro-Enterological Soc.*, 1914. Also "Intestinal Venous Stasis, Diffusion of Bacteria and Other Colloids," *Boston Med. and Surg. Jour.*, 1917.
33. Turck: *Zeit. f. Exp. Pathol. u. Therp.*, Bd. 7, 1910.

BROKEN NOSES, THEIR PATHOLOGY AND TREATMENT.

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IN view of the importance of the nose, from both a cosmetic and functional point of view, one would

disregarded the laws of mechanics. The mistakes were made at the time of the injury, the very time when the application of the correct mechanical principles could have secured the best results; in many cases perfect results, for it is possible by the use of a properly constructed mechanical appliance to bring the fractured and displaced parts back into



FIG. 1.—Before operation.



FIG. 3.—After operation.

think that the treatment of traumatic injuries of this organ would long since have been standardized, and placed upon a scientific basis; but such is not

their normal position and hold them there until union has occurred.

The nose is an equilateral arch, and must be re-



FIG. 2.—Before operation.



FIG. 4.—After operation.

the case. Sufficient evidence to support this criticism is presented by the great numbers of deformed and obstructed noses that come under our observation, due, the majority of them, to the application at the time of the injury of treatment that totally

garded as such from the architectural, mechanical, and surgical point of view. This arch must be considered as being made up of an indefinite number of segments assembled in a curved line in such a manner as to retain their position when the struc-

ture is supported extraneously only at its two extremities. The thrust of an arch is the pressure which it exerts outward, and this pressure is usually collected, so far as it exists as an active force, at a point about one-third of the height of the rise of the arch. In the nasal arch this point is not far from the suture between the nasal bones and the nasal processes of the superior maxillæ. When a heavy blow falls upon the nasal bridge these are the points which must bear the brunt of the force, and consequently where the breaking of the arch occurs. On account of the resiliency of the soft tissues and the swelling which follows the injury, the damage to the arch at these points may not be noticeable, but we may be sure that it is there if the blow has been sufficient to fracture the nose. We may also be reasonably certain that if the parts of the arch are not brought into their proper position before the healing has occurred, and cicatricial contraction has still further displaced the fragments, there will result an irregularly deformed nose with a flattened bridge, and, what is still more important, more or less complete obstruction to nasal breathing, due to the crumpling up of the septum and the depression of the bridge. The septum as a vertical support cannot be considered necessary to the maintenance of the integrity of the nasal arch, though it does strengthen it, and no doubt does, in many instances, limit the damage done by the traumatism. The importance, however, of the upper edge of the cartilaginous septum, where it fits in between the two lateral cartilages and forms the keystone of the arch, cannot be overestimated. I have referred to this on several occasions, and have demonstrated a number of cases of depressed nasal deformity due to the dislodgement of this important segment of the arch by operators who used tugging instruments for the removal of the cartilaginous septum in doing the submucous operation. Deformities resulting from this accident can be corrected only by the transplantation of bone or cartilage from some other part of the body to take the place of the segment destroyed. The destruction of this segment in septal abscesses and when infection occurs after the submucous operation always results in a flattened nose. In doing the submucous operation I have always advocated the use of a punch-forceps in removing the septum, for I believe that this instrument safeguards the position of the septal segment of the arch better than any other. I am still using, with great satisfaction, my original punch-forceps—the first forceps devised for this purpose—and I have not yet had one of my submucous operative cases subsequently develop a deformity.

All fractures of the nose are compound, the communication with the air being through the mucous membrane, though the skin is frequently torn through as well. In the latter case, especially, great care should be exercised to prevent infection. If this can be accomplished we may be sure that practically all of the bones and mutilated soft parts will be saved, for on account of the great vascularity and wonderful resistance to infection, especially to the bacteria usually found in the nose, compound fractures are seldom attended by the serious consequences which sometimes follow similar injuries in other parts of the body.

In order to reconstruct an arch which has been destroyed either by the fracture or the dislocation of some of its segments, the logical and practical expedient is to apply force in a direction diametrically opposed to that of the force which caused the injury. This is exactly what is done when the bridge splint, an instrument which I devised several years ago, is properly applied. If the fracture is a recent one, or if the patient is not seen immediately after the injury and the swelling has subsided, the segments of the arch can usually be brought into normal alignment by the application of the instrument alone. Sometimes, however, where there has been unusual displacement, or where blood clots have begun to organize between the fragments, the Adams forceps should be used to adjust the fragments before applying the instrument.

The literal, unmodified application of the principles of the arch to fractures of the nose can be made only in the case of recent fractures, for in the case of old, traumatic deformities the scar-tissue present, which is always considerable, has thoroughly bound together the broken fragments in their false position, and by its contraction has increased the deformity. In addition to this the cartilaginous septum is usually so thick and massive that nasal respiration is greatly impeded, or it may be completely obstructed on one or both sides. I have seen the septum split into two distinct layers of cartilage. As a rule, however, the thick septum in these cases is due to a crumpling up of the cartilage. Between the broken fragments dense bands of connective tissue pass through from side to side, binding together the two layers of the mucous membrane. In the case of such a septum as this, of course, the cartilaginous bridge of the nose is held down by the septum, and cannot be raised until liberated from this anchorage. Formerly I have advised making a diagonal incision through the septum from the floor of one nostril to the roof of the opposite nostril, thus permitting the bridge to be raised, the upper and lower halves of the septum sliding by each other to a certain extent. When the bridge was raised the septum was thus lengthened without leaving a perforation. Cases in which I have done this operation have not held up as well as I expected, nor was the relief from the nasal obstruction sufficient. I have therefore abandoned this procedure, and instead now perform a submucous operation, leaving a fair amount of cartilage along the upper margin of the septum to reinforce the bridge, which I construct by transplanting bone after the recovery of the patient from the submucous operation and the bridge-splint operation, which are done at one sitting. In applying the bridge splint in these cases it is absolutely necessary to mobilize completely the broken parts of the nasal arch, and in addition to this to remove all of the scar tissue that is accessible and utilize the nasal processes of the superior maxillæ, which are chiseled off from their attachment by means of a special chisel applied from within the nose. The dorsum of the nose is then easily raised to a normal position by means of the bridge splint, which holds it in position for about two weeks. At the end of this time the nose has apparently been perfectly restored, and it has been, but not permanently, as experience has now shown me. The contraction

of the large amount of scar tissue, which is invariably present in such a nose, depresses the bridge, and within a few months the deformity is as bad as ever. I now prevent the return of the original deformity by transplanting bone and cartilage from the rib immediately after the patient has recovered from the bridge splint and submucous operation. The splendid restoration of the nose effected by the bridge splint is thus made permanent by the support of the transplanted bone.

The results I have secured by this combined, two-stage operation have been excellent, and I am quite sure that they are permanent, as a sufficient time has elapsed to show. All of the work is done from within the nose and no operative scar results.

An extensive experience in this work convinces me that the rib is best suited for transplantation into the nose. In those cases where there is also a drooping of the tip, and it is necessary to extend the supporting transplant nearly to the end of the nose, I take my transplant from the rib where it joins the costal cartilage; the upper two-thirds is composed of bone and the lower third of cartilage. The normal structure of the nasal bridge is thus restored and the flexibility of the tip is unimpaired.

I have cases of over ten years' standing, and the results remain as good as they were at the time of operation. The transplant I always anchor securely to the frontal bone, with which it soon forms an osteogenetic connection. If this connection is properly effected the transplant is not absorbed, but it lives and grows, its growth being limited by the functional demands of the part.

The procedures here advocated for the treatment of traumatic nasal deformities and obstructions have been thoroughly tested by me in a large number of cases; there have been no serious accidents and the patients have been relieved. I regard the method as safe and efficient and the results secured as permanent.

69 WEST FIFTIETH STREET.

THE CARREL-DAKIN TREATMENT—ITS APPLICATION IN SURGERY IN CIVIL PRACTICE.*

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(From the Surgical Service of Mount Sinai Hospital, of Dr. H. Lillenthal)

I ASSUME for this audience a familiarity with the Carrel-Dakin method gained from print or lecture given by the chief exponents thereof. These representations, however, have mainly concerned themselves with its application to the vast wounds of war surgery. The question is therefore proper how far this method is applicable to the infected wounds encountered in civil practice.

Critics have decried its use because of the apparent finesse demanded in its execution. But this opposition was alike encountered by Listerian antiseptics and asepsis evolved from it. The practice of either called for a technique, or rather the appreciation of a principle. Listerism meant the destruction of all germs by the medium of carbolic acid pervading the atmosphere, permeating the

dressings, penetrating the surfaces and recesses of the wound, and bathing all of the armamentaria, in addition to the observance of the already well-understood mechanical principles of wound treatment, whereas asepsis implied the same destruction of germs without the aid of chemicals.

In the course of time asepsis grew to be a nigh universally accepted practice of surgeons and physicians in the treatment of all non-accidentally inflicted wounds from the minutest puncture of the hypodermic needle up to the performance of the most capital operation. But when it came to the treatment of accidentally inflicted wounds *eo ipso* infected, whatever the grade and extent of infection, there was the greatest diversity in the plan of treatment. The Carrel-Dakin method offers for the first time, it appears to us, a precision applicable to infected wounds.

Carrel-Dakin is not necessarily a vindication of antiseptics, but rather a combination of the latter with asepsis. Rigid asepsis is a *sine qua non* in order to promote the efficiency of the antiseptic employed by Carrel, but very often the mechanical feature of time honored drainage with gauze or tube irrigation of the wound, or opening of the infected area at the dependent point, has been wholly dispensed with. Carrel-Dakin is not a method of irrigation or drainage or wet dressing. By intermittent instillation of small quantities of the hypochlorite solution, at intervals of two hours, a gradual sterilization of the infected terrain *in loco* is aimed at. By such sterilization and reduction of bacteria, secretion is reduced, and drainage either with tubes or gauze is not called for. The agents employed by Carrel must be intimately brought in contact with the wound and retained there for a sufficient time to accomplish the purpose. Therefore, in the first instance, any wound made by the surgeon should not be placed at a dependent point as heretofore, but rather so as to enable the fluid to lake and form a pool.

The mechanical means to accomplish this calls for the armamentarium devised by Carrel. They are the tubes of 4 mm. diameter, closed at one end by a ligature of linen thread, with minute perforations extending over a variable length according to the depth of the wound. Another variety of tube employed is that covered over with turkish toweling. These latter tubes from their resemblance to ramrods, I would designate as such. The perforated tubes never extending beyond the surface of the skin are led to the bottom of all the recesses of an irregular wound. For a surface wound, one such tube in the form of a loop with perforations on the inside, so that the spray of fluid will spread out over the surface or a number of such tubes placed parallel or a ramrod tube will suffice. The use of any gauze in the wound separating the walls thereof is unnecessary; only such gauze to prevent the tubes from being displaced should be placed at the orifice of the wound.

Dr. Louis, a collaborator of Carrel, warns against the use of ramrod tubes, since they are prone to be blocked with the secretion and thus become ineffective for the escape of the disinfecting fluid, and for this reason inclines to a freer use of the perforated tubes, in larger number with larger perforations when the wound is of the surface variety. It may also be necessary to tie the tubes in place

*Read before the Metropolitan Medical Society, New York, Feb. 25, 1918.

with the aid of a linen string, long enough to pass about the member, or to have each end held securely to the skin with zinc oxide plaster. When all the tubes are in place it should be aimed to have their orifices point in one and the same direction, so that they may be coupled up with the supply tube of larger diameter attached to the reservoir, from which the chlorite solution is delivered. A further nicety is called for in coupling up the adjustment so that each tube obtains the same amount of fluid at the same time. This is attained by using glass couplings with three or more nipples. When the Carrel irrigating bottle is used it is necessary to adjust the regulating pinch-cock so that with the release of the main pinch-cock a definite instillation and no flooding of the wound will follow. The skin everywhere about the wound has to be protected from the corroding effect of the escaping solution, by covering the skin with squares of gauze impregnated with vaseline. Immediately overlying the wound a compress of gauze is placed, which by its weight holds the tubes *in situ* and takes up the solution. For wounds of the extremities the whole part is enveloped in a gauze-cotton quilt, the edges of which are held securely with the aid of clothes-pins or safety-pins. This latter arrangement is at once economical as well as permitting instant and rapid examination of the parts. The limit of the efficacy of the hypochlorite solution in time is reached in two hours, wherefore at such intervals the pinch-cock is released to instill more fluid. The use of the Carrel-Dakin reservoir and the mechanism of the pinch-cocks is of service in a hospital where a large number of patients are under treatment, but in private practice of isolated cases the estimated quantity of fluid, averaging 10 c.c., can be injected with the aid of a small-sized catheter-tipped glass syringe. On the other hand, an automatic device with a water trap siphonage* enables one to dispense with a nurse. Each second or third day a cover glass preparation of the secretion is microscopied to ascertain the number of bacteria to several fields, and when on two or three successive days the minimum of three has been reached, the wound edges may be adapted by strips of adhesive plaster without dependence on any further drainage, or if it be a surface wound, the same is ready for grafting.

The Carrel-Dakin method in orthodox fashion has within the past year been introduced by Dr. Lilienthal on his service, and step for step its application has been extended to every appreciable condition of infected wound. I believe I can best bring home to you its possibilities by illustrative cases:

CASE I.—The first trial concerned a child whose empyema was discharging a profuse blue green pus caused by bac. pyocyan. This infection as usual so refractory to most measures, completely vanished after 36 hours, the wound assuming a healthy granulating appearance and within a short time thereafter healing was complete.

CASE II.—An extensive palmar cellulitis had been subjected to free incision and drainage with superimposed wet dressings. The infection none the less spread to the articulation of the thumb so disintegrating the bony joint surfaces that amputation followed. Even then the wound surface, in spite of usual antiseptic

tive treatment, was coated with a profuse purulent discharge and necrotic granulations for a period of two weeks. Forty-eight hours after beginning the Carrel-Dakin irrigation, the secretion markedly diminished, the wound began to assume a healthy granulating appearance and within another ten days complete cicatrization had set in.

CASE III.—A cellulitis of the forearm had progressed so far in an aged female—a diabetic—that I amputated at the elbow. The resulting wound conditions were anything but favorable; fascial necrosis and pus continued to issue from this wide open wound, in the face of any treatment. After the use of the Carrel-Dakin treatment a marked change set in; within a week the granulations were firm and bright red, and the bacterial count having been reduced to a minimum, the wound permitted being strapped. Within another ten days the exposed cartilage of the humerus which had threatened to necrose, became covered with healthy granulations and healing was completed in two weeks.

A most frequent group of cases subject to a long period of suppuration are the wounds incident to drainage of suppurative appendicitis. If we institute the Carrel-Dakin treatment on the fifth or sixth day when adhesions have with certainty circumscribed the suppurating area from the general cavity within three or four days the secretion markedly diminishes; it loses its offensive odor, the bacterial count fails and very often within another week healing is complete. Thus it has repeatedly happened that the extensive purulent appendicitis case will be discharged within the same limit of time as the case which was completely closed at the operation.

A like experience may be encountered when the Carrel-Dakin system is applied to the empyema suppurating cavity. Here as many as three or four tubes are employed. On three occasions extensive suppurating cavities have been so quickly freed of the suppuration and its accompanying fetid character that the wound could with impunity be strapped at the end of 10 to 14 days, and by the third week the patient discharged.

If after the first change of dressing of an osteomyelitis wound, when all the hemorrhage has ceased, the Carrel-Dakin irrigation is applied, the granulations rapidly assume a bright red color and quickly reach the level of the skin surface, so that the edges may be strapped within two weeks or the surface grafted. Two such cases which had been treated with iodoform bone wax did not go on to primary union, notwithstanding the exacting technique employed, but removal of the wax and Carrel-Dakin application brought about a rapid change.

Extensive wounds following burns may be brought into the most favorable condition within a much shorter period of time for skin grafting than by any of the previous methods, all of which were painful because of gauze used.

Suppurative mastitides, with one incision substituted for the older practice of multiple incisions, have been completely healed within two weeks.

The misapplication of the Carrel-Dakin treatment was gained from its use in an extensive gangrene of the skin of the whole thigh following contusion. To the denuded suppurating surfaces irrigation was applied awaiting the separation of the slough. Herein consisted the error, for while the wounded surface areas took on a healthy appearance, and the bacteria count subsided, erysipelas set in. The mistake was committed of not removing at once the necrotic area and so creating a wound surface,

*See Dr. Howard Lilienthal in the *Military Surgeon*, XLII, No. 2, February, 1918, p. 258.

every part of which could be reached by the Carrel-Dakin solution.

Innumerable instances could be multiplied that would bespeak an efficacy of the Carrel-Dakin treatment for infected wounds far beyond what has been accomplished by the drainage with or without the use of antiseptics and in much shorter time.

This does not imply that every accidental and infected wound should be treated by the Carrel-Dakin method. The indication for its prompt application will depend on the initial count of the number of bacteria in the field. Where these are scant, our present-day methods may suffice to do as well with less effort. But at the first sign of delay in healing the Carrel-Dakin method should be instituted.

The Carrel-Dakin solution is a properly assayed hypochlorite of calcium, of the strength of $\frac{1}{2}$ per cent. Its proper preparation has been a matter of much controversy. It can be obtained commercially from various concerns. The preparation of chlorazene dissolved in aqueous solutions 1 per cent. suffices.

The use of a chlorine compound, such as chloramine-T, incorporated with a neutral base so as to make it available for an ointment was welcomed because it was regarded as being a short cut in the treatment in lieu of Carrel-Dakin solutions. But this preparation of the solution with stearate of soda is difficult to make in small quantity and does not answer since it fast loses its chlorine. Hence the caution not to rely on the commercial product, if you can in any way be favored by a fresh preparation prepared by a chemist.

27 EAST 81ST STREET.

SOME RECENT STUDIES IN PERCUSSION AND AUSCULTATION IN PULMONARY TUBERCULOSIS.

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BROOKLYN, NEW YORK.

THE diagnosis of what constitutes so-called early pulmonary tuberculosis is in more or less confusion to-day. Different clinicians have expressed opposite views concerning the subject. Some men hold to the view that symptoms should be the main factor to be considered. Others, equally positive, say that physical signs, if properly elicited, are good enough guides in coming to a decision. No one can deny a diagnosis of pulmonary tuberculosis when the sputum shows the presence of tubercle bacilli. But there are many cases, even when the tuberculosis is advanced, in which the sputum is for a time negative. It is therefore necessary in coming to some definite conclusion in the matter, that a happy medium should be expressed. While symptoms, if obtained, should never be ignored, yet their absence for a time, and although the history of the case is negative, should not preclude the possibility of existence of early pulmonary tuberculosis.

The study of physical signs in pulmonary tuberculosis has always been of special interest for life insurance examiners, since with them at times, the applicant will mislead, and they must employ physical signs when possible, and so pass upon the risk and the rating. Moreover it would seem that a discussion of the subject at present might be of value, since we are at war, and medical boards are occa-

sionally examining applicants whose words concerning their health are not reliable; loss of weight, general debility, cough, even afternoon temperature and night sweats are relative terms, and do not always spell pulmonary tuberculosis. Some men in seeking to avoid being drafted, will give a history which has been carefully studied, and in which the symptoms would point to pulmonary tuberculosis, but still these same men have sputum free bacilli, and entire absence of physical signs.

It has seemed to the writer, accordingly, that it is of great importance to-day to take up the subject of diagnosis of pulmonary tuberculosis, and to emphasize such worthy points, if he is permitted to use that term, as have come up in his humble experience.

Of the different methods employed, inspection, palpation, percussion, and auscultation, it would appear that the most advances in their comprehension in recent years have been along the lines of percussion and auscultation. Percussion, if properly studied, is not so difficult a problem to handle, and almost every one with moderate study and application can acquire enough knowledge for daily use.

The different types of percussion notes generally stated in text books are the vesicular, dull, and flat; some authorities add amphoric and tympanitic. There is a note, however, which is as yet not sufficiently known and understood, and that note is the dull-flat. It was described some years ago and its further study and application should be of benefit in helping to unravel the mysteries of the human adult chest.

Dr. Robert Abrahams, the originator of said note at the time, wrote as follows (*Archives of Diagnosis*, July, 1910): "Technically the dull-flat note is shorter in duration and higher in pitch, its acoustic qualities stand between dullness and flatness, or it is a note which is duller than dull. Now as to its diagnostic value in incipient tuberculosis. But first, I wish to emphasize the strangely misunderstood fact that some areas of the lungs normally possess dullness on percussion. Now in the presence of an early infiltration either of these areas drops its normal dullness and assumes the dull-flat resonance. This change in tone is unmistakable on light percussion. Hand in hand with the modification in resonance there will be found a corresponding proportionate change in the resistance. The dull-flat note is also of value in ascertaining the progress of the tuberculous process in any part of the lung. Take, for example, the left apex. Under normal conditions the percussion note of the left apex is pulmonary or vesicular. In the presence of an infiltration the vesicular resonance will change into dullness; dullness indicates incipency. By watching the modifying degress of the dullness in that apex and the eventual change of that note into the dull-flat, one can predict with accuracy the progress that the tuberculosis deposit is making."

It can be easily seen, therefore, that in taking the right apex for instance, the term dull-flat is really a key to the whole problem. From dullness, the normal percussion note at that apex, to flatness, the note of advanced tuberculosis, expresses the change in percussion which takes place in pulmonary tuberculosis. The change is not as a rule an acute one, and the intermediate type is the dull-flat note, since pulmonary tuberculosis generally is

a chronic process and the note does not change from dullness to flatness over night, but often takes years for its accomplishment.

In studying the left apex we find vesicular resonance as a normal proposition, but when this apex is the seat of tuberculosis the note changes to dullness and after that goes through the same changes as described for the right apex. In coming to the apices of the lungs posteriorly, the writer takes the liberty to designate the same as having a dull-flat note as a physiological condition, and by the use of the term in this manner believes the subject is much simplified. Certain it is that the textbooks are as yet strangely silent on this point. There is much difficulty in making a diagnosis of pulmonary tuberculosis, employing percussion alone and attempting to do so by studying the changes of percussion note and applying the same posteriorly to the pulmonary apices.

Anteriorly percussion over the clavicles will help at times in the diagnosis. If a process is located in back of that bone, the percussion note will change; at the right apex becoming dull-flat; at the left apex becoming dull, then dull-flat; and finally either or both become flat in character.

The writer in this article will describe a new type of respiratory murmur which occurs abnormally and for which he takes the liberty to create a new name, to wit: semibronchial breathing.

The term dull-flat, applied by Abrahams, designated as none had done before, the percussion changes of the right apex in the advance from incipency to advanced pulmonary tuberculosis. But now, how about the changes in the respiratory murmur? There are certain changes taking place, for example at the right apex, in the change from normal bronchovesicular breathing to the bronchial type. The change here, as a rule, is not acute, and very often takes many years; the intermediate type, it seems to the writer, is a distinct type of respiratory murmur, worthy so to be classified and called. By appreciating the term, semibronchial breathing, one is able to unravel a pathological process which would otherwise remain more or less a mystery. The semibronchial breathing therefore is a type of respiratory murmur, intermediate in character between bronchovesicular breathing and bronchial breathing. It is characterized by a type of breathing in which the expiration is prolonged and the pitch intensified as compared to inspiration but not so pronounced in type as in pure bronchial breathing. Of course this type of breathing occurs at the left apex also at times, and elsewhere in the chest when there is a pathological process manifested by change from bronchovesicular breathing to bronchial breathing.

Studying, for instance, the left apex and regarding vesicular breathing as the normal type at this apex, if it is the seat of an incipient pulmonary tuberculosis the breathing changes to bronchovesicular; from this type of respiratory murmur it changes to semibronchial and after that, generally after some time has passed, to pure bronchial breathing.

While on the subject of auscultation it would not be amiss to state that emphysematous breathing and also asthmatic breathing are abnormal types of the respiratory murmur and when heard in a pa-

tient, as they often are, present some difficulty, as they may obscure the true diagnosis. These types of breathing are generally not localized to any particular area, and very often are to be heard over both lungs. An interesting problem presents itself when such a patient, that is, one having emphysema and bronchial asthma, becomes infected with the tubercle bacillus. How can one then diagnose the condition and know whether pulmonary tuberculosis is a complication or not? One way is by the fact that pulmonary tuberculosis is more likely to be localized to areas in the chest, and therefore the type of breathing localized. In emphysema and bronchial asthma, however, a prolonged expiration predominates, and when the pitch is high it certainly is confusing, since the localized areas might be conspicuous by their absence. Nevertheless in the case of pulmonary tuberculosis supervening, one often gets the typical crepitant rale coming on, localized in character as to place, and, of course, when found, helping to clinch the diagnosis.

124 LEE AVENUE.

TRUE PRURITUS ANI: ITS ASSOCIATION WITH PYORRHEA ALVEOLARIS.

BY E. JAY CLEMONS, M.D.

LOS ANGELES, CALIF.

THE importance of focal infections as direct and indirect causes of pathology is becoming more and more evident owing to the fact that sufferers from diseases produced thereby are daily being relieved by removal of focal atria of infection without any attack being made directly on the end results of long standing secondary infections.

Pruritus ani is a symptom of a number of etiological entities because it is itching of the anal integument. Itching of the anal integument may be associated with or accompanied by a general state of bodily itching which is exaggerated in this location because of friction produced by contact of the buttocks one with the other. Pruritus of these parts may result from heat chafe, parasitic diseases or true skin lesions, as well as from excoriations produced by contact of the parts with secretions from local infections or from adjacent organs—such as the rectum, vagina, or urethra. Pruritus ani, therefore, is the symptom of itching of the anal integument from any cause whatsoever.

While it is a fact there are numerous general and local etiological entities which produce the clinical symptom of pruritus ani there is only one distinct pathological entity which is recognized as true pruritus ani. True pruritus ani is a disease, manifesting itself after the second or third decade of life, caused by the gradual percolation of infection from the rectal mucosa into the loose subcutaneous tissue of the anal integument. This disease is characterized by pruritus, corresponding to the area of skin involved. The itching is more annoying upon retiring at night and is aggravated by scratching. The parts involved lose their pigment and become thick and leathery, causing the integument of the anus to be thrown into longitudinal folds with deep fissures between them. These fissures are constantly excreting a

thin, watery, irritating fluid, which fluid keeps the parts moist. True pruritus ani, therefore, is the percolation of infection from within the rectal mucosa into the loose subcutaneous tissue of the anal canal.

Most intense symptoms are referable to the anus in this disease, while no symptoms are referable to the rectum. This is owing to the differentiation of the nerve supply at the anorectal line; above this line the rectum receives its nerve supply from the vegetative nervous system; below this line the anus receives its nerve supply from the systemic nervous system. This pathology causes no symptoms referable to the rectum because the vegetative nervous system does not transmit impulses of this disease. While no symptoms are referable to the rectum in this disease there are distinct symptoms referable to the anus because of contact of the cutis vera with infectious material which has percolated into the anal subcutaneous tissue from the rectal mucosa, bringing irritating material into contact with the highly developed nerve terminations, thereby producing the characteristic symptoms of this disease.

The organism which is the etiological factor in true pruritus ani is a streptococcus. This has been proven by the original work of Dr. Dwight H. Murray of Syracuse, N. Y. Dr. Murray* had vaccines made from the thin watery irritating fluid excreted from fissures between folds of anal integument of persons suffering from this disease by isolating pure cultures of streptococci and from these cultures making autogenous vaccines. With these autogenous vaccines the doctor controlled the symptoms of patients suffering from this disease, by immunization, without aid of other procedures, thereby demonstrating beyond doubt that streptococci are the offending organisms in true pruritus ani.

The fact that this infection is streptococcic proves it is not primary, because a primary streptococcic infection of these parts would necessarily be associated with classical symptoms of infection, namely—heat, redness, and swelling, which symptoms do not enter into the clinical picture of this disease. It therefore becomes necessary for us to look elsewhere for a primary focal infection which causes large numbers of pathogenic bacteria to assault the mucosa of the alimentary canal, causing secondary infection which manifests itself in this condition. In studying cases of true pruritus ani we find these patients suffering from pyorrhea alveolaris.

Pyorrhea alveolaris is a disease characterized by discharge of pus from the soft tissues around the teeth. This disease is caused by salivary calculi forming between the gums and the teeth; or food may crowd between the gums and teeth and undergo decomposition; or the gums may be wounded at the junction with the teeth, as frequently takes place by use of toothpicks, starting focal infections. Focal infection once started here is the beginning of this disease. The disease spreads by continuity of tissue, thereby causing the gums to recede from the teeth, allowing free exit of pus to be constantly discharged into the mouth.

*Murray, D. H.: Transactions of the American Proctologic Society.

The organisms isolated from pyorrheal pockets are most mixed and varied, but pyogenic cocci occur far more frequently than others. It has been proven* that these pyogenic cocci have their proliferation retarded, but they are not killed, by the action of the gastric juice; therefore, quantities of this pus is constantly assaulting the mucosa of the whole alimentary canal each twenty-four hours in severe cases of pyorrhea alveolaris.

All patients suffering from pyorrhea alveolaris do not suffer from true pruritus ani because all cases of pyorrhea alveolaris do not have a streptococcic infection as the etiological factor and also because certain individuals suffering from this disease have a natural resistance to the infectious material which constantly passes into their intestinal canals. On the other hand patients suffering from pyorrhea alveolaris, with streptococci as an etiological factor, having low natural resistance to the attenuated infection constantly entering their intestinal canals develop true pruritus ani.

Having patients suffering from true pruritus ani associated with pyorrhea alveolaris, it becomes necessary to carry out two distinct procedures in order to relieve them of their infections—first, removal of focal atria which keeps up pyorrhea, and second, drainage of the rectal mucosa to rid the tissues of the infection causing the pruritus ani. The pyorrheal atria are removed by extracting the teeth. The rectal mucosa is drained by removing the lateral anal cutaneous tissue, this being easily accomplished under local anesthesia, at the same time drawing down and suturing the adjacent rectal mucosa to the fascia between the external and internal sphincters, using ten-day catgut for suture material. By this procedure primary hemorrhage is prevented, and upon absorption of the sutures the rectal mucosa drains. In fact, the wounds do not heal till the parts have drained and the tissues are thereby freed from infection.

528-529 BLACK BUILDING.

*Miller: Microorganisms of the Human Mouth, 1890.

Zona Following Trauma of Spine.—Boursier and Ducastaing saw a small shell fragment wound slightly to the right of the spine followed on the tenth day by zoster in the distribution of the two nearest intercostal nerves.—*Révue Neurologique*.

Cause of Benign Albuminuria.—Oziembowski attributes this in part to vagotonia, which, however, is itself an expression of insufficiency or aphasia of the chromaffin system, this lowering the tone of the sympathetic. As a result the renal vessels become dilated, and the vagotonia is not itself the cause, but rather a concomitant of benign albuminuria.—*Deutsche medizinische Wochenschrift*.

Sensorial Functions of the Blind.—Ioteyko refers to space perception and the vicarious action of the other senses. The blind do not conceive originally of space of three dimensions. Gradually the latter is realized as is also the conception of infinity. Some blind individuals study geometry. The idea of the third dimension is probably never fully realized. Superiority in hearing and touch is not founded on superior perception but superior apperception.—*Révue Scientifique*.

Military Medicine.

SYMPOSIUM ON MILITARY MEDICINE.

THE meeting of the Section on Medicine of the Medical Society of the State of New York, held Wednesday, May 22, Dr. Arthur F. Chace presiding, was devoted to a discussion of topics relating to Military Medicine.

Classification and Serum Treatment of Pneumonia at Camp Upton.—Major RUSSELL L. CECIL, M.R.C., of the Base Hospital, Camp Upton, made this communication. The pneumonias were of two classes, streptococcus pneumonia and pneumococcus pneumonia. The former were caused by the *Streptococcus hemolyticus* or the *Streptococcus viridans*. Of the pneumococcus group, it was found, contrary to usual experience, that Type IV pneumococcus produced severe cases. The mortality in Type I cases was high in those not receiving serum. In Type II cases the mortality was also high. Of all cases, those caused by the hemolytic streptococcus were most severe and the mortality highest, reaching 40 per cent. This infection was also the most common one, more than half the cases being caused by this organism. The symptomatology was atypical. There were fever, chills, pain in the chest, very little expectoration, and the sputum was not rusty or blood tinged. The physical signs were often indefinite and percussion of the chest gave negative results. On auscultation moist rales were heard. The voice and breath sounds were hardly changed. One group of cases showed mixed infections, a pneumococcus being present early in the disease and later a hemolytic streptococcus. In this type marked prostration was present. The x-ray picture was characteristic, showing small spots over the lungs characteristic of military tuberculosis. These corresponded to the pathological findings by Drs. Cole and MacCallum. The cause was apparently proliferation of the lymphoid tissue at the bronchioles. In regard to complications, the cases were often followed by empyema, of one of three types: pneumococcus empyema, streptococcus empyema, or sterile empyema. The first type developed early in the disease. Fifty cases out of eighty were streptococcus empyemas—hemolytic or viridans. The sterile empyemas showed distinct purulent fluid. The surgical treatment of empyema was a problem which was not entirely settled. So far the best results seemed to have been obtained from thoracotomy with free drainage and irrigation with the Dakin solution. In regard to the serum treatment, one half hour before injection a 5 c.c. desensitizing dose of normal horse serum was given, followed by intravenous injection of the specific type serum, by the gravity method. Types I and II serum had been used with success. The use of the polyvalent serum had been attended with high mortality, and had therefore been discontinued. There were some cases of serum sickness, and two cases of anaphylaxis, both of the latter following injection of the polyvalent serum. In one of these cases the patient had been given one dose, and ten days later, in the height of sensitiveness, he had a relapse. The laboratory man, not knowing the patient had had a previous dose, gave another dose of 50 c.c. The patient did not survive five minutes. The desensitizing dose had no effect in protecting the patient. With proper precaution such accidents could be avoided. In regard to prophylactic vaccination against pneumonia, this had been tried with half the troops in camp, the other half not being vaccinated. A medical man was sent with the troops to the other side especially to study their immunity. In ten weeks the results among the vaccinated cases showed 17 cases of pneumonia against 173 cases among the non-vaccinated troops. There was also evident a certain cross protection against streptococcus pneumonia by the pneumococcus vaccine. This might be explained by the fact that very many cases were pneumococcus at the outset. As far as the cases had been followed, it would seem that a certain amount of immunity had been conferred against both the streptococci and the pneumococci.

Dr. A. F. CHACE of New York said that the boys in camp were receiving better attention than they would in civil life. The study of pneumonia had been distinctly advanced by the military viewpoint. He would like to know how long it took to make an accurate diagnosis.

Dr. L. C. AGER of Brooklyn asked what was the difference in the results by the Avery and the mouse method. He thought that from the point of classification it would be clearer to call the streptococcus condition "pneumonitis" rather than pneumonia. Pathologically there was pneumonitis rather than consolidation. He would like to ask what was the best time for operation in the streptococcus pleurisy which occurred at the height of the disease. Did they operate at that time?

Dr. H. WILLIAMS of Buffalo asked if the large percentage of Type IV cases had anything to do with the use of the Avery blood broth media instead of the mouse. If the strains had been typed by injecting into a mouse the greater virulence of other types would not have appeared. In the Avery blood broth the different types would grow indifferently.

Dr. E. L. FROST of Buffalo asked how many doses of the serum were usually used.

Dr. H. WEISMAN of New York asked what was the method employed with the use of the Dakin solution in empyema.

Lt. BRAISTEAD, M.R.C., of Cornell asked would the blood broth give as good result as the mouse injection in cases where there were no laboratory facilities for using the latter method.

Dr. M. PACKARD of New York said that they had had a great number of pneumonias at Gouverneur Hospital. There were very many Type IV cases and many streptococcal cases. Type IV pneumococcus was a normal inhabitant of the mouth and was probably agglutinated by Type IV serum. The complications were unusual. They included parotitis, arthritis, acute psychosis, and many empyemas. With empyemas the mortality was the same whether the cases were drained or not drained, that is 35 per cent. Cultures showed *Streptococcus hemolyticus*.

Major R. L. CECIL said he had to slide over many points as the subject was so large. He had not got the figures as to the comparative value of the Avery and the mouse methods. He had started out with a prejudice against the former, but when once one was familiar with it, one got better results. He used the agglutination test, but if one had a high speed centrifuge the pneumococci could be washed out with blood and bile and the precipitin test could be used. To determine the organisms they were plated out on blood agar. An accurate classification was obtained, but it took 48 hours. Using the mouth method one could make much better time than that. There had been, however, remarkable coincidence in the mouse and blood broth methods. Hemolytic streptococci would sometimes be missed in the mouse, where they could be detected in the blood broth. As to the Type IV, Dr. Stillman had suggested they might be mouth pneumococci. The incidence was very high in the camps. In the empyemas seven cases had Type IV in the sputum and pure culture in the pleural fluid. If there were any error it would have been discovered in these cases, where often the bacteriological work was verified by autopsy findings. In regard to the serum, usually three or four doses were given, sometimes as many as six. In regard to Dakin's solution, he had not been in close touch with the surgeons, but he thought that not much resection was done. They made a large incision, and injected by gravity. As to diagnosis of streptococcus pneumonia, it could be made by clinical signs, once one was familiar with the disease. They were not expert enough at yet to diagnose the type by clinical signs.

Brief Outline of Personal Observations in Italy and at the Western Battle Front with the American Red Cross.—Major ALEXANDER LAMBERT, M.R.C., of the American Red Cross, made an interesting communication on this subject. He had not, he said, been stationed with troops, and would not give a detailed description of camp medical organization, but rather present a series of general personal impressions, gathered during his work with the Red Cross Commission. First, in regard to the incidence of disease among the soldiers, 32 per cent. of cases of infective disease among troops were meningitis and pneumonia. The pneumonia was identical with that described by Major Cecil. The patient was very sick, highly toxic, with less breathing than one would expect to find and a peculiar high-pitched breath sound on the left side.

The chest was filled with fine rales. The patient evidently had pneumonia throughout both lungs, the right side evincing the peculiar sound that told of central consolidation under the tip of the scapula point. English medical men mentioned a peculiar septic bronchitis, apt to develop into pneumonia. Colonel Elliott had asked the Research Committee of the Red Cross to investigate this subject, but so far the work done upon trench fever had occupied their entire time. In regard to meningitis, it was found that various strains were responsible for the infection, so that a serum for one strain did not help in infection by another. This caused considerable difficulty where there was only one type of serum obtainable. In July, 1917, in Belgium, Dr. Lambert said he had observed many cases of Weil's disease, infectious jaundice; this was a spirochetal infection, but in at least 30 per cent. of the cases no jaundice was shown. The disease was most serious and in the beginning there were severe hematemeses and hemorrhages from the bowel. The anemia was extremely grave. Spirochetes were frequently demonstrable in the blood stream.

In regard to *trench fever*, this was a subject which had demanded a great deal of attention. It had caused great disturbance in the English Army, owing to the fact that as many as 10 per cent. of the men were sometimes put out of commission by it. The disease often started with tingling in the hands, fever, malaise, and pains in the bones and at the insertions of the muscles. The temperature ran high for three or four days, then subsided, and there were later exacerbations of the attack for a few days at a time. The course of the disease ran for many weeks, and then, in young, robust men tended to clear up. With men over 40, a chronic type of the disease was apt to set in. The temperature ran subnormal, the pulse dropping to 60 or even down as low as 44. Dr. Lee of Boston collected charts of 200 chronic cases and in these it was shown that the temperature rose to normal only during the exacerbations, that is to say, at the times when it would formerly have risen to 103° or 104°, and the pulse only rose to 72, instead of to 120-130. Dr. Swift found that the day before the exacerbation the patient's spleen became enlarged. No small laboratory animals were susceptible to the disease. It seemed to be in the blood. The work of the American Red Cross Research Committee was directed to this condition and General Bradley, chief surgeon, gave unstinted help. Volunteers offered themselves for experiment and it was found that persons injected with whole blood from infected patients contracted the disease. Centrifugalized blood gave the same effect. With filtered blood, the organism apparently remained with the corpuscles and did not pass the filter. Transmission by the body louse was suspected and lice from infected persons were allowed to bite the volunteers, who soon came down with the disease. Lice were then brought from England, where there was no trench fever, and put upon trench fever patients. They were then put upon healthy persons who in turn came down with the disease. Put upon another person, they again transmitted the disease, and so on to a series of persons. The lice were kept in a little cell, strapped on the arm over an old piece of undershirt. The men were allowed to scratch, so that normal conditions were reproduced. The organism producing the disease had not so far been discovered. It had not been stained. It might be that it was a filterable virus. Transmission by this insect having been proven, the question of "delousing" the army was before the authorities. This was a stupendous task, but it was not impracticable. With proper measures for cleanliness and sanitation, it could be done. The French had invented a system of portable baths in which from 800 to 1000 men could be bathed. With proper bathing and clean clothing the vermin, and thus the disease, could be eliminated. It was simply a question of sanitation and engineering.

Gas poisoning cases so far had not been seen in this country. In July, 1917, in Belgium, Dr. Lambert had seen 40 men suffering from "mustard gas." Phosgene gas (COCl_2) was also used for gassing. It had a slightly sweet odor. Some few hours after inhaling it the men went to sleep and died in sleep. It did not cause immediate symptoms. It was apt to enter the dugouts and poison the men there. The effect of the gas was

upon the heart muscle, which became degenerated; it caused sloughing of the lungs with exudation of blood into the air spaces, and a solid leathery lung was produced. Patients suffering from this poison had to be kept absolutely quiet. They could not speak or move. After some weeks, if kept perfectly quiet, they usually recovered. The first cases of poisoning occurred in two orderlies who went to examine a shell which had exploded with a peculiar noise. They probably inhaled gas from the shell. Next morning they were found dead. The lacrymatory gas was a bromide variety; it caused intense coughing and irritation, especially of the eyes. With the first use of chlorine gas the Germans nearly got through to Calais. The ground was held by North African and Algerian troops, who succumbed to the gas and died like flies. Two Canadian and British regiments kept their heads and stood their ground. It was a terrific experience, but enough of them lived through it to hold the day. The British gas mask protected against phosgene gas and mustard gas (dichlorethyl sulphide.) In the latter the chlorine element apparently broke loose and did injury by absorption. Terrific blisters of the skin were produced by this gas, also inflammation of the bronchi, trachea and larynx, and inflammation of the eyes. The whole mucous membrane of the larynx and the bronchioles was apt to slough out and the patient choked and drowned with the exudate. Unless abscesses of the lung resulted from loss of mucous membrane the cases usually recovered in a few months. The gas usually leaked down through the clothing to the belt, blistering the whole trunk, but if the belt was tight it stopped the progress of the blistering. A circular line of blistering was shown round the body. Bicarbonate of sodium (or any alkali) was of great use in prevention of blisters. In one case where there was no water to make a solution, the officer ordered the men to rub dry bicarbonate on their heads. This ran down with the sweat and saved the men from blistering after a gas attack. Great care was necessary on the part of doctors and nurses in undressing these patients. The gas escaping from the clothing was apt to cause severe blistering in those doing the dressings. In removing the gas mask care should be taken to do so slowly. The mustard gas gave a yellow tinge to the earth where the shells exploded or to banks where it fell. Soldiers found out by experience that it was not safe to sit or lean on this earth, as they became blistered with the contact. The dugouts had to have a curtain in front of the door to prevent entrance of the gas and men in front of the dugout used fly swats to beat off the fumes before entering.

Referring to the *Italian situation*, Major Lambert said he had gone to that country shortly after the débacle occurred. The Red Cross sent men to see what was the best way to give aid in the crisis. Base hospitals established behind the Piave line were in readiness to move their patients upon telephone summons. Hospitals of 1,200 to 2,000 beds became forward dressing stations. The bridges were mined with dynamite, covered with layers of sand, and chauffeurs were quite ready to drive slowly when warned of the situation. The Italian hospitals were beautifully clean, thoroughly well equipped, and entirely scientific and up-to-date in every way. The laboratories were well supplied with sera and materials for research. There were pneumococcus, meningitis and tetanus antisera and vaccines for typhoid, cholera, etc. The Italian Red Cross lost a great deal of its stores in the reverse. The troops and supplies depended upon a single system of transportation, and in the rush the transportation broke down. However, two million men and their supplies got across, the last medical stores only being left. The Italian bersaglieri could be spoken of in the terms of highest admiration. They fought their way back, although some companies were lost sight of for days, but they rejoined their own commands. The Italian cavalry troops of Genoa tried to stem the rout and could not. They determined to show the army how gentlemen could die. They dressed in their full dress uniform, a very handsome one, and mounting horse rode against the Austrian machine gun batteries—a suicidal act; but with desperate courage they took the batteries and about half of their number came back with the guns. The rest were annihilated.

In regard to the *surgery of the war*, Major Lambert said that he thought a medical man could give a general outline of results. At the beginning of the war the septic condition of wounds beggared description; it was something terrific. The effort was made to transport the wounded to a distance. Then it was seen that the nearer the hospital to the lines the better the chance for the wounded, so that hospitals were established eight or nine miles behind the lines. Great reliance was placed on antiseptics during transportation. Finally, Lemaître and Duval found that the detritus, forced into the depths of wounds, was the cause of the sepsis. The muscle tissue itself, if the contractile power was injured, had to be removed, so that large masses of dead tissue had to be cleaned out. Finally the wound was washed with the Carrel-Dakin solution. After this "débridement," as it is called, the wound was stuffed with sterile gauze, and later could be sewn up, to heal by first intention, often within three weeks. The only exception to this was that where streptococci were isolated from wounds it was not safe to sew the wound up. The main idea held now was "better surgery and less antiseptics." Brilliant results had been seen with the Carrel-Dakin method in many cases. Treatment of wounds had recently advanced so that a compound, comminuted fracture could be changed to simple fracture. The work of Jones in England and of Blake in France had reorganized methods of treating fractures, but it was found that there was a tendency to go back to old and well tried methods of traction and posture in dealing with fractures. The subject of gas gangrene was of interest. Infection by the Welch bacillus was found to travel in a direction parallel with the fibers of the muscles, under the sheaths. The organism lived on the glycogen of muscle. The infection sometimes had to be followed along as far as the insertion of the muscle, and enormous masses of tissue had to be cleaned out to get rid of the gangrene. Sometimes cutting the muscle across arrested the path of infection.

The Red Cross Research Society had met once a month to study all these questions. The French and British surgeons had met with the American men and facts gathered by experience of four years of war had enabled the American surgeon to begin with 1918 ideas of war instead of learning from the start. Absolute cooperation existed between the surgeons of the different allies. The work of the Red Cross had always been of primary importance to the army. All else was secondary. First, last, and all the time the Red Cross and the army were in unity. The cooperation could not be more close than it is. There had been some misunderstanding regarding the Research Department of the Red Cross. The Red Cross, through Major Murphy, started a research fund. Some criticism then arose on the part of Christian Scientists and antivivisectionists. Therefore it was thought wise not to use the general fund and a separate research fund was organized. Major Lambert said he had control of this branch and that the work had gone on and would go on without interruption. Every cent needed had been given and given without question. The administration work was hard and meant building up and organizing and getting others to do the work outside. The work, however, would get the necessary funds, and it would continue in spite of everything.

Dr. A. F. CHACE of New York said that physicians thought that medicine would be at a standstill, as compared to surgery, in the present war. They had been much enlightened by Major Lambert's remarks. The constructive work that was going forward in the camps and trenches was a great credit to the United States Army. The addresses this morning dealt with three aspects of the question—work going on abroad; work going on in the United States; and the position of the physician in civil life as regards the war. The latter phase of the subject would be covered by Dr. Cox, in his presentation on the "Albany Idea."

The Albany Idea.—Dr. JOSEPH AMBROSE COX of Albany presented this report, a historical review of work accomplished since November, 1915, when a group of men in Albany considered the serious possibility of war breaking out and started to obtain necessary knowledge of medical military matters. They set themselves to study the problems connected with this subject and to collect data concerning the medical

military resources of the whole country. Such subjects as camp hygiene, sanitation of troops, writing and interpreting of orders were considered. Emergency problems were studied, such as: (1) Water supply: If New York and Boston were taken and troops retreated on Albany, what steps could be taken to protect the water supply? (2) Medical supplies: The management of medical supplies and stores necessary to care for a large number of refugees. (3) Wounded: The possibility of 10,000 wounded being thrown into the city. In working out such problems the resources of the community were investigated—what the hospitals could do, were they adequate; where supplies were to be obtained; what number of nurses and doctors could carry on activities. The answers to many of these questions had been worked out and the plan was published by the Clinical Club of Albany as a plan of military instruction, the details of the scheme being given in the pamphlet. [See MEDICAL RECORD, April 14, 1917.]

Dr. A. JONES of Buffalo said that Dr. Lambert referred to trench fever. Was it true that the bite alone of the louse could transmit the virus? Dr. Jones said he understood Dr. Opie to say at Atlantic City that the virus was not transmitted unless the men scratched, and that by this means the excreta of the louse were rubbed into the skin and caused the infection. Dr. Lambert had not particularly mentioned medical matters on the Italian front.

Dr. J. L. WILLIAMS of Rochester said that "mustard gas" was invented by a chemist, now working in Rochester, and then employed by Fischer in Berlin. The phenomena Major Lambert had described were discovered accidentally. The name was used no doubt because mustard gas contained no mustard and was not a gas.

Dr. R. H. Sayre of New York said he thought the Albany idea was a remarkably good one. It showed the advantages of preparedness instead of waiting until an accident happened. It made one realize the vast amount of ignorance in regard to conditions with which one was surrounded. A year ago the chief surgeon of the Police Force called a concourse of surgeons and put such questions to them as: "If a great catastrophe happened, what could the hospitals do?" "If an explosion occurred in the Grand Central Station, how would the people be transported?" "If a large part of the city were destroyed and it were necessary to make villages on Long Island, how could people be cared for?" "If the aqueduct were broken, how would the water supply be provided?" Preparations were then discussed to meet such contingencies. Hospitals set aside a large number of wards that could be used immediately in case of emergency; the water supply for a large emergency village was considered; arrangements were made to notify a large number of doctors and nurses in case of serious emergency. It would be well if all persons would prepare themselves for any contingency that might occur.

Dr. A. F. CHACE said that copies of the reprint on the Albany idea could be obtained by writing personally to Dr. Cox.

Dr. ALEXANDER LAMBERT, in answering Dr. Jones' remark, said that he had not had time to pay attention to clinical aspects on the Italian front. He was being hurried through to help from an administrative point of view. In the sudden crisis Italy lost two-thirds of her material and supplies. Train loads of material were rushed through from Paris to tide over the situation. The chief surgeon of the Red Cross at Padua had said that if he could get microscopes, blankets, and trucks, he could manage the rest. In regard to mustard gas, the burn looked like the effect of a mustard plaster left on too long. This might have given the name. It was discovered in Berlin in 1886 and then forgotten. It might not be gas, but it would get into every place. If the gas mask was not put on quickly enough it would blister. It caused nausea and vomiting as well. The English had lately been using an emetic gas and as soon as that had had time to take effect they put over doses of poison gas, so that the Boches got a heavy dose. That might have been the reason that the Kaiser recently stated that it was not nice to use poison gas in war. An interesting fact was that at the former Hague Con-

ference two nations refused to sign an agreement not to use poison gas in war—Germany and the United States. Captain Mahan of the United States Navy refused on the ground that it was no worse to use poison gas than high explosives to kill the enemy. Theoretically this was correct. War being deadly, anything in open fight was fair game apparently. Killing the wounded and other savage tricks were not civilized warfare. In regard to trench fever, the single experiment in London had not been regarded as conclusive and the question was to be brought up for discussion at the conference to take place in Paris. As to the call of the United States for medical men, the army was in need of volunteers and medical men had responded generously. The English had made a great mistake in closing medical schools. It would be a crime in this country and there were men who would do as patriotic a duty if they simply stayed at home and kept the medical schools going. This was as needful a work as going abroad and had no *réclame*, it was just plain every day duty. There was no risk and no excitement. On the other hand the draft law must be met. Men should respond to the call of duty and those who answered deserved full credit. Major Lambert said he had been more and more impressed with the moral effect produced by the entry of the United States into the war. It was far greater than was ever realized here. On the other hand the physical effect had been far less than was anticipated. The greatest task of history was now laid upon the United States. A huge army must be produced and a well organized medical corps to handle it. If sufficient volunteers were not found, there should be a forced draft. The amount that had been done was nothing to what would have to be done. The whole spirit of the country had been changed, but still there was as yet little realization of the hugeness of the task and the tremendousness of the bitterness that would have to be paid. The French profession had answered the call. Not one medical man under 65 years was out of the army. The older men were taking care of patients in remote country districts. Physicians as old as 85 years were working for these country patients. Women physicians were doing splendid work among the civil population and in caring for children. There was a great field of usefulness for them in this work. One unit in the devastated district south of the Somme had asked for supplies and help. They had fallen back from St. Quentin and the Lys with their patients and had spent two nights operating on soldiers without anesthetics. Even a disarticulation of the hip was done without anesthesia. The Red Cross rushed five truck loads of supplies up to them. The Scottish women physicians had done splendid work in that region also. In obstetrics in Belgium, and in pediatrics there was a great work for women physicians.

American Red Cross to Help in Switzerland.—The American Red Cross officials are preparing to organize a force of workers in Switzerland to assist the Swiss Red Cross, which is overwhelmed with relief work since the badly wounded and sick contingents of various nationalities and civilian refugees are being repatriated. The American Red Cross has established large relief stations on the Buchs and Gothard railroad to attend to Italian prisoners while they are being exchanged.

New Beth Israel Hospital for Government.—The Beth Israel Hospital Association, New York, has offered to the Army and Navy Departments the new fifteen-story hospital building which it has planned to build on the black fronting Second Avenue, between Seventeenth and Eighteenth Streets. The plans provide for a hospital building to cost \$1,250,000 and fully equipped to care for 500 patients. Both the Army and Navy Departments have the proposition under consideration. If it is accepted the work of construction will be rushed. The Beth Israel Hospital Association

has been preparing to erect a new home for some time and it believes that by hastening the work it will do a patriotic duty. The offer is for the period of the war or longer if necessary.

Conference on War-Time Problems.—The War Service Committee of the American Hospital Association will hold a conference at the New York Academy of Medicine, New York City, June 3, at 10.30 a. m. The tentative program on hospital problems resulting from the war includes a discussion of income and expenditures, new construction, medical and surgical supplies, medical service, nursing service, care of Government patients, and cooperation with the Federal Vocational Board and the War Risk Insurance Bureau.

Misstatements of Antivivisectionists.—Dr. W. W. Keen of Philadelphia calls attention to two erroneous statements made by the antivivisectionists in the resolutions which they passed on January 31 last. The first of these resolutions demanded that "it be left to the free will of each soldier as to whether his health and life should be endangered which, in actual experience, had resulted in deplorably affecting the strength and availability of our National Army and occasioned unnecessary loss to thousands of American families who had bravely offered their young manhood to our beloved country." In refutation Dr. Keen points to the fact that antityphoid vaccination has practically banished typhoid fever from our own cantonments and also from the armies in Europe. In the British Army in France 99 per cent. of the soldiers have voluntarily sought its benefits. The second resolution "points to the provision of exemption now made by Great Britain, that power having been forced to rescind the rule of compulsion after the alarming effects of inoculation were disclosed." The statement in this resolution is also untrue. Dr. Keen cabled to Lieutenant-General Goodwin, Surgeon General of the British Armies, "Has antityphoid vaccination ever been compulsory in the British Army?" To this he received the reply "Antityphoid inoculation has never been compulsory in the British Army."

The Government to Take a Department Store Building for Hospital.—Government representatives have inspected the store building formerly occupied by the Siegel-Cooper Company and later by the Greenhut Company on Sixth Avenue, between Eighteenth and Nineteenth Streets, with a view to taking it and fitting it up as a base hospital for invalid soldiers. The building contains twenty-three acres of floor space and can accommodate 3,000 soldiers. The plans contemplate using it for medical cases and as a distributing base.

Navy Needs Hospital Helpers.—The navy is in urgent need of men for the hospital corps. Men need have no special knowledge to enlist as hospital apprentice, second class. Graduate pharmacists or nurses may be enlisted as hospital apprentice, first class. Advancement is very rapid. Further information may be obtained by applying to any navy recruiting station.

Dr. Kate B. Karpelas has been appointed acting assistant surgeon to the Emergency Dispensary of the Medical Department, U. S. A. This dispensary is for the medical care of the civilian employees of the War Department.

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SIMULTANEOUS MULTIPLE INTESTINAL INTUSSUSCEPTIONS.

USUALLY, in cases of intussusception, invagination takes place at only one point; but occasionally it occurs at two points and sometimes the overlooked second point of invagination accounts for the death of the patient after early operation and easy reduction of one, and what is supposed to be the only, intussusception. Cases in which there are three or more points of intussusception simultaneously are certainly extremely rare and reports of but very few such cases can be found in the literature.

In the March, 1918, number of the *Archives de Médecine des Enfants*, there is an abstract of a report by Dr. Prudencio de Pana (*Arch. Lat. Amer. de Pédiatrie*) of a very interesting case of this sort. The history of the case pointed plainly to intussusception which had quite evidently existed for six days, and an operation was performed. The greater part of both small and large intestine was found collapsed. A violet-black, cylindrical tumor (intussusception), 10 to 15 centimeters in length, was found starting near the duodenojejunal angle. As the invagination could not be reduced, the bowel was resected and anastomosis performed by the Murphy button method. The child died eight hours later. At autopsy a second invagination, situated about 35 centimeters from the ileocecal valve and easily reducible, was found, and also a third invagination, ileocecal and appendicular, likewise easily reducible. It was further discovered that the child had a single horse-shoe kidney.

Because of the long delay in recognizing the nature of the case and deciding upon operation, with the result that intestinal resection at the duodenojejunal angle became necessary, and because of the complicating purpura, it is likely that the child would have died even if the other invaginations had been reduced; for but very few cases where resection has been done for intussusception have survived. The especially interesting features in this case were the long delay in arriving at a diagnosis of intestinal obstruction of some sort, the triple, simultaneous intussusceptions, a concomitant purpura hemorrhagica, and the additional fact brought out at autopsy that the child had a single horse-

shoe kidney. Certain facts regarding intussusception apparently need to be repeatedly emphasized; and while the symptoms in the above case were in some respects atypical, we may take this opportunity to call attention to a few points.

First, the physician who is familiar with the symptoms and clinical course of cases of intussusception should rarely be long in doubt as to the correct diagnosis; for the variety and sequence of symptoms are, or at least should be, easily recognized. Usually the symptoms are approximately as follows: A previously apparently perfectly healthy baby has sudden, severe abdominal pain, accompanied by pallor, shock, and vomiting. The bowels may or may not move normally at this time. After the first stormy onset there is usually a period of deceptive calm lasting minutes or hours. This is followed by further and persistent vomiting, together with rhythmic straining accompanied, after a few hours, by bloody and mucous stools; while in almost all cases a tumor may be felt either on abdominal or on rectoabdominal palpation.

Second, the mortality in intussusception is disgracefully high and for but one reason, namely, delay in the reduction of the invagination by operation. This may be due to (1) diagnostic errors, (2) procrastination while the usually deadly so-called palliative measures are attempted, or (3) refusal of the parents to consent to operation until it is apparent that the child is rapidly losing ground. The reduction of intussusception by early operation is one of the easiest and most thoroughly satisfactory operations in the realm of abdominal surgery; and that under such conditions the mortality may be nil is shown by Clubbe's series of 25 consecutive early cases without a death. With delay the mortality percentage rapidly rises; so that in hospital statistics, taking the cases as they come, whether operated upon early or late, a mortality of 50 per cent. is not at all uncommon, while in many instances it is even much higher.

Third, since delay in calling the surgeon is thus so likely to result in an unnecessary fatality, we would emphasize the fact that responsibility in cases of intussusception rests primarily upon the general practitioner and only secondarily upon the surgeon. It is only when the surgeon is called early and fails to discover and reduce multiple invaginations, if they exist, or otherwise fails to handle properly the entire pathological condition that the responsibility for a fatality is justly his.

THE RÔLE PLAYED BY LICE IN THE CAUSATION OF DISEASE.

IT has been demonstrated both experimentally and clinically that to the body louse is due the transmission of typhus. If not the sole means of transmission of the disease, at any rate, the louse is a main factor in conveying it from person to person. At the present time, this question of the transmission of disease by the agency of lice is of the

first importance, since soldiers in the trenches are constantly infested with them, and it is easy to imagine that if lice are infected, disease may be transmitted on a wide scale and with disastrous consequences. It is not known absolutely that diseases other than typhus can be transmitted by lice, but it appears probable that there are some. For example, suspicion, almost amounting to conviction, has fallen upon the louse as a means of transmitting relapsing fever, and it will be instructive to quote Professor George Nuttall (*Parasitology*, 1917, vol. 10, No. 1) on the subject, more especially as the facts are by no means well known and frequently misrepresented.

Nuttall draws attention to the fact that epidemiological evidence, as in the case of typhus, points to relapsing fever being louse-transmitted. The two diseases occur under like conditions; personal filth and squalor, the close contact of persons through overcrowding, facilities being offered for the propagation of lice by the continuous wearing of clothing day and night for weeks or months on end. All recently collected evidence from India, North Africa, Germany, Russia, and Serbia prove that lice are constantly present on infected persons. These remarks apply with equal force to typhus, which may coexist with relapsing fever in epidemic form. Judging from accessible records, relapsing fever appears to be somewhat more restricted than typhus in its geographical distribution. It has been conclusively demonstrated by carefully conducted experiments that *Pediculus humanus* serve as a carrier of *Spirochæta recurrentis*, the causative agent, from man to man.

Spirochetes are transmitted hereditarily in the louse, for the offspring of an infected female has been shown to be infective. The persistence of the spirochetes in the louse no doubt serves to maintain them in nature. The infectivity of the louse does not depend upon the presence in its body of visible spirochetes, in fact, it has been shown that when spirochetes reappear and attain their full size the lice are non-infective. This coupled with the observation that human blood is infective during the apyrexial stage when spirochetes cannot be found in the blood, bears out the view that Nuttall and others have upheld, that spirochetes are protozoa, as they obviously undergo a cyclical development in both the vertebrate and arthropod hosts.

The most interesting part of Nuttall's paper is that which discusses the manner in which lice transmit infection. It seems to be generally believed or assumed that they convey infection by biting. According to Nuttall, such is not the case. It has been proved that lice do not convey relapsing fever by their bites. Infection takes place through the lice being crushed upon the skin which is commonly excoriated by the self-inflicted scratches of the individual harboring the lice. Infective material may, moreover, be carried on the fingers to the nose or eye, and it has been demonstrated experimentally that the spirochete is capable of in-

vading the system through intact mucous membrane. The period of incubation, under experimental conditions as observed in man and monkeys following infection through the excoriated skin or intact mucous membrane is 6 to 8 days, when crushed lice in the infective stage are used. This corresponds with clinical experimentation. A single infected louse, crushed upon the excoriated skin, has produced a relapsing fever. Men have been experimentally infected by placing infected lice upon their persons without their knowledge.

MINERS' CONSUMPTION AND PULMONARY TUBERCULOSIS.

THE special tendency of certain occupations to cause disease has long been known, but it is only within comparatively recent times that the subject has received sufficient serious thought to lead to careful study and the institution of preventive measures. All vocational diseases reduce individual efficiency, the efficiency of the work at hand, and the general well-being of the community, and it is evident that the cost of sickness is far greater than the cost of installing protective mechanisms. This, indeed, is now the stand taken by most large and progressive employers. Miners' consumption has, however, a special sanitary interest because the disease is confounded with actual pulmonary tuberculosis, and because, in fact, it is so often accompanied by pulmonary tuberculosis. The likelihood of the sufferers transmitting the disease to those who have a special susceptibility to it because of the damage to the lung tissue by the mine dust becomes a general health menace. But although often mutually complicating and frequently accompanying each other, miners' consumption and pulmonary tuberculosis are not identical; indeed, they need never occur together. But in the terminal stages of miners' consumption pulmonary tuberculosis is so common that they may then be considered identical.

Miners' consumption is essentially a fibrosis of the lung tissues, the result of irritation of the lung by the dust particles. In consequence of this fibrosis there is a reduction of the alveolar cells with a proportionate reduction of the air space of the lung. The ever-present dyspnea is then a natural consequence. More particularly, pneumoconiosis is a chronic interstitial inflammation of the lungs, more marked in the apices, but present almost anywhere in the lung to marked degrees. The lung may even be almost entirely filled with fibrous nodules, each having embedded within it some of the dust particles causing the fibrosis. The surrounding lymph glands are similarly affected, the dust particles being brought to them by the leucocytes. It is evident that tissues so profoundly affected by foreign matter make a good field for the development of other infections, and tuberculosis is the most common of them. But except in the more advanced conditions these patients look well, whereas in lesser degrees of simple tuberculosis involvement the patients would be in much worse physical condition.

Pain is very common in miners' consumption as a result of the mechanical irritation of the finer bronchial tubules by the dust particles. Neither is loss of weight marked in miners' consumption except in the terminal stages. However, when the cough is very marked it usually means an infection with tubercle bacilli. In any case, the sputum is usually loaded with the dust particles and is colored in accordance with the particular kind of mine dust it contains. But in pneumoconiosis, even in advanced cases, there are few, if any, physical signs. Physical examination of these patients is in itself insufficient to establish the diagnosis, without the assistance of the history of the predisposing occupation. Very often even patients who have a complicating tuberculosis in which the sputum is positive for tubercle bacilli will present no physical signs of either disease. Usually tuberculous infection is a terminal condition, but when it occurs earlier it forces a more rapid downward progress of the disease than would occur without this complication. In miners' consumption with the tubercle complication it can never be said that the tuberculosis of the lungs is incipient. It assumes immediately the far advanced stages. Ordinarily the incipient stage of pulmonary tuberculosis is drawn out. Here its length is a negligible quantity, and the outlook for the patient is hopeless. The tubercle infection may arise from an outside source acting upon injured lung; or the tuberculosis may be a reawakening of a dormant focus.

The form of diseases included under the term miners' consumption includes all pulmonary fibrosis caused by the injurious effect of dust particles. Mine workers, marble polishers, and the like, are all subjected to the same conditions and likely to contract this disease. Unless there is a concerted move to control the conditions causing the disease by employee and the community, many more individuals must be affected as these industries continue to develop. Most health authorities make vocational diseases reportable, and legislation is even at present seeking to control the evil.

SEVERAL KINDS OF SLACKERS.

THERE are very few slackers in the medical profession; indeed, instead of speaking of several kinds of slackers in its ranks, we might merely say that there are several slackers among the 150,000 physicians in the United States. But it is useless to deny the fact that here and there in our vast country there exist medical slackers—not among our own friends and acquaintances, of course, but somewhere in the communities in which we live. In order that we may deal with them adequately, it is well to be acquainted with their wiles.

Perhaps the prevalent idea of a medical slacker is one who does not offer his services to either the Medical Reserve Corps or the Volunteer Medical Service Corps, or who does not buy Liberty Bonds. But there are doctors who are legitimately excused from military service, either because of dependents

or for other adequate reasons, and who have the financial sense to see what a good investment the Liberty Loan is and have put a sufficient amount in it to be free from reproach. And yet these same men may be slackers. We have heard of doctors who have had commissions in the Medical Reserve Corps before the war, but resigned at the commencement of hostilities, or who were found ineligible for one reason or another and yet retained the official parchment proclaiming them officers in the United States Army. These pseudo-soldiers have taken pains to have their commissions framed and displayed prominently in their offices for their patients to admire. We are told of cases where, at the opening of hostilities, the cream of the profession in certain towns would rush to join the Medical Reserve Corps. Then from the surrounding country would creep into that town several faint-hearted, greedy slackers, gladly leaving the precarious pickings on which they had been living in the country to fatten on the practices left by the patriots. "Where the carcass is, there are the vultures gathered together." We have heard of doctors who have sent exorbitant bills to the families of soldiers away in the trenches; and we have heard of other instances of greed and deficient patriotism, but they are all rare exceptions and are recruited from the same class of men we find among the medical outcasts in every community.

The vast rank and file of the profession has given its time and money freely to the cause, and it is the duty of those who have not been able to go to the front to see that when the military surgeons return to the practices they have been forced temporarily to abandon they have not suffered from the depredations of slackers.

PARAMEDICAL INDUSTRIES IN FRANCE AFTER THE WAR.

BARDET discusses this subject in the *Bulletin général de thérapeutique*, for March, 1918. He refers to the trade in French mineral spring waters and to the pharmaceutical industry, and the term is extended to include other activities such as the medical book trade and the surgical instrument and laboratory apparatus industries. At present we hear on all sides the statement that native resources must be developed. The Germans before the war were in control of the chemical, dye stuff, and perfumery industries. The war has naturally given an impetus to French chemistry, and enormous quantities of chemicals for war purposes have been manufactured. The same statement is true of the other warring countries, and this movement in its totality means the death knell of German chemistry as a monopoly. But one country at war, Japan, has been able to make war chemicals for export, and already it controls its own market for drugs, chemicals, dye stuffs, and perfumery. Labor is still cheap in that country while in all others wages have risen enormously, and it begins to look as if Japan is destined to supply much of the foreign markets in these products. French industries of all kinds will suffer for lack of coal, but the latter is not everything, for intelligence and dexterity are the real forces behind manufacturers. The French have

long excelled in the fabrication of instruments of precision, jewelry, fine watches and clocks, and similar mechanical apparatus, perfumery, medicaments, and artistic work of all kinds. These industries do not depend wholly on steam and electric power and can thrive without large amounts of fuel. Moreover, owing to their small bulk, such products require fewer ships to export them—for we must not forget that the French will emerge from the war with a greatly reduced merchant marine.

News of the Week.

Conference of Public Health Officials.—The sixteenth annual joint meeting of the United States Public Health Service with the State and Territorial Health Officers will be held in Washington on June 3 and 4. The sanitation of extra-cantonment zones will be discussed and reports made as to the success of the cooperative arrangement developed during the past year for preventing the exchange of disease between civil and military populations. All communicable diseases will receive more or less consideration in their relation to the public health during the war. Other subjects will be the relation to public health of industrial hygiene and sanitation, especially in war industries, the use of the records of drafted men for public health purposes, and the effect on the public health of the forthcoming shortage in the medical profession.

New Home for Bronx Hospital.—The Board of Directors of the Bronx Hospital and Dispensary have purchased the property on the southwest corner of Fulton Avenue and 169th Street, New York, consisting of three buildings and twelve city lots. Alterations will be started on the building immediately which will make them suitable for hospital and dispensary purposes. There will be accommodations for 100 patients in the hospital, which, it is believed, will be ready for occupancy by next fall.

Milk and Dairy Farm Exposition.—The Dairy-men's League held an exposition in the Grand Central Palace, New York City, during the week of May 20, which initiated an educational milk campaign. The point particularly emphasized was the necessity for using more milk if we are going to save our herds and dairy industry. Many addresses and demonstrations were given designed to show the value of milk as a food.

Medical Society Bans German Instruments.—The Iowa State Medical Society, at its annual meeting on May 11, passed resolutions declaring that it should be considered an evidence of pro-Germanism for any members of the society for the next fifty years to purchase instruments or appliances or other articles made in Germany.

Poor Milk Blamed for Increase in Infant Death Rate.—According to a recent Bulletin issued by Commissioner Copeland the infant death rate for the first five months of 1918 shows an increase of 5 per thousand over that of 1917. It is believed that the increased death rate is accounted for by a deterioration in the milk supply and by undernourishment. The present supply of milk distributed daily is 500,000 quarts under that of last

year. Dr. Copeland has ordered an inspection of all stores handling milk and of all the big milk companies.

Charitable Bequests.—By the will of the late Margaret L. Baugh of Tulip Hill Farm, near West Chester, Pa., a bequest of \$10,000 was made to the Presbyterian Hospital of Philadelphia and a bequest of \$5,000 to the Episcopal Hospital of the same city.

By the will of the late George W. Endriss of Philadelphia bequests were made as follows: Lankenau Hospital and Samaritan Hospital, each \$10,000; Episcopal Hospital and Hahnemann Hospital, each \$5,000; Pennsylvania Hospital, Howard Hospital, Medico-Chirurgical Hospital, Polyclinic Hospital, Jefferson Hospital, University Hospital, Presbyterian Hospital, Frankford Hospital, Roosevelt Hospital, Saint Luke's Hospital, Kensington Hospital for Women, Rush Hospital for Consumption, Free Consumptives' Hospital, Philadelphia Cancer Hospital, American Oncologic Hospital, Jewish Hospital, Philadelphia Home for Incurables, each \$1,000.

Examination for Laboratory Assistant in Bacteriology.—The New York State Civil Service Commission announces a competitive examination, open to men and women. Only applicants who have had a collegiate education, or its equivalent, who have satisfactorily completed a systematic course in bacteriology, and have had not less than three months' experience in a laboratory, will be accepted. Application forms must be filed with the Civil Service Commission at Albany before June 19, 1918.

Birth and Death Registration in the United States.—A Bulletin issued by the Census Bureau at Washington, on May 20, calls attention to the recent inclusion of Hawaii in the census area. Within this area now reside about 73 per cent. of the total population of the United States and Hawaii. Highly satisfactory progress in birth registration is reported for the last two years, although there are still a number of States in which adequate death registration prevails, but in which the registration of births has not yet reached a sufficiently close approximation to completeness to justify the acceptance of local records by the Census Bureau. The birth-registration area, as at present constituted, comprises 19 States: the six New England States, New York, Pennsylvania, Maryland, Virginia, North Carolina, Kentucky, Ohio, Indiana, Michigan, Wisconsin, Minnesota, Utah and Washington, and the District of Columbia. This area is estimated to contain about 51 per cent. of the total population of the country, as against about 31 per cent. when the collection of birth statistics was begun, a little more than two years ago, from an area comprising the six New England States, New York, Pennsylvania, Michigan, Minnesota and the District of Columbia. Until the matter is placed under Federal control or supervision it is not likely that reliable birth and death records, approximating completeness, will come into existence throughout the entire United States. Since the military registration of June 5, 1917, the desirability of maintaining such records has become apparent to all.

The Illegitimate Baby's Rights.—According to a report issued by the Children's Bureau of the United States Department of Agriculture, the Nor-

wegian laws are the first to acknowledge the rights of illegitimate children and the State's responsibility for seeing that every child, no matter what his parentage, has the nurture, protection, and education essential to his usefulness as a citizen. These laws make the State, instead of the mother, responsible for establishing paternity. The State holds both parents equally and continuously responsible for the illegitimate child. In commenting on this law the Children's Bureau says that the attitude which looks upon illegitimacy as a child welfare problem that must be solved for the sake of the child and of the State is exemplified by this Norwegian legislation. The bureau believes that the needs of the illegitimate child must be considered in the Children's Year campaign, and calls attention to the necessity of providing opportunity for normal development to the child of unmarried parents.

Errors Upon Certificates of Birth and Death.—The Bureau of Records of the Department of Health calls attention to the fact that it is called upon repeatedly to make correction of errors upon certificates of births and deaths filed by physicians. During 1917 over 1,000 applications were made for corrections as to name, date of birth, occupation, etc., which were either misstated by parents and relatives to the physician, or else were based on errors made by the physicians themselves. The value of these records depends a great deal upon the absence of alterations thereon. Very few physicians realize the extent of the service to which the certificates of birth on file at the Bureau of Records are put. During the year 1917 there were 108,296 free searches of the birth records for school and for mercantile purposes. It is urged upon the physicians of the city that care be taken in the writing of these certificates in order that the parents of the children may feel assured that a correct certificate has been filed, and to limit as far as possible the number of applications made daily to correct birth certificates.

Medical Society Elections.—The MISSOURI STATE MEDICAL ASSOCIATION, which met in Jefferson City, Mo., on May 8 and 9, elected the following officers: *President*, Dr. M. P. Overholser of Harrisonville; *Vice-Presidents*, Dr. J. D. Brullall of Salisbury, Dr. J. C. Matthews of Springfield, Dr. T. Guy Hetherlin of Louisiana, Dr. Scott P. Child of Kansas City, and Dr. John Isbell of Washington; *Secretary*, Dr. E. J. Goodwin of St. Louis; *Treasurer*, Dr. J. Frank Welch of Salisbury.

THE IOWA STATE MEDICAL SOCIETY, at its annual meeting, in Fort Dodge, on May 8, 9 and 10, elected the following officers: *President*, Dr. W. L. Allen of Davenport; *First Vice-President*, Dr. W. A. Rohlf of Waverly; *Second Vice-President*, Dr. Evan S. Evans of Grinnell; *Secretary*, Dr. T. B. Throckmorton of Des Moines; *Treasurer*, Dr. T. F. Dubigg of Des Moines.

THE IOWA MEDICAL WOMEN, at their annual meeting in Fort Dodge, on May 9, elected the following officers: *President*, Dr. Jeanette F. Throckmorton of Chariton; *First Vice-President*, Dr. Josephine W. Rust of Fort Dodge; *Second Vice-President*, Dr. Rosa Lowder of Maquoketta; *Third Vice-President*, Dr. Nellie Noble of Des Moines.

THE WOMEN'S MEDICAL SOCIETY OF NEW YORK STATE, at its annual meeting in Albany, on May 20, elected the following officers: *President*, Elizabeth

Burr Thelberg, M.D., Poughkeepsie; *First Vice-President*, Edith R. Hatch, M. D., Buffalo; *Second Vice-President*, Florence I. Staunton, M. D., Utica; *Third Vice-President*, Sarah J. McNutt, M.D., New York City; *Secretary*, Ethel D. Brown, M.D., New York City; *Treasurer*, Phoebe M. Van Voast, M.D., New York City.

Obituary Notes.—Dr. WILLIAM AUSTIN MACY of New York and Kings Park died suddenly of apoplexy, at the Kings Park Hospital, on May 21, aged 57 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1885, and was connected with the State Hospitals for the Insane for thirty-one years, having been assistant superintendent of the Ward's Island Hospital, superintendent of the Willard State Hospital, and superintendent of the Kings Park Hospital. He was a member of the American Psychiatric Society, the New York Academy of Medicine, and other medical organizations.

Dr. FRANK GROVE MCKLEVIN of Denver died of pneumonia in a local hospital in that city on April 22, aged 50 years. He was a graduate of the University of Pittsburgh Medical Department in 1892 and for many years was head of the medical staff of St. Anthony's Hospital.

Dr. GEORGE A. WILLIAMS of Brooklyn, N. Y., died of septic pneumonia following a long illness in the Bushwick Hospital on May 11, aged 63 years. He was graduated from the New York University Medical School in 1879. He was a member of the Associated Physicians of Long Island and one of the founders and directors of the Bushwick Hospital.

Dr. E. B. JACOBSON, resident physician at the Hebrew Hospital, Baltimore, died in that institution on May 16, aged 24 years.

Dr. SYLVESTER DEMAREST of Suffern, N. Y., a graduate of Bellevue Hospital Medical College, in 1885, died, following injuries received in an automobile accident, in the Paterson General Hospital, on May 10, aged 59 years.

Dr. WILLIAM P. McNALLY, a graduate of McGill University Medical Faculty, in 1897, died of pneumonia at his home in Bangor, Me., on May 2, aged 53 years.

Dr. ROGER MARTIN, a graduate of the College of Physicians and Surgeons, Baltimore, Md., in 1887, died at his home in Vulvan, W. Va., on May 7, aged 57 years.

Dr. FREDERICK CECIL SKINNER of Davenport, Iowa, who was taking a postgraduate course of study at the Post-Graduate Hospital and Medical College in New York City, died in that institution, following an operation, on May 11, aged 39 years. He was graduated from the Sioux City College of Medicine in 1898.

Dr. WILLIAM H. HOAG, a graduate of the College of Physicians and Surgeons, New York, in 1865, and a surgeon-major in the 134th New York Regiment during the Civil War, died at his home in Manhasset, L. I., May 13, aged 78 years.

Dr. CHARLES F. A. WALSH, a graduate of the Long Island College Hospital in 1895, died at his home in New York City on March 18, aged 55 years.

Dr. W. H. BRUSE, a retired physician of Mount Pleasant, Tenn., died from the effects of a dose of poison taken by mistake, on May 19, aged 83 years.

Correspondence.

COMMERCIAL MEDICINE.

TO THE EDITOR OF MEDICAL RECORD:

SIR:—There has been a deplorable tendency of late to vulgarize and cheapen medical standards. Reputable magazines and other periodicals open their pages to the disingenuous advertisements of charlatans in a manner they never did before, and while it is true that decent newspapers have excluded the vile sexual advertisements that formerly shocked public decency and worked incalculable harm to the ignorant, these have been superseded by quasi-scientific puffs and announcements, and the reclame of money-making projects. In at least one Sunday paper I found recently the glowing prospectus of a new organization, which seems also to be connected in some way with a supposedly ethical medical organization.

The apparent aim of this well-advertised concern is to afford superior medical advice by physicians who are supposed to be of exceeding merit, and apparently are not averse to being so classed. Like all things of the kind chiefly "run" by laymen, the methods of the correspondence school are utilized, and intending patients are requested to fill up blanks and detail their symptoms, although they may conveniently, after subscribing, consult directly with the medical authorities, who are said to be available. I have seen such a blank filled up by a wretched hypochondriac, and one can imagine the doubtful value of diagnoses made by the illuminati at headquarters who have such data alone upon which to proceed.

This kind of exploitation at once appears to present an affront to the more dignified members of an honorable profession, and naturally raises in the minds of the public a doubt as to their fitness. At a time when medical ethics existed in a more exalted degree than they apparently now do, it would be hard to find physicians in good standing who would be drawn into any such a money-making concern. The danger of the thing is that the names of well-known and prominent men appear to be used as bait, but the list of directors contains few, if any, names of physicians.

The cost of membership in this concern, we are informed, is low because of its humanitarian, character and national ideals; and the seeker for health need not necessarily consult his old friend, the family physician, but he may obtain "without any obligation" upon his part, a copy of an instructive pamphlet and afterward proceed to the fountain head of efficient medical knowledge.

ALLAN McLANE HAMILTON, M.D.

NEW YORK.

OUR LONDON LETTER

(From Our Own Correspondent.)

MEDICAL NEEDS OF THE ARMY—HONORS FOR GALLANTRY TO ARMY AND NAVY MEDICAL OFFICERS—REMUNERATION OF MEDICAL WOMEN—THE DRAIN OF TUBERCULOSIS.

LONDON, May 2, 1918.

AT the close of the first week of the great German offensive, the Army could congratulate itself upon having lost a far smaller number of medical officers

and far less medical plant and stores than would have been anticipated even by those familiar with the possibilities of a rapid retreat. It seemed a foregone conclusion that the hospitals could not be carried back in the time at the disposal of the retreating armies, while every one knew that, if those hospitals contained wounded, the medical officers and the personnel would stay by their charges, and the whole unit, building, men, material and stores would thus all fall into the hands of the enemy. So confidently was this anticipated, when some of the circumstances under which the Somme retreat was made became public property, that in several places the loss of hospitals and medical personnel was recorded not as a probable but as an accomplished tragedy. As a matter of fact, by wonderful organization, extraordinary endurance on the part of the patients, and great gallantry, the officers of the R.A.M.C. and their men succeeded in carrying off from the invaded area most of their patients and most of their material, and have themselves escaped from the deadly ordeal of imprisonment in Germany. The saving of the medical personnel is a matter of great importance in view of the distinct shortage of medical men which now exists in many parts of the United Kingdom. For a long time this shortage was more apparent than real. Localities of under 10,000 which had always been used to the service of seven or eight doctors thought themselves very badly treated fifteen months ago when the activity of the Central Medical War Committee reduced those seven or eight doctors to five or six; but within the last six months they have found that they can get on with three or four. On the other hand, the medical men themselves find that with the enhanced value of time and with distinct cooperation on the part of the patients in its saving, they can do more work and do it in a more systematic manner. Undoubtedly in most populous centers and in all great rural districts where the distances from door to door are great, the medical men are very hard worked, but the breaking point has not been reached at many places. None the less, there no longer remains the least superfluity of medical men in home practice, and therefore it is a matter of great congratulation that no sudden draft has to be made for the sake of the Army upon those that remain at home.

The official *Gazette* now contains the details of the heroic actions with the British Navy and Army which have gained for no less than ninety-six medical men various recognitions in the form of decorations. Ten have received the Distinguished Service Order (D.S.O.), and two holders of that order, which ranks second only to the Victoria Cross, have gained a bar to the medal, in other words, have earned the D.S.O. twice. Seventy-four officers have received the Military Cross (M.C.) for deeds whose bravery or utility is in many cases undistinguishable from the similar qualities which have earned their colleagues the D.S.O.; nine officers have received a bar to their crosses, and one has received a second bar, showing that he has been awarded the cross three times. The *Gazette* indicates with what complete unanimity the British Colonial medical men have volunteered for military duty, for eleven of these decorated officers belong to the Canadian Medical Corps, ten to the Austro-

lian Medical Corps, four to the New Zealand Medical Corps and one to the South African Medical Corps, chance not having taken the African contingents much into the actual fighting wherein the distinctions were gained.

Those in charge of the economic interests of the country are just now much exercised as to the question of women's remuneration and the value of women's service, because in so many places women are doing men's work and doing it at rates of pay which it may not be possible to maintain after the war. The position of medical women becomes very interesting from that point of view for they represent the intellectual flower of self-supporting women, while they are also the class of women workers who understand best how to realize the value of cooperation. When women first aspired to join the medical profession in Great Britain there was a great deal of opposition in that profession of worthy and unworthy sort. I do not refer to views based either upon the early Victorian estimate of woman's sphere or upon fears, however legitimate, of loss of employment by men through successful female rivalry. There were general and genuine apprehensions that in the hard and often terrible life of medicine women might be found physically or temperamentally wanting. Gradually these apprehensions disappeared as women won their way surely into the medical profession, but it should be pointed out that their difficulty in many instances in obtaining posts, after the way to qualification had been opened to them, was not necessarily the unenlightened result of old prejudices. As often happens with an innovation, the new thing arrived before its environment was ready for it. The people who built hospitals and institutions had not provided for young resident officers of opposite sexes either in sleeping or lavatory accommodation. When boards of hospitals chose among the applicants the respectably qualified man rather than the brilliantly qualified woman, it was not so much that they felt that to appoint the woman would be an experiment as that to choose the female would have entailed upon them a certain amount of trouble because of the necessary alteration in the domestic accommodation at their disposal.

The war has done away with all such difficulties. When a Minister with a wave of his hand can turn half a dozen hotels and as many clubs into Government bureaus no hospital committee would hesitate about the alteration of a few partitions and the addition of a few drainage pipes. Women are now welcomed in the whole institutional sphere of medicine, and at salaries equal to, or greater than, those previously enjoyed by the men. This is as it should be, for from the beginning as women became employed in medical posts they were found to do their work as well as men. The academic work done by the women is and has always been admirable, but many of them graduated at the University of London at the very time when the high standards of that university had betrayed it into making its examinations very unpractical, so unpractical that the General Medical Council called attention to the fact. Some of the early women doctors, whose training had been of this literary and cloistered sort, obviously felt their responsibilities so keenly as somewhat to unfit them for the

more ordinary routine, and in one case at least a dramatic tragedy brought this home to the authorities of a great London institution. But all this is now altered and it seems to everybody that women can take their place by the side of men in the medical profession so adequately that no question should arise as to their receiving the same emoluments. Yet the question has arisen, and very acutely, in a good many places. The British Medical Association, constituting itself roughly into a trades union, has decided that the holders of certain posts, rewarded by salaries drawn partly from the Local Government Board and partly from local rates, should not accept less than a certain figure. For the most part the members of the association accepted the suggestions of the association, for considerable pressure can be brought to bear upon medical men who do otherwise. The lay authorities finding their proffered terms rejected by men made resolute attempts to lower the male price by selecting female candidates willing to take abated salaries. Very promptly the women combined and refused to have anything to do with such tactics, and their combinations have been generally successful. But the sacrifice has all been on the women's side, because most of the authorities, failing to secure male labor at a lower price than female labor, continued to appoint males. Now in many instances the abated salaries would have been adequate for single women and the posts would have formed admirable introductions later to private practice.

It is fairly certain that women will continue to obtain after the war such posts as they now hold, if and when they apply for them, and in the same proportion as they are obtained by men, where the man and the woman are, on the face of things, equally suitable candidates. If the posts that can thus be described are still comparatively few, the number of women on a medical register, though increasing so rapidly, is still but a fraction of the number of men, so that numerical justice will be maintained. The position of medical women, in establishing the principle that for work of equal value equal wages should be paid to the two sexes, is much envied by women in the industrial world; they use the more fortunate portion of the medical women as a constant argument for the advance in commercial wages, somewhat forgetting that the medical woman is a person of very special training. A soprano gets as much as a baritone, a female dancer is better paid than a male dancer; their work is still more specialized than the work of medical women, and the absurdity of using their rates of pay as an argument in connection with commercial wages is obvious. But though it is obvious it is not more truly an absurdity than to found a theory about the wages of mill hands on the fact that a female medical inspector of schools is paid the same salary as a male inspector and has been able to enforce such payment to herself.

At the time when the principle of national insurance was being freely discussed in Parliament one of the provisions in Mr. Lloyd George's bill which met with general favor was that in which he proposed to devote a special part of the money raised to the prevention, systematic treatment, and cure of tuberculosis. Any organized method of

dealing with the disease which exacts such a regular toll in death and disability from the British nation was certain to receive a warm welcome from legislators, while the value of the anti-tuberculosis work projected was seen to be further enhanced by the amount of time otherwise spent by general practitioners in struggling with the disease which would now be set free for other medical purposes. The argument to the general practitioner ran as follows: "A great deal of your time is spent in the treatment of chronic tuberculous cases, which reach your hands because they are on the books of certain clubs or medical aid associations. These patients require from you supervision and drugs, and every one which you have on your books under the present system is a dead pecuniary loss. Under the National Insurance Scheme these patients will be removed from your lists and you will be spared the drain upon your time and pocket. This must be regarded as a pecuniary benefit." The medical profession did not as a whole look at the matter quite from Mr. Lloyd George's point of view, nor did those who had real medical experience of the care of the sick poor in Great Britain feel very sanguine about any abatement in tuberculosis following upon the National Insurance Scheme which would be quicker than that abatement which had already taken place and had been taking place for over a decade in every division of the United Kingdom except Ireland.

On the whole, the pessimists have been proved to be wrong; the drain of tuberculosis upon the nation is less steady and less terrifying, and National Insurance must be given some credit. Few or none of the results of the National Insurance Act can be taken as evidence for or against the value of its operation, since before the effect of the new legislation could really be felt by the nation at large the war broke out and the medical organization of the act had to give way to the military and social needs of the country. But undoubtedly the act has strengthened in many directions the hands of those whose work especially lies in the prevention of tuberculosis. It is true that difficulties are now being experienced in all parts of the country in providing sanatorium and institutional accommodation for tuberculous subjects whether among the population at home or among the returned discharged soldiers and sailors, and in London especially the institutional accommodation has proved far too scanty. A long waiting list of cases medically recommended for institutional treatment was awaiting admission to sanatoriums over a year ago, and this list has steadily grown. The London Insurance Committee is at times acutely embarrassed to find shelter for discharged sailors and soldiers, and the number of applications for sanatorium benefit received by the committee during the first three months of the present year has been very large. But none the less the story, though it reads dismally, is a hopeful one. There were more cases before National Insurance formed the machinery to detect the incidence and correct the mischief in early patients. The very troubles of administering the tuberculosis benefit advertise the existence of the disease and form a call upon the public which is now being responded to. Publicity here is doing good educational work.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

RECONSTRUCTING THE REGAINED REGIONS—SCARCITY OF SURGEONS—MEDICAL SCHOOLS ON THE BATTLE LINE.

PARIS, April 15, 1918.

THE American Red Cross has a large scheme for developing its work in the liberated area of France. Mr. Edward Eyre Hunt has returned from a tour of the six districts in which his Red Cross Bureau of Reconstruction has established warehouses, etc., and emphasized the importance of bringing back the liberated regions to effective fruitfulness as France's granary. One-quarter of the wheat produced in France before the war was raised on the five million acres of land which make up the invaded departments and 87 per cent. of the national crop of sugar beets—all this in addition to industrial productivity. Of these five million acres, nearly a million have been reconquered. The more recent advances of the Allies have freed for cultivation more than 250,000 acres behind the formal battle front. The food problem is both a social and a military one, so it is important that we bring back the farmer to the land, giving him the indispensable shelter and tools.

Some of us have an exaggerated idea of the amount of damage done to the land which lies between Paris and the present front. While there are certain stretches which it would take months of intensive labor to reclaim, and parts, like the battlefield of the Somme and Vimy Ridge, which it will take generations to reclaim, such regions are the exception. But the villages where the peasants formerly lived are practically annihilated. Roofs must be patched, walls re-erected, windows and window-frames put in, and barns built before the peasant can begin to use the land to the utmost. This work is being done in the devastated regions by military labor and, far enough back of the lines, by the labor of prisoners, and, in sound of the big guns, by members of the Society of Friends who have elected that form of war service. These various forms of reconstruction can be seen going full blast throughout the country round Roye and Noyon. Besides patching roofs, it is often necessary to mend stables. In some cases the farmer comes back to the stable, where it takes less work to restore this than to renew the utterly destroyed farmhouse. Where the devastation has been worst portable houses constructed in the Jura by the Friends or furnished by the French Ministry of the Interior and set up on or near the ground that is to be cultivated, are proving satisfactory. The two difficulties involved in this work of providing shelter for the returning farmers of the liberated regions are the scarcity of labor and of food.

Up to date the main work of the Red Cross Bureau of Reconstruction and Relief has been to devise an organization to distribute relief supplies in kind. We have used as our agents existing French or American relief organizations. Our original warehouses have been located where the hauls are short and local deliveries have been made by camion. More and more we have been

able to cooperate with the French "œuvres," admirable field organizations which apply to us for clothing, household goods, bedding, furniture, farm implements, etc. We have storehouses at Arras, Amiens, Ham, Neale, Soissons, Noyon, and Nancy. We have distributed building material to "œuvres" engaged in reconstruction; French charities and the French army have used our tar paper, our timber, our windows, our window-glass, and our hardware, and through them we have distributed rabbits, goats, and other small live-stock. Up to January 1 we had distributed among other things, 27,548 meters of clothing material, beds and bedding, thousands of pairs of shoes and stockings, stoves by the hundred, agricultural implements and kitchen utensils by the thousand.

In time of peace France had a total of about 15,000 doctors, few enough for a population of 35,000,000; but it is not an easy matter to become a doctor in France; at a minimum it requires eight years to secure the degree after having passed the bachelorat and during this time the student must be supported in a fashion suited to the social position attached to his profession, which is high, and he rarely is ready to open an office prior to the age of 30. So it is only a certain class that enter the profession and they must be willing to sacrifice their younger years and the ranks are never overcrowded. This explains why during the greatest of all wars France has suffered for lack of medical help, and foreigners like myself who have taken the medical degree in France, have been freely welcomed and appointed to important posts. Many foreigners without the French degree, but possessed of credentials satisfactory to the authorities, have been incorporated into the service, but more than this: Early in the campaign a call was made upon all medical students, who have been distributed behind the front and at base hospitals as aids to the doctors and surgeons in charge and have not only rendered valuable service, but have in many instances surrendered life or limb upon the field, in the fearless performance of their duties.

Recently an innovation has been inaugurated because of the prolongation of the war and arrangements have been completed to carry on three medical schools behind the lines, near the front, where these students can after a fashion prosecute their studies and not be unduly delayed in securing their degrees. The courses of instruction are mapped out and at fixed periods the students meet given professors at the centers fixed for instruction and examination along the prescribed lines; so it is that again necessity becomes the mother of invention; but it goes without saying that the training these students are daily subjected to, mental, moral, and physical, is calculated to make better doctors than any didactic course that could be imagined.

146 AVENUE DES CHAMPS ELYSÉES.

Camptocormia.—This new affection has been made the subject of a French thesis. Souques, who first described it, terms it a vicious attitude; it is a permanent forward flexion of the trunk; the head being thrown back in order to see. The condition has no pathology—in other words, is hysterical.—*Journal de Médecine et de Chirurgie Pratiques.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

May 16, 1918.

1. Traumatic Shock. W. T. Porter.
2. The Anatomy and Physiology of the Respiratory Tract. Frank F. D. Reckord.
3. A Portable Respiration Apparatus for Clinical Use. Francis G. Benedict.

1. **Traumatic Shock.**—W. T. Porter enumerates the hypotheses usually given as the cause of shock. (1) *Exhaustion of the vasomotor center*—this, he says is impossible because the center does not become exhausted but still reacts to the stimulation of the depressor nerve. (2) *Excitation of sensory nerves*—the writer points out that the sensory nerves in normal animals may be strongly stimulated for many hours without producing a noteworthy fall in the blood pressure; a condition roughly resembling shock may follow injury to a nerve during operation, but this condition is not shock but a prolonged inhibition of the heart. The explanation of this may be that the patient is in a certain state for which Porter proposes the name "sensitization," a conception which is new and which he bases on the following experimental evidence: (a) In 50 per cent. of dogs given morphine and curare, ligation of the ramus descendens of the left coronary artery produced fatal fibrillation of the heart, whereas fibrillation very rarely occurred when ether alone was used. (b) In a rat to which morphine and curare were given, gently lifting the sciatic nerve on a thread caused inhibition of the heart, lasting over half an hour. (c) In a tortoise heart, a stimulus which ordinarily caused a tonus contraction lasting thirty seconds, caused in this case a contraction lasting sixty-four minutes. The writer has no experimental evidence as yet of such sensitization of the arteries, although there is some clinical evidence of prolonged contraction or relaxation of the blood vessels following stimuli ordinarily uneventful. (3) *Hydrostatic fall in blood pressure*—Porter points out that a simple hydrostatic fall in blood pressure is not shock, but should the low pressure continue long enough to impair the nutrition of the vascular apparatus shock may ensue. (4) *Vibration injuries*—these may cause shock when the vibration shakes the vasomotor cells until their function is impaired. (5) *Direct wounds of the vasomotor apparatus*—if in the abdomen, hydrostatic shock may follow. (6) *Hemorrhage*—Porter points out that hemorrhage is not usually a cause of shock, as in the present war, for instance, it almost always happens that there are men who have lost more blood than the shock cases. The loss of a small quantity of blood may be a serious matter, however, if the blood pressure is near the critical level, which is the point below which the blood pressure will not usually rise again without assistance. In the study and treatment of shock, it is of first importance to remember that if the blood pressure just touches this critical level, a difference of ten millimeters may be the difference between life and death; that procedures which at ordinary blood pressures are not harmful may kill the patient at the critical level; and that remedies that raise the blood pressure but ten or fifteen millimeters will save the patient when this rise carries the pressure from just below to just above the critical level. Frequent readings of the blood pressure until the patient is out of danger are of the greatest importance. The diastolic and not the systolic pressure should be employed. Porter found that the injection of a small quantity of neutral olive oil in the jugular vein resulted in a fall of the blood pressure and other symptoms of traumatic shock, or—in other words—that shock is frequently caused by fat embolism. He also found that the diastolic pressure could be increased by allowing an animal to breathe in an atmosphere rich in carbon dioxide, thereby producing strong respiratory movements of the diaphragm. He has applied the method with success in the treatment of wounded soldiers. The general treatment employed by him was as follows: The patient was carried from the ambulance to the shock room, a room adjoining the operating room, was not washed but placed at once on an operating table, inclined so that the feet were 30 cm.

higher than the head. An electric heater was then placed between the blankets and the body. The diastolic pressure was taken every fifteen minutes. Where indicated, injections of warm normal saline solution were made into a vein; adrenalin was added to the solution in grave cases. Carbon dioxide respiration was used. When the patient's condition justified operation the clothing was cut away about the wound and the area disinfected and neighboring regions covered with sterile cloths. Patient was then moved into the operating room and the operation performed, if possible, under local anesthesia. Under these methods four-fifths of the patients recovered.

New York Medical Journal.

May 18, 1918.

1. An Electrooperative Bone Clamp. Fred H. Albee.
2. A Study of Images Reflected from the Cornea, Iris, Lens, and Sclera. W. H. Bates.
3. Some Remarks Concerning the Smith-Indian Intraocular Operation for Cataract. Frank Allport.
4. The Organism Causing Poliomyelitis, and How the Disease Probably Spreads. Horace Greeley.
5. Relation of Industrial Hygiene to General Practice. Louis I. Harris.
6. Encourage the Obscure Contributor! J. Van Becelaere.
7. Gallstones. Samuel Weiss.
8. Treatment of Gunshot Injuries of the Spinal Cord at Casualty Clearing Stations. H. M. W. Gray.
9. Epidemic of Sore Throat at Fort Ethan Allen, Vt. Major Isaac W. Brewer.

5. Relation of Industrial Hygiene to General Practice. —Louis I. Harris estimates the industrial population of New York State at 3,000,000 and points out that less than 100 factories and mercantile establishments out of a total of more than 78,000 had any substantial welfare organization at as recent a date as October, 1917. By medical welfare work is meant a system of organization which has in view the periodic medical examination of employees and the provision of medical and surgical care to prevent serious illness, as well as to treat those who may be injured. Labor turnover, or the constant change of employees—which is economically wasteful—can be largely prevented by medical welfare work, as was proved by Dr. Marquis, who was able to reduce it from 56 to something like 14 per cent. in one year at the Ford Automobile Company's works. The proper function of a doctor in a large industrial establishment is to serve as a staff or advisory officer with a view to eliminating conditions detrimental to health. He must be qualified to examine every branch of the industry, know the composition and nature of the chemicals employed and their possible effects upon health, and understand ventilation, lighting, temperature, conditions which bring about muscular, nervous, and mental fatigue, etc., which all constitute the true field of industrial hygienic study. The writer goes on to cite cases of lead poisoning and other occupational disease, which could be largely prevented if working conditions were carefully studied by a competent physician. Harris adds a plea for a larger measure of respect for industrial hygiene; it is time that it was given a hearing in the schools of medicine and that something was done to indicate its place as another link between medical science and practitioners in the effort to secure human welfare. He believes that, speaking generally, physicians of New York City have been slow to appreciate the progress of industrial hygiene. A certain number of medical adventurers, however, have formed a number of medical organizations for commercial exploitation under pretense of offering their services as industrial hygienic supervisors. Believing that health insurance, when it becomes effective, will stimulate interest in this work, Harris points out that the time is ripe for the organization of reputable medical practitioners into groups who will establish medical service stations in factory districts and thus serve the needs of small manufacturing establishments, who could not afford to employ independent medical officers. Such officers should be prepared to give the benefit of their knowledge of sanitary engineering to owners of factories and act as advisers for the prevention of disease and not merely as therapeutists and surgeons. The stations should also receive and treat medically and surgically all cases requiring treatment, and should respond to emergency calls.

Journal of the American Medical Association.

May 18, 1918.

1. The Atropine Test in the Diagnosis of Typhoid Infections. Alfred Friedlander and Carey P. McCord.
2. Nurses and the War. Philip King Brown.
3. Atonic Dyspepsia. William J. Mallory.
4. Renal Infections: A Clinical and Bacteriological Study. Harry Culver, Russell D. Herrold, and F. M. Phifer.
5. Mumps Meningitis. Julius Kaunitz.
6. The Anamnesis in Cardiovascular Disease. William Brady.
7. A Plan of Rectal Feeding. Edward E. Cornwall.
8. The Sensory Distribution of the Trigeminal Nerve. Walter Max Kraus.
9. Report on Arsphenamin: Satisfactory Use of the Arsenobenzol Brand in One Thousand, One Hundred and Four Injections for Syphilis. Victor N. Meddis and William C. Stirling, Jr.

2. Nurses and the War.—Philip King Brown suggests that the present shortage of nurses should be met in somewhat the same way as the shortage of officers in the army has been, i.e. by intensive training. It would certainly be better, he states, to have an adequate supply of fairly trained nurses than to have to fall back on those who are willing to serve but who have had no training. He gives a review of the practical educational opportunities offered to nurses in Californian hospitals and points out that among the seventy-two schools the nursing of tuberculous patients is taught only in thirteen, that of mental cases in four, practical public health in one only, where it is an elective subject, and the nursing of occupational diseases in none; moreover, an undue importance is attached to surgical work. Brown objects, therefore, that the present system of training lacks balance, is wholly inadequate in many departments in most hospitals, is too apt to be largely surgical, and fails to cover a number of medical conditions in which special training is necessary. He is also of the opinion that training schools undertake too much academic work, and that since the special lines of nursing are best prepared for after graduation, the three-year course of preparation for them is too long. He considers the relative cost of training in time and money in the nursing and other professions open to women and points out that nursing is the only one in which students are given room and board free of charge and, instead of paying for their instruction, are paid for their services during training. The writer summarizes the situation as follows: 1. The 7,000 already enlisted Red Cross nurses have created a noticeable shortage, although they constitute only 6 to 8 per cent. of the supposed total of from 80,000 to 90,000 registered nurses. 2. The need expressed by General Gorgas for 5,000 nurses within two and a half months and a balance of 35,000 within the year cannot be met by volunteers, and it is doubtful if it could be dealt with by conscription in fairness to the community and the nurses themselves. 3. No plan for an adequate supply of nurses has been seriously advocated, although the curtailing of the three-year course for certain well-educated women, and the provision of special preliminary training enabling others who take it to cut down the three years, are steps in the right direction. 4. The time for a complete change in the nursing situation is at hand, and the change should be made along the lines of (a) more fitting preliminary training in subjects that hospitals cannot teach to advantage; (b) the cutting of the course in hospitals down to four terms of three months each, for which the young women pay, and during which time they receive more personal supervision from trained teachers, and (c) the abolishing of the boarding of nurses in the interests of getting a better class of women, and lessening the expense of operating hospitals.

The Lancet.

April 27, 1918.

1. Illustrations of the Agglutination Method of Diagnosis in Triple Inoculated Individuals. Captain H. Marrian Perry. With a Note by Colonel Sir William Leishman.
2. Septic Phlebitis Due to Gunshot Wounds. Captain H. Burrows.
3. Cerebrospinal Fever: Notes on 92 Consecutive Cases. Captain W. H. W. Attlee.
4. Trench Fever: Observations on the Condition of the Spleen and Leucocytes. Captain D. L. Tate and Captain J. W. McLeod.
5. A Note on Eye-Strain. A. S. Cobbledick.

6. The Restricted Diet of a Sedentary Worker. A. D. Waller.
7. War Bread. Edmund I. Spriggs.

3. Cerebrospinal Fever: Notes on 92 Consecutive Cases.—Captain W. H. W. Attlee gives a summary of the results of treatment in a series of cases which occurred among soldiers between 19 and 48 years of age. Only two patients came from any one unit, and they were from different companies in the battalion. The average day of disease upon admission was the fourth. All were treated with Lister or Pasteur serum, given intrathecally; in one case, which resulted fatally, it was administered intravenously as well. As the Pasteur serum did not agglutinate with any of the strains of meningococci, Lister serum was given at first until the supply ran short. In all cases but six the meningococcus was seen in the cerebrospinal fluid and in most cases it was cultivated. In the six negative cases the fluid was turbid and contained many polymorphonuclears, and one of these patients died with the usual postmortem appearances in the meninges of cerebrospinal fever. Of thirty-three cases treated with Lister serum eighteen recovered and fifteen died. Of the recoveries two were completely deaf when evacuated, and one was completely deaf in one ear. Fifty-two cases were treated with Pasteur serum; of this number thirty-three recovered and nineteen died. There was no permanent disability among those who recovered. Seven cases were treated with Lister and Pasteur serums combined; of these cases four received first Lister and afterwards Pasteur serum, and all died; the other three who recovered, began with Pasteur serum and afterwards, owing to a shortage in the supply, were given Lister serum. Of the fifty-four patients who recovered, twenty-four were unconscious or delirious upon admission and thirty-three were sensible. Of the thirty-eight who died twenty-three were unconscious or delirious upon admission. In every case the neck was definitely stiff, and Kernig's sign was definitely present at some time during the illness in all those who were not comatose or moribund. Twelve cases had rashes, six recovering; in twenty-two one or more cranial nerves were affected, trismus being definitely noted in sixteen; and nystagmus was common. Serum arthritis was common, and urticarial and erythematous rashes frequently noted. Headache was the only constant symptom and stiffness of the neck was the only sign of real help in diagnosis. The temperature and pulse were variable and were valueless as signs. As a practical working rule the author came to the conclusion that a man who is ill, complaining of acute headache of sudden origin, without any definite physical signs other than neck stiffness, should be suspected of having cerebrospinal fever and should be punctured without delay. From these findings the author reached the following conclusions: (1) The disease can be only slightly infectious; at any rate in the field. (2) Early diagnosis would be more common if it were made a routine to test for neck stiffness in all acute illnesses with headache. (3) Early treatment seems to be of the utmost importance. This series of cases, in which treatment was begun on the average on the fourth day of the disease, compares very unfavorably with other series in which treatment was begun, in the majority of cases, during the first forty-eight hours. (4) Serum does seem to have some effect. The differences in the mortality in this series cannot be explained altogether by the possibility of there having been more mild cases in the Pasteur series than in the Lister. (He adds that since the above notes were written five more cases have been treated with Pasteur with four recoveries and one death.)

British Medical Journal.

April 20, 1918.

1. A Clinical Lecture on the Bad Habit of Vaginal Douching. W. E. Fothergill.
2. The Treatment of Furunculosis and Other Deep-Seated Coccogenic Infections by Colloidal Manganese. Sir Malcolm Morris.
3. The Chance of Recovering Dysentery Bacilli from the Stools According to the Time Elapsing Since the Onset of the Disease. Experiences at a Base Hospital in France. Lieut.-Col. C. J. Martin and Sister F. E. Williams.
4. Two Fatal Cases of Icterus Gravis Following Injections

of Novarsenobillon. Lieut.-Col. P. C. Fenwick, Captain G. B. Sweet, and Captain E. C. Lowe.

5. Toxic Jaundice, with Atrophy of Liver, Followed by Regeneration and Recovery. Barbara G. R. Crawford.
6. Acute Metatarsal Overstrain (Foot-Swelling). A. Rocyn Jones.
7. The Value of Amyl Nitrite Inhalations in the Diagnosis of Mitral Stenosis. Lieut. R. A. Morison.
8. A Pylon, or Temporary Artificial Leg. Captain W. H. Broad.

6. Acute Metatarsal Overstrain (Foot-swelling).—A Rocyn Jones describes the case of a soldier in which a provisional diagnosis of trench feet was made. An x-ray examination, however, showed fracture of the second metatarsal bone in each foot. He points out that marching fractures seldom occur in both feet and gives the figures of Nion, who found that out of 575 cases in two only were both the second metatarsals affected, in one both the third, and in one the second and third. Rarely are there two fractures in the same foot, either, and in Nion's series the second and third metatarsals were broken only in four cases, and the second and fourth in one case. Acute metatarsal overstrain is practically confined to the three middle metatarsals and Nion gives the proportions of 112:98:17 for the second, third, and fourth metatarsal, respectively. Rocyn Jones points out that the second metatarsal bone is the one most subject to variation; it may be the strongest next to the first metatarsal, or it may be the weakest. The third is always a weak bone. The frequency of fracture of these bones is due to their commonly slender length, their fixity, their direct forward projection, their line in the transmission line of body weight, and the part they play in the leverage action of the foot. The development of symptoms, as a rule, is gradual during a march, and there is rarely any account of accident. The pain is localized to the metatarsus, and by running the fingers along the bony shafts a very sensitive spot will be found in one of them. If a fracture occurs, discoloration of the skin due to extravasation of blood may be present and possibly crepitus elicited. Swelling of the foot is usually a prominent feature. The diagnosis can only be definitely established by the x-ray. If there is no fracture periostitis may be present and is shown in the skiagram by vagueness and irregularity of outline. The condition occurs more frequently in troops from lowland than from mountainous districts, for hill climbing tends to strengthen the metatarsus and pedal muscles, and possibly to promote a better power in dorsiflexing the foot. *Treatment:* Complete rest off the feet for four weeks, and the application of massage and hot air. The heating chamber should be at a temperature of 300° Fahr., and the limb well protected by wool and flannel bandages. Treatment should occupy from thirty to forty minutes daily. As an alternative treatment passive hyperemia may be adopted. A Martin's bandage is applied round the leg just above the ankle, so as partly to obstruct the venous flow from the foot. This treatment should be applied first for an hour daily and gradually extended to several hours. At the end of one month or less in the case of periostitis the patient is allowed to get on his feet gradually, and ten days later, if there is no pain or swelling, to walk freely. In the case of fracture a transverse "football" bar may be worn for a few weeks and then discarded. Care should be taken that a properly fitting boot is provided.

British Medical Journal.

April 27, 1918.

1. The Selection of Abdominal Cases for Operation. With Reference to a Series of 200 Operations. Colonel Owen Richards, D.S.O.
 2. Abdominal Operations at an Advanced Operating Center. Fifty Consecutive Cases of Penetrating Wounds of the Abdomen, in Sixteen of Which the Chest Was Also Involved. Captain Charles F. M. Saint.
 3. An Abduction Splint for the Femur. Captain Dennis W. Crile.
 4. A Method of Citrated Blood Transfusion. Captain Oswald H. Robertson.
 5. Destruction of Nits of the Clothes Louse by Solution of the Cresol-Soap Emulsion and Lysol. A. W. Bacot and Lieut. L. Lloyd.
 6. Some Simple Hot Air Appliances for Field Units. Lieut.-Col. C. Max Page.
1. The Selection of Abdominal Cases for Operation, With Reference to a Series of 200 Operations.—Colonel

Owen Richards points out that the percentage of patients who survive operation is no real index of the value of treatment. The real successes are the cases in which a fatal injury is found and cured; the failures are those in which a patient is wrongly classed as moribund when operation would have saved his life and those in which a penetrating wound of the abdomen is not recognized as such until it is too late. Failures due to bad surgery, he states, are relatively rare, for the general level of surgical skill in the clearing stations is a high one. The difficulty lies rather in the selection of cases. Though the series reported is small, the writer believes that it represents a fair average both as regards results and conditions, and his experience has led him to the following conclusions: (1) The decision as to whether a man wounded in the abdomen should be operated on or not is usually based on the time which has elapsed since the injury and the rate and character of the pulse. (2) Of the patients who survive operation performed in the first twelve hours a high proportion will have had their lives saved by it, and this is true in a lesser degree of those operated on in the second twelve hours. After this time most of those who survive operation are those whose injuries were not originally fatal. (3) Men with a pulse of 120 or over have less than half the chance of survival of men with a lower pulse. (4) Recently wounded men, with a rapid pulse, should nevertheless be operated on, provided that their condition is as good as it is ever likely to be, that they have a reasonable prospect of surviving the actual operation, and that the time taken does not prevent the proper treatment of other wounded.

Berliner klinische Wochenschrift.

March 4, 1918.

Familial Hydrocephalus; a Contribution to the Determination of Sex.—W. Hannes publishes the case history of a female who gave birth to a hydrocephalic boy, having previously been delivered of a hydrocephalic male and a normal female child. This case, compared with other similar reported cases, leads the writer to suspect malformation of certain ova, and precisely male ova. In point of fact, the mother of the woman in question had given birth to three normal daughters and one hydrocephalic boy. The writer therefore believes in the theory of preformation of sex, each ovum being already of a given sex before fecundation has taken place. He recalls the importance of the study of this question at a time when so many men are being killed in war.

The Treatment of Suppurating Joint Collections.—C. Ritter considers that puncture, followed by immobilization in a plaster cast, is the best treatment. At the beginning the cast must not be applied too snugly, but later it should be applied as exactly as possible to the limb. The plaster is changed three to four times with a week's interval. Even after recovery has taken place it is well to continue the wearing of the cast in order to avoid edema and hyarthrosis resulting from the distension of the synovial. The danger of contractures and ankyloses has been overrated, and for this reason a prolonged application of the cast is advised.

Orthostatic Purpura.—W. Schultz has studied a patient offering this affection, likewise the literature of the subject. Schultz's case is to be attributed to a fundamental weakness of the vessels which allowed the blood to transude under the influence of stasis. Such cases have often been likened to hereditary or latent tuberculosis. It is possible that anaphylaxis plays a part in these orthostatic purpuras, and they are, for that matter, frequently accompanied by articular manifestations.

Münchener medizinische Wochenschrift.

March 5, 1918.

A Working Claw, Movable at Will (Spitzgreifhand).—F. Sauerbruch enters into a long, tiresome discussion on the prothesis of amputated arms and offers a description of an artificial member he has devised. The device is very complicated, and to the American mind would appear rather ridiculous, although the writer decries the models made in the United States.

The Tenor of Infectious Bacteria on Penetrating Missiles.—E. Wetzel has noted that there is a relative sterility of these projectiles. The writer found staphylococci on one bit of exploded shell out of a total of 28 cases examined, and on two rifle bullets out of a total of five cases examined. Two shrapnel bullets were found to be sterile. Neither the depth, site nor type of wound resulting appeared to have any influence on the degree of septicity, and the writer concludes that missiles may be removed through the track itself, without resorting to incision.

Deutsche medizinische Wochenschrift.

March 7, 1918.

Serologic and Serotherapeutic Studies on Gas Edema.—W. Kolle, L. Sachs, and W. Georgé point out that the varied pathogenic agents of this disease require the use of a polyvalent serum. The horse serum employed by the writers agglutinates and splits up the complement in a very complete fashion for the different microbe species, both the motile putrefactive types and the nonputrefactive types. The writers obtained their serum by injecting both living and dead cultures, thus freeing both the microbe and histogenous toxins. Experiments showed that the administration of this serum at the same time as an injection of toxins in the guinea pig preserves the animal, particularly against intoxication. In comparison to simple horse serum, the polyvalent antigas edema serum possesses an action twice as strong. Antidiphtheritic serum is also far less efficacious and the writers even claim that in certain conditions it is favorable to the extension of the process. The curative action of the serum is even more manifest when injected in doses several times lethal in toxin. A dose of toxin eight times lethal can be neutralized by the specific serum when this is injected three to four hours after the introduction of the toxins. The writers conclude that in man the specific serum should be used as early as possible in all cases of declared gas edema, in the dose of 150 to 200 c.c. As a prophylactic measure it probably has no value.

A New Technique for Discovering the Bacillus of Tuberculosis in the Sputum.—K. Brauer advises a technique which he considers superior to that of antiformin. The simplified technique is as follows: The sputum is diluted with an equal quantity of water. Next a few drops are added and the liquid heated. Then add ½ c.c. of a 10 per cent. solution of alumin sulphate, shake and heat again. Filter and examine the filtrate after straining it with the customary reagents. The principle of the method is that there is formation of a precipitate which carries the bacillus into the deposit.

Nederlandsch Tijdschrift voor Geneeskunde.

February 2, 1918.

The Action of the Spoken Word on the Width of the Pupil.—Van Ravenswaaij states that the following can cause dilatation of the pupil: pain, dyspnea, loss of consciousness and drugs like atropine, duboisine, and cocaine. As far as he knows no one has ever described an acoustic pupillary reflex. The experiment is carried out as follows: The illumination must be constant and the subject directed to fix his gaze on a distant point. A third person, at a distance of several meters, calls out various words with certain pauses between. Almost immediately upon the word there is a brief dilatation of the pupil. The explanation is thought by the author to be as follows: It is especially the spoken word which calls up ideas that produce the phenomenon, and naturally varies with the individual. With a soldier words like "march," and similar words of command, are most efficacious. We have here doubtless a cortical reflex which is somehow projected along the sympathetic fibers. We appear to have here a new method for the detection of simulated deafness.

Dementia Paralytica in a Child.—Dupré's case began at the age of 9 and was first seen four years later. The evolution was therefore slow and growth and development hindered. Simple dementia developed. The case is instructive because free from components seen in the adults—alcohol, etc.—*Archives méd. Belges.*

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Twelfth Annual Meeting Held at Albany, May 20-24, 1918.

(Special Report to the MEDICAL RECORD.)

(Continued from page 922.)

SECTION ON OBSTETRICS AND GYNECOLOGY.

First Day—Tuesday, May 21.

DR. JAMES KNIGHT QUIGLEY IN THE CHAIR.

Sterility.—Dr. GEORGE MERRILL GELSER of Rochester read this paper, in which he stated that sterility was of three types: (1) That in which it could be attributed to the male. (2) That in which it could be attributed to the female. (3) A type in which both male and female were normal, but in which the sterility was due to a hemolytic action in the bloods of the male and female. Sterility might be due to obstruction in the generative tract of the male, to obstruction in the generative tract of the female, to absence of spermatozoa, to absence or deficiency in the development of the ovum, to alterations in the female secretions, or to hemolytic action between the secretions of the male and female. The obstruction in the male generative tract might be due to trauma or tuberculosis, but in the vast majority of cases it was due to gonorrheal infection. Such obstruction might be relieved by operation, such as vasectomy, either with the vas or epididymis of the same side or the opposite side. Obstruction of the urethra might be relieved by dilatation or operation. For deficient spermatogenesis glandular therapy together with regulation of the mode of life and improvement of the general health might be of benefit. Hyperacidity of the vaginal secretions might be relieved by alkaline douches or alkalines by the mouth and by depletion to relieve pelvic congestion. Cervical obstruction might be treated by dilatation, plastic operation, or by direct uterine insemination. Cervical infection with alteration of the cervical secretions might be treated by repeated disinfection combined with a plastic operation, removing the diseased cervical mucous membrane, or by direct uterine insemination. In either of the foregoing instances in which spermatozoa were weak, or the vaginal and cervical secretions hostile or the cervical canal obstructed, direct uterine insemination gave promise of being the most efficient procedure. This procedure should be carried out either a few days before or directly after menstruation. The technique to be followed consisted in instructing the husband to wash the penis and boil the condom and then to keep the condom with the contained semen at body temperature and call at the physician's office immediately. Then with the woman in the Simms position and with a special syringe or catheter a small amount of semen was injected into the uterus one and three-quarters to two inches. Then the woman should be kept lying down fifteen or twenty minutes. When the uterus was definitely abnormal a gentle curettage or occasionally a plastic operation of the tubes might be indicated, but one should not undertake such an operation until all other etiological factors had been eliminated. In cases in which the ovary or uterus were undeveloped, glandular therapy might be of benefit. Extract of corpus luteum had given but little success in the hands of the author. Thyroid extract occasionally helped. The facts should be emphasized that sterility was more often attributable to the male than to the female; that it was necessary to make a painstaking examination of both the gross and the minor alterations in the female generative organs, and that direct uterine insemination was of value. Glandular therapy might be used for cases with weak spermatozoa or underdevelopment.

Dr. EDWARD J. ILL of Newark, N. J., expressed the opinion that a great deal in reference to sterility must of necessity remain theoretical, but that if we would

follow the veterinarians, especially the breeder of hogs, we might learn a great deal. They seemed to know a great deal more about sterility in animals than we knew about our own race. A simple examination of the semen was not always satisfactory. He quite agreed with the essayist that the fault usually lay with the male and breeders would tell us that the same thing was true of animals.

Dr. W. B. STONE of Schenectady cited a case of pregnancy with the birth of a normal child that took place in a mother of arrested development. She had the development of a child of twelve years. She was married and at the age of 22 there was no development of the external or the internal genitals. She gave birth to a normal child without having been able to have normal intercourse. When she was six months pregnant the external genitals began to develop, and she had a confinement which was practically normal. This showed that when the spermatozoa were normal they had great power of motion and could overcome great physical obstruction. Sterility in many cases was a much deeper and broader thing than was generally recognized; it was in some cases a biological incompatibility of the male and female secretions. The reader of the paper had spoken of a hemolytic action of the blood of the husband and wife. The way to do was to test the compatibility of the blood just as though one were testing the bloods for a transfusion. The speaker had tested five or six cases in which there was sterility, with no history of gonorrhea and no obstruction in the generative tract of either the male or the female, and there was a marked hemolysis of the red cells. The red cells of the husband would dissolve and agglutinate in the blood of the wife in every one of these cases. Whatever this antagonistic relationship was that existed in the blood it was represented in the ovum and the spermatozoa, and it stood to reason that if a spermatozoa penetrated an ovum there would be no blood formation. He felt that this was a line of investigation worth while following out and hoped it would be taken up. If this theory was true, a method of treatment for this type of sterility was open. Injections of small amounts of serum from one to the other of the sterile couple, when the sterility was due to incompatibility of the blood, would after a while produce an immunity, and would render impregnation possible. This theory might account for those cases in which, after being sterile for many years, the woman would become pregnant. It might be that there was some slight exchange of fluids between the couple that after a while produced immunity and made conception possible.

Dr. H. B. CLARK of Albany said that in sterility in cases due to undeveloped uterus or to anteversion the solid glass stem pessary would help in developing the uterus. Its insertion was not difficult and its retention was not difficult. If worn for about three months it did aid conception in a small class of cases.

Dr. J. W. JUDD of Ithaca expressed the opinion that when the male was saturated and steeped with tobacco it rendered the spermatozoa less active. He asked if such a patient gave up tobacco how long would it be before the spermatozoa would recover their normal motility.

Dr. J. DAWSON FURNESS of New York said that several of the men had spoken of examining the semen. It was frequently a very difficult thing to get the semen. If this were merely suggested to the man in 50 per cent. of the cases that would be the last one would hear of them. One could cut that percentage down by having the woman come to the office immediately after intercourse. One could not take the ground that because a man had had a child by his first wife that he was not the cause of sterility if the second wife bore no child for he might have become sterile. As to x-ray sterility, the speaker knew of a case in which a man was sterile for a time, but the sterility disappeared when he was no longer exposed to the x-ray, and it might be that in a woman sterilized by the x-ray ovulation might return after a time. After an abortion one should not perform a dilatation and curettage for sterility. In such cases the sterility was probably due to a closure of the ends of the tubes by exudate, and in such cases one would

have no success with insemination, nor would one have success with this procedure where there was incompatibility. Dr. Furniss said he had had good success with the solid glass stem pessary in suitable cases, and he had had some success with corpus luteum.

Dr. GELSER, in closing, said he thought the point Dr. Furniss had made as to the difficulty of getting the husband to consent to an examination of the semen was a very good one. As to how long it took for the spermatozoa to recover from the effects of tobacco he knew nothing. As to the hemolytic reaction, it would be easier to test the effect of the spermatozoa on the woman's blood; that could be done very rapidly.

Remarks on Fibroid Tumors.—Dr. EDWARD JOSEPH ILL of Newark, N. J., presented this communication, in which he stated that he had made observations on 529 cases of operation for fibromyoma in his private practice and in the hospital with which he was connected. A distinct indication for every operation should precede the work proper. Death resulting from fibroid directly was extremely rare. The vast majority of fibroids occurred in women over 35 years of age, namely, 78.5 per cent. The records of the Massachusetts General Hospital showed that in 127 complete autopsies fibroids of the uterus were present in 33.1 of the cases. In women under 50 years of age, who were examined at autopsy, fibroids were present in 22.9 per cent. of the cases, while in over fifty years of age they were present in 45 per cent. of the cases. At Johns Hopkins Hospital, among 424 autopsies 32.8 per cent. had benign tumors of the uterus. Of those under 50 years of age, 30.1 per cent. had such tumors. Of the colored subjects 49.4 per cent. had benign tumors. According to these statistics, collected by Frederick L. Hoffman, 27.9 per cent. of all women had fibroids. It had been suggested that every woman be examined once a year. This would be a calamity if the woman got into the hands of a "would be" surgeon. His experience was that the presence of a fibroid, the diagnosis being certain, was rarely an indication for operation. However, it was sometimes advisable to perform an operation for fibroid if the patient became depressed because of the knowledge of the presence of the growth. A doubtful diagnosis should always be cleared up by whatever means were at one's disposal. Rapidly growing tumors should be removed. Some cases of fibroid he had watched closely for years because of the fear that they might become malignant, but he had never seen a malignant degeneration of a fibroid. Such degeneration undoubtedly took place, but it was very rare indeed. He had seen sarcoma develop beside a fibroid but never in the tumor itself. A combination of fibroid and cancer was rather frequent but this was not surprising in view of the frequency of both these conditions. The most frequent indication for operative interference was pain, which occurred in 36 per cent. of the cases in the series presented, while hemorrhage was recorded in 35 per cent. of the cases. Here came in the question as to what degree of hemorrhage was considered sufficient to warrant operative interference. A combination of pain and hemorrhage occurred in 13 per cent. of the cases, which went to show that more of the patients had wished relief from pain than from hemorrhage. A most serious and pressing indication for operation was in the presence of symptoms of sepsis. The indication for operation in the presence of septic adnexal disease was debatable. Sterility might be an indication for operation, but operation for sterility was a high ideal and should never be undertaken except for single tumors. Dystocia due to fibroid had been the cause of but one operation. The author had performed operations by the vaginal route for tumors reaching to the navel. To-day vaginal extirpation should not be done if the uterus could not be pushed up into the pelvis, and the cervix brought to the vulva. Abdominal supravaginal amputation would be the operation of choice in most cases. This was the operation performed in 331 of the writer's cases. Abdominal total extirpation was done 14 times; total myomectomy 14 times. In 13 instances he did a myomectomy and Gillian on the same patient. All his myomectomies recovered. He did a curettage 13 times but this was an operation fraught with danger, unsatisfactory, and should rarely be resorted to. He had made it a practice to conserve one or both ovaries. In the first one

hundred cases he had had seven deaths, in the second one hundred he had had no deaths, and in two series of 69 cases each he had had no deaths.

Dr. GEORGE B. BROAD of Syracuse said that before coming to the meeting he had looked over his last 100 cases of fibromyoma of the uterus and analyzed them. In these 100 cases he did 48 hysterectomies. These were all very serious cases with complications, as, for instance, one case of a beginning carcinoma, one of a spindle celled sarcoma, etc. He had had only two deaths in this series, or a mortality of two per cent. The course he was likely to adopt in cases that did not require immediate operation was to give them a preliminary course of x-ray treatment and then if they did not improve after a time he operated. He had six cases in which the x-ray did no good and that had to be operated upon subsequently.

Dr. MARION C. POTTER of Rochester said that fibroids were very common and no one knew when they were going to become malignant. He had been especially interested in the x-ray work. He had had about 12 cases of fibroid that had refused operation, which he had treated with the x-ray or radium with very satisfactory results. Among these cases there were some in women 47 or 48 years of age in which the uterus was as large as that of a five-months' pregnancy, that responded favorably to this form of treatment.

Dr. E. GUSTAVE ZINKE of Cincinnati, Ohio, said that the question of the treatment of fibroids of the uterus was still far from being settled. He was one of the old school who believed that a fibroid tumor of the uterus should receive operative attention and yet he was in no position to criticize the x-ray treatment and there were many cases of cures by the x-ray reported. He, however, had not seen a single case in which the cure was permanent. In many cases the menorrhagia was controlled by the x-ray but he had seen just as many cases which did not respond at all to the x-ray treatment.

Dr. J. L. PFEIFFER of Brooklyn spoke of the necessity of being very guarded in one's diagnosis in cases of fibroid that might be complicated and especially where there might be a complicating pregnancy.

Dr. U. P. SEARS of Syracuse asked Dr. Ill whether the tumors had been examined by a pathologist. Sarcoma of a fibroid occurred most frequently at the central part of the tumor and unless thoroughly looked for might escape notice. It was surprising to see the very low percentage of sarcoma in fibroids. He thought the x-ray treatment very good and especially for the cases with low hemoglobin, in which it was a valuable adjunct in putting them in condition to withstand an operation. He had had no experience with the x-ray and thought twenty years ago that every fibroid must be removed. In some quarters now they said that radium would destroy the fibroid. In 212 cases reported by Dr. Kelly that were treated with radium all got well but eight. It was an interesting thing that the enthusiasm for the x-ray and radium came from exactly the same quarter from which the enthusiasm for operation had formerly come.

Backache from the Orthopedic Standpoint.—Dr. PERCY WILLARD ROBERTS of New York presented this communication, in which he said they had on record as recognized causes of backache faulty attitude, the various chronic diseases to which the vertebrae were liable, strains affecting the lumbar and sacral regions, and the results of fracture and abnormal development of the spinal structures. They had in inherited syphilis unrecognized cause of backache. Several cases of this nature had come to his attention during the last two years.

In 300 cases observed 50 per cent. or more of the joint conditions which had been attributed to tuberculosis were really of luetic origin. It was evident that many adults harbored the *treponema pallida* although none of the classical symptoms of syphilis were produced by their presence. The toxins of these organisms produced such symptoms as headache, myositis, and neurological manifestations, which if the cause were not understood would baffle the most conscientious effort of the physician. The cases of back pain that had been observed in this study fell under the general classification of myositis. Their symptomatology suggested irritation of muscle fiber tissues by some toxic material.

Except for tenderness on deep pressure in the gluteal and lumbar region there were no characteristic features that marked these cases. The diagnostic perplexities they presented might be judged by the fact that they had been treated for a variety of disorders, including uterine displacement, iliosacral strain, Potts disease, scoliosis, and floating kidney. A study of the teeth was of assistance in making the diagnosis of syphilis since the dental site was a favorite point for the colonization of the spirochete in syphilis. In order of importance the abnormalities that were found in the teeth were abnormalities in the form of the first molars, wide spacing of the incisors, smooth tipped molars, and enamel defects of various teeth. Dental evidence of syphilis was not always conclusive but it was of help in making the diagnosis in a considerable number of cases. Dr. Roberts illustrated his paper with lantern slides.

Dr. ALBERT VANDER VEER of Albany recalled the time when all backache was attributed to antelexion or retroversion of the uterus and much harm must have been done by the forcible lifting up of the uterus. Those were dangerous days before the importance of infection was recognized and undoubtedly there were many cases of infections by uterine sounds which were called cellulitis and pelvic peritonitis, and which resulted in abscess in the cul-de-sac. Ever since those days they had been trying to find the cause of backache. After the days of asepsis and antiseptics arrived they began to look for the cause of backache in other organs than the generative organs. Then came the days when operative interference was the popular treatment for backache. They then passed to the study of the effect of posture and many were brought to understand that the wearing of high heels caused a faulty posture which was responsible for the backache. Then came the introduction of the relief of flat foot and it was found that the relief of flat foot relieved backache. It was found that in some cases the backache was due to the condition of the intestines and there were certain cases in which the trouble was with the psoas muscle. They had later come to attribute backache to infection of the tonsils in some cases and in other cases even the removal of the appendix had relieved the backache. Having passed through all these periods, the writer felt that he had gained some experience which would help in the diagnosis of backache and its treatment, and it all led up to the laboratory period. By looking for the cause of the condition in the secretions of the body one came nearer to the diagnosis. It was to the laboratory that they owed their knowledge of the causes of backache.

Dr. LORING T. SWAIM of Boston said that in looking over orthopedic cases he found that cervical spine was often overlooked and the case called one of neurasthenia. The eyes and throat would be examined in these cases and nothing would be found. A cervical spine was usually associated with a low back and 75 per cent. of low back cases were largely due to myositis.

Dr. JAMES E. KING of Buffalo said there were three points to be considered: sacroiliac joint disease, cases of vertebral relaxation associated with enteroptosis, and floating kidney. Each of these he discussed. In searching for the cause of backache he thought the pelvic organs were the last to be considered. After every other cause had been eliminated one might then seek it in the pelvic organs.

Dr. U. P. SEARS of Syracuse said he was very glad to have it brought out that syphilis was one of the chief causes of backache. He had formerly been a gynecologist and was now engaged in public health work and it was important that the gynecologist and the physician should bring about a proper sentiment in reference to venereal diseases. Why could not syphilis be eradicated in the twentieth century as smallpox had been in the nineteenth? Syphilis was doing more injury to our Army today than all the German bullets.

SECTION ON SURGERY.

First Day—Tuesday, May 21.

DR. THOMAS LAURIE OF SYRACUSE IN THE CHAIR.

Congenital Malformations of the Spine, with Report of Cases.—Dr. CHARLES D. REID of Syracuse made this

presentation. This study was confined to general remarks on those cases which were not considered as entirely amenable to correction. It was often found necessary to employ palliative measures in their treatment. The lesions varied from slight irregularity to a complete absence of an organ. As yet no satisfactory classification had been made of the condition. Heredity no doubt played a part as in families where one deformity was noted, careful examination often revealed the fact that other members of the family had some congenital malformation. Among causative factors no doubt maternal trauma, lack of nourishment and placental malformation were included. Intrauterine diseases of the fetus, such as syphilis or rickets, also had a share in producing these conditions. An asymmetrical attachment of the muscles was often coincident with maldevelopment of vertebræ. Of all malformations, spina bifida was the most common, and one theory held that this was due to an oversecretion of spinal fluid, as when operation was done and closure made, a hydrocephalus often resulted. In vertebral opening with loss of closure of the sphincters, operation was rarely successful, and any operation should be made within the first few weeks of life in order to insure any favorable result. Other deformities seen were fusion of ribs, lack of ribs, or an abnormal number of vertebræ. In regard to treatment, much could be done to relieve pain, by support by means of plaster jackets, proper exercise, etc. Bone graft operations were sometimes employed with some improvement. In some cases the sacralization of lumbar vertebræ was found to be the cause of symptoms. Wherever persistent backache existed the vertebræ should be examined. Occasionally a cervical rib was found attached to the 7th cervical vertebra, and where this caused symptoms its proper treatment was by removal. In conclusion it should be said that this condition was by no means a rare one, that careful x-ray studies were necessary to clear up the diagnosis, and that operation would be successful on carefully selected cases.

Dr. HOWARD L. PRINCE of Rochester said that these cases with spinal deformities had not been studied enough. Spina bifida was no doubt a much more common condition than was generally supposed. The more x-ray pictures were made of children, the more cases were found. He would be a little more pessimistic about the results of surgery than was Dr. Reid, who said there was a mortality of 44 per cent. Dr. Prince said he would place this at a higher figure. In spina bifida work where there were no complicating conditions, a very young patient might be benefited. In regard to scoliosis, few cases were explained by the gross anatomic lesions. At the American Orthopedic Association meeting, Dr. Abbott of Maine stated that he had seen cases of lateral curvature cured, but upon examination it was found that the cases were not really cured. Gradual improvement might be achieved with the use of jackets, but in a few years the x-ray would show that the conditions were about the same. A mild case could be kept fairly well by exercise and care of the muscles, but serious cases, in spite of discomfort and sometimes agony of treatment, would leave off pretty much where they started. Was the misery caused worth the effort expended? In cases of sacralization of lumbar vertebræ, no exact data could be obtained. He would wish to make a plea for the more careful examination for the causes of backache. Patients were examined for conditions of the pelvis, for chronic appendix, or for kidney conditions, but few examinations of the vertebræ were made. Physicians were apt to talk about cases more than they were apt to look for end results.

Dr. C. OGILVEY of New York said they had been hearing very pessimistic accounts of overcorrection of the spine, but Dr. Reid's paper was really upon malformations of the spine. There might be a lateral deviation of the spine without bony deformity, or there might be actual malformation of the bony structure. These occurred more frequently than was generally recognized. There was no excuse for this non-recognition, and if cases were treated early enough the opportunities for correction would be much greater. It was not always possible to correct the spine, but one was often able to put it into its relation with the weight bearing function of the body. In one case of a boy with ac-

cessory lumbar vertebrae, a compensatory curve had occurred which adjusted the spine to the weight bearing capacity.

Dr. C. ROWLEY of Hornell said in one case he had seen of complete spina bifida, from the occipito-parietal to the third lumbar vertebrae, the deformity was so extensive as to prevent delivery through the brim of the pelvis.

Dr. G. D. GREGOR of Watertown said that in making examinations on the advisory board he had come across one case of a man who had suffered injury to the cervical spine. There was no neck to be seen, the head being set directly upon the shoulders. The man complained of nothing except limitation of motion of the head. The x-ray showed three sets of cervical ribs up to the occiput.

Dr. C. D. REID said, in closing, that he agreed with Dr. Prince that operative mortality was high and the results poor. One could not cure a lateral curvature, but these cases could be improved to a great extent if they were seen in early life.

The Role of the Anesthetist in the Surgical Team.—Dr. J. J. BUETTNER of Syracuse presented this subject. He emphasized the need of closer cooperation between surgeon and anesthetist, by the interchange of papers and discussions in joint sessions devoted to these subjects. It should be borne in mind that the operation was for the benefit of the patient, and therefore any means conducive to this end should be utilized. The anesthetist was being more and more recognized as a specialist and the past ten years had seen wonderful progress in the art of anesthesia, and studies were being made as to means of avoiding unpleasant after effects, such as nausea, vomiting, etc. To these efforts the laboratory technician and the urologist had contributed much data which had a bearing upon safe and successful results. Students should possess both theoretical and practical knowledge of anesthesia and should be under the guidance and instruction of an expert anesthetist. Now, in the present crisis, as never before, anesthesia was called upon to perform wonderful service, and it became more and more necessary to consider the choice of the anesthetist from the point of view of the patient, rather than of the surgeon. Ether, in inexperienced hands, was the safest anesthetic, but in skillful hands nitrous oxid and oxygen gave far more favorable results, both in regard to happier induction and easier convalescence. These facts should be sufficient to induce competent surgeons to turn their attention to this mode of anesthesia. Patients frequently had so great a dread of anesthesia that they had been known to procrastinate operation to their own doom rather than undergo the extreme discomfort which it occasioned.

Dr. D. H. MURRAY of Syracuse said he was in hearty accord with all the statements presented. He had presented a paper 18 years ago upon this same subject, in which he had made the statement that "..... all persons dying under anesthesia are killed by the anesthetist." He had been taken to task by a prominent surgeon for making this statement. He believed, however, that if this surgeon lived long enough he would find out the truth of the remark. He considered that the best possible anesthetist should be chosen to assist the surgeon, as this was the most important factor as far as the life of the patient was concerned. He had known a recent case where, the interne being allowed to give the anesthetic and paying more attention to the operation than to the patient, the latter had died, in spite of all efforts to save him. This was likely to occur at any time, where the junior interne was chosen to give the anesthetic. Colleges and hospitals were to blame for this situation; the former because they did not teach the principles of anesthesia, the latter, because they did not understand its great importance. It was far better in the interests of good surgical team work that the junior interne should act as assistant, and the senior interne be allowed to administer the anesthetic.

Dr. R. H. TRICK of Buffalo said that he had had the same experience that Dr. Murray had had. He had also presented a paper on this subject, but he had dwelt on the psychological aspect of anesthesia in the pre-operative preparation of the patient. Few internes

took real interest in this subject. One had to train them and interest should be developed or the patient was subjected to unnecessary danger. Changes were made so frequently in the staff, that by the time a man had learned to give an anesthetic he was transferred to another part of the service.

Dr. PARKER SYMS of New York said that this subject was of the highest importance to the success of surgical treatment. He felt that they had retrogressed, rather than progressed, in staff organization. It was impossible to get good surgical team work where the internes were changed every few months. In his hospital service he had 4 new house men and a new assistant every year, so that no traditions were handed down, but it was necessary to begin instruction all over again every year. This was the result of trying to compromise with the truth and to give the men what they wanted and not what was the best practice. With 18 months thorough training in medicine or surgery a young man had a chance really to learn something. The anesthetist was of the highest importance to the competent surgeon and the position should be made attractive enough in the hospitals to secure the best type of men. In order to avoid the dangers of putting the work of anesthetizing into the hands of the interne, frequently good results were obtained by allowing a specially trained nurse to have entire control of the work.

Dr. J. D. LUCEY of Stapleton, S. I., said that a paper of this kind was extremely well-timed. It was most necessary at the present time that good anesthetists should be available for service. Of the two men, it could be said that greater skill was required by the anesthetist than by the surgeon. He felt that a good surgeon fully appreciated the aid of a skilled anesthetist. In his experience he had seen deaths occur from chloroform but not from ether. He would like to emphasize one point, that was that one could not get a good anesthetist for a five dollar fee. This was the rate in country districts, and the services rendered were worth about that sum.

Dr. J. J. BUETTNER in closing said that the importance of anesthesia had not been fully recognized. The subject was largely neglected by medical schools and hospitals and to achieve success there must be a change on all sides. There seemed to be a place for the specially trained nurse as an anesthetist. The tendency of the interne to watch the operation rather than the patient opened a source of danger. The present war situation emphasized the importance of an alteration in the attitude of the profession towards this subject and the scientific aspect of anesthesia was slowly but surely coming into its own.

Dynamics of Abdominal Hernia.—Dr. HARRY R. TRICK of Buffalo read this paper. He said that the great number of procedures advocated indicated the fact that there was a lack of definite knowledge of any particularly desirable method. The fault often lay as much in the understanding of anatomy as in technique. In order to understand the proper arrangement of tissues to best produce repair, the forces that caused hernia must be thoroughly comprehended. If the causes were thoroughly understood, a technique somewhat different from that usually followed would be undertaken. In regard to contributing causes there were included developmental defects, weakness of the abdominal walls and congenital lesions. The direct exciting causes were coughing, sneezing, or violent muscular effort such as would suddenly force an increase in abdominal pressure. A protrusion of an organ through its surrounding envelope was thus effected, the force from behind being stronger than the wall. Intraabdominal pressure could be stated to be the equilibrium between the abdominal wall and the organs it inclosed. When a loop of bowel was forced violently against a weak spot in the wall, an opening was formed, into which the loop became fixed. The treatment of hernia therefore became a question of applied mechanics. In some cases a truss put over the weak spot in the wall would help, especially in children, but in many cases a truss should be condemned and an ill-fitting one was worse than none at all. In these cases herniorrhaphy was the only logical treatment. There was no broad rule to be blindly followed in every case; each case had to be judged separately on its own merits. The individual indications should be studied, and in cases

where a handicap was apparent the surgeon should rely on his own resources and judgment.

Dr. E. M. STANTON of Schenectady said that the conception of this subject should be from the point of view of the force which acted when strain took place. In this way they could get a proper view of the role played by the tissues in repair of the hernia. Surgeons were apt to consider that the muscular fibers of the external oblique would furnish a strong support. This was outside of the real supporting tissue. Great care should be exercised in sewing down the muscle elsewhere to make a firm basis for support.

Dr. C. C. LYTLE of Utica said that the dynamics of hernia were an academic consideration. The presence of hernia depended upon defects in the abdominal wall and the forces exerted against that defect. Intra-visceral pressure was a better term than intraabdominal pressure. The hernia occurred when the force overcame the resistance of the weak spot.

Dr. J. RICHTER of Buffalo said he did not call this intravisceral pressure. It was analogous to the pressure exerted on the amniotic sac by dilatation of the cervix. The pressure on the vessel containing fluid was uniform in all directions.

Dr. G. B. BROAD of Syracuse said that with high power rifle shots striking the skull the pressure exerted was such as to cause the skull to explode, but in this case, with the vessel containing fluid, the pressure came from the vessel itself. It had been said that hernia followed the course of the blood vessels, but femoral hernia, which was more patent than inguinal hernia, was not so common. He would like to know why it was recommended so often to sew down the external oblique. More attention should be paid to the internal conjoint tendon as in cases where there was recurrence in the groin it was found that there was a defect of the conjoint tendon.

Dr. PARKER SYMS of New York said that records showed that Germans had been in the habit of systematically producing hernia in order to escape military service. They inserted the finger into the inguinal canal and this hernia was caused by external abdominal pressure.

Dr. H. TRICK in conclusion, said that with femoral hernia, a lymph node of a piece of fat might act as an additional barrier and so prevent its more frequent occurrence. He thought it was important to consider the transversalis fascia as the starting point. He had heard of the extraabdominal force mentioned by Dr. Syms, but he understood it was practised among the Russians and that hernias occurred through the opening thus made.

Conservative Surgery of Chronic Intestinal Stasis.—Dr. F. C. YEOMANS of New York read this paper. He considered the subject from the viewpoint of abnormal delay in passage of the bowel content, with the resultant accumulation of toxic material and absorption of poisonous products. Delay without toxemia was not considered. Toxemia was prevented by the integrity of the endocrinal system and of kidney function. When stasis was fully established the diagnosis often presented difficulty. Certain cases were supposed to be suffering from chronic constipation. Differentiation of inciting causes should be made and all tests, such as the x-ray, the Wassermann test, examinations of stools after test meals, and examination of kidney function should be made. The colonic function before and after defecation should be ascertained. The Wassermann test must be done to rule out tabs from the diagnosis. Two classes of stasis existed: (1) with obstruction; (2) without obstruction. In the latter, autogenous vaccines, endocrinal therapy, etc., had their place in treatment. The question as to whether there were ever surgical indications could be answered in the affirmative. The treatment of Hirschsprung's disease required surgical interference. In spastic intestinal stasis, caused by putrefaction of the bowel contents and in a general visceroptosis, surgery would be of help. In cases of bands, folds and membranes, operation was not often successful. Radical surgery, such as short-circuiting operations; colectomy, partial or total; cecostigmoidostomy, was successful in about two-thirds of the cases. Partial colectomy was disappointing; often the stasis was removed, but the toxemia persisted. There was no general rule to be laid down as to pro-

cedure. Carefully determined surgery in carefully selected cases would give the results most to be desired.

Dr. M. PACKARD of New York said that he had seen the case of a woman who had all the symptoms of intestinal stasis for twelve years. She became pregnant at the end of this time and during her pregnancy she felt better than she had ever done. After the termination of pregnancy she relapsed into her condition of intestinal stasis. Another case was that of a boy who had a movement of the bowels about once a week. Peristalsis, as watched by the fluoroscope was about once in five minutes, instead of three times in one minute. What was the meaning of these cases? Why had the woman a relief of symptoms during her pregnancy? During pregnancy there was a distinct condition of hyperthyroidism. The problem in the case of this patient was a lack of thyroid secretion, which was only compensated for during pregnancy. Dr. Yeomans had differentiated between mechanical and physiological obstruction. The cases of physiological obstruction were medical cases. They were due to disturbances in the endocrinal system. Mechanical obstruction demanded surgical treatment.

Dr. D. H. MURRAY of Syracuse said that many of these cases lacked a thorough examination. Many of the medical profession did not know much about rectal disease. They had a great distaste for making a thorough rectal examination. He would recall the case of a woman he had seen in a sanatorium who was so prostrated that she could not raise her head without fainting and talking incoherently. She had been under the care of eight physicians, many of them prominent men. No proper rectal examination had been made. The x-ray showed an enormously distended colon, the gas resulting from impaction at the distal end. Ulceration and internal hemorrhoids were shown to be the cause. The woman was removed to a hospital and the hemorrhoids were removed by operation. She made an uninterrupted recovery.

Dr. PARKER SYMS of New York said this had been an unusually good paper. This subject had attracted a great deal of notoriety because of the work of Lane and the profession had been inclined to go to extremes. Dr. Yeomans had given a very good impression of the very limited field of operative surgery in these cases. Efforts had to be limited to the condition causing the obstruction. Short circuiting operations, which resulted in leaving of blind pouches, were not a success. Total colectomy was a serious operation not stood well by the majority of patients. Osler had pointed out the difference between a family doctor and a consultant. The consultant examined the rectum. It was astonishing what relief of symptoms (usually not attributed to rectal disease) would follow the removal of hemorrhoids. Any rectal disease would produce irritability by the unconscious physiological drag. When the surgeon found a movable colon he tried to fix it; when he found it fixed he tried to mobilize it. It would be better to depend on symptoms and not on mechanical conditions before resorting to surgery. By doing slight operations in selected cases the most gratifying results could be obtained. In regard to Jackson's veil the profession would have done better if they had never heard that term. It was only where transverse bands were produced and constituted an obstruction that interference, remote from the bowel, was necessary.

Dr. YEOMANS, in closing, said that sufficient time had elapsed since Lane's work to estimate its value. The most important thing was to reach a basic factor in a given case. Examination into causes would decide whether a given case should be treated medically or surgically. A careful neurological examination should always precede operative measures.

SECTION ON PEDIATRICS.

Second Day—Wednesday, May 22.

DR. T. WOOD CLARKE IN THE CHAIR.

The Early History of Infantile Paralysis.—Dr. LOUIS C. AGER of Brooklyn read this paper, in which he gave a brief summary of the result of a careful search of early medical literature on infantile paralysis. He concluded as follows: (1) Some form of paralysis of

unknown origin was sufficiently common in Asia to have attracted the attention of Boerhaave before 1701. (2) Infantile paralysis appeared in England some time between 1784 and 1799; judging from the writings of Underwood. (3) It did not appear on the continent until fifteen or twenty years later. (4) The disease prevailed to some extent among Anglo-Indian children about 1800 if not earlier and its victims returned to England at least as early as that date. Although the evidence was by no means conclusive, it seemed reasonable to accept the theory that acute infantile paralysis existed in India and Asia originally, and was brought to England by Anglo-Indians, and then transmitted to the continent. This review was brought up to the work of Heine. As the period after Heine had been reviewed in a masterly manner by Dr. Mary Putnam Jacobi in 1873 it was not necessary to discuss it in this paper.

The Longitudinal Sinus; Its Adaptability in Procuring Blood for Diagnosis; Its Use in Transfusion of Blood and for Diagnostic Purposes; an Ideal Method in Infancy.—Dr. LOUIS FISCHER of New York presented this paper. The simplicity and ease of reaching the sinus located at the posterior aspect of the anterior fontanel, compared with the difficulty of entering the median basilic or the femoral vein in infancy, made the sinus route a matter of preference. The ease with which blood could be obtained by this channel for such purposes as the Wassermann test or for transfusion was very advantageous for the infant. Time was of value in dealing with the young marasmic infant and often much time was lost in endeavoring to enter a vein. In convulsions blood could be immediately extracted, with relief to the little patient, by the sinus route. This method at once served to relieve intracranial pressure. The method would answer well the purpose of obtaining sufficient blood for cultures, and was also indicated in injecting diphtheria antitoxin in cases in which it was desired to bring the antitoxin into the circulation quickly. In transfusion for hemophilia the method gave excellent results. The infant should be wrapped in mummy bandage and placed flat on its back on the table, with the head steadied. One or two millimeters was sufficient depth for insertion of the needle as the sinus was very superficial. The blood could be removed by aspiration. Careful note should be taken of the color, pulse, and respiration of the infant. In using this technique, care should be taken that the needle and the skin be sterile and if this were done, no infection need be feared. Cases were cited in which marked benefit was derived by this procedure in transfusion for hemorrhage in blood letting for convulsions and in cases where marasmic infants were transfused.

X-Ray Plate Demonstration of Types of Vomiting.—Dr. DEWITT HALSEY SHERMAN showed these plates for the purpose of demonstrating the way in which x-ray plates would aid in the diagnosis or in clarifying diagnosis. The first set was that of a baby five weeks old, always breast fed, that soon after birth vomited considerably. At first it gained weight, but as the vomiting increased it lost. At times it vomited much more in bulk and much more frequently than at others. It rarely vomited large amounts. Its stools were normal at times both in character and in size, and then would be small in direct accord with the intake of food. It had no pain and suffered only from hunger and thirst. Careful physical examination revealed no pyloric tumor. Though pyloric stenosis was the undoubted diagnosis, there was still enough evidence to consider pylorospasm and treat it for a few days. The baby was given chloral and bromides. These at first seemed to act favorably but soon there was a relapse. The diagnosis was definitely corroborated by the x-ray plates. When the infant was under anesthesia a small tumor could for the first time be felt. The Ramstedt operation was performed by Dr. Thew Wright of Buffalo and the result was as dramatic as was usual in those cases if the delay had not been too long. In the second case the vomiting did not begin until the infant was five weeks old. The speaker thought he felt a tumor and with the x-ray the diagnosis was confirmed. The Ramstedt operation was performed when the child was six weeks of age with results equally as brilliant as in the first case. In the third case, intestinal ob-

struction, either intussusception or volvulus, was suspected because of persistent vomiting, the recurring pain, the history of not having passed any gas, and because of the absence of stools except by irrigation. The results of the irrigation did not show blood or mucus. No tumor could be felt. The child was radiographed and obstruction excluded. It was soon put on a fat free diet, given chloral and bromides, and made a rapid recovery. The final diagnosis was pylorospasm, high fat with acetoneuria acting as contributing and subsequent factors. The fourth case came to the speaker with the history of food intolerance and with the special symptom that it vomited almost anything it took, no matter what modification of milk or proprietary food was used. The baby did well, after starvation on diluted eiweiss milk, but in a few days started another period of vomiting. The eiweiss milk was not tolerated. A marked change followed the use of flour ball, and from the time it received its carbohydrate in this form it progressed well. In these neuropathic cases, after having eliminated the special food element or elements whose tolerance had been particularly broken, the speaker found that chloral and the bromides worked quickest, and atrophine next in the relief of vomiting. It was best to treat these cases as hemophilias, giving them a calcium lactate, phosphorus, and cod liver oil. Dr. Sherman also exhibited a plate that showed an intussusception clearly. The last case discussed was one of subacute or chronic intussusception, with mild recurring attacks of vomiting and pain. The radiogram showed the decreased lumen of the bowel. Operation was refused and a few days after the child left the hospital she passed what the mother described as a piece of bowel. Dr. Sherman was inclined to believe from the mother's description that she was correct in calling what came away a piece of the bowel.

The Care of Children Before and After Tonsillectomy.—Dr. CHARLES HENDEE SMITH presented this paper, in which he considered certain medical aspects of operations upon the adenoids and tonsils, the importance of which was frequently overlooked. Before advising that a child should have an operation for enlarged tonsils it was important that his general condition be taken into consideration as well as his throat. A careful history and examination of the child, of his urine and blood, were necessary in order to rule out organic disease. Children who had active tuberculosis should never be operated upon. Hemophilia had also embarrassing possibilities. Other diseases, especially leucemia, Hodgkin's, and syphilis, might cause enlarged tonsils. A blood examination beforehand would sometimes avert a distressing situation after an operation. It was desirable to try to improve the nutrition of markedly undernourished children by rest and feeding for a few weeks before operation. After operation the child was entitled to an anodyne and should be kept in bed for five to seven days, with careful nursing and feeding. Preparations should be made to treat hemorrhage if it occurred. In the Nutrition and Cardiac Classes of the Bellevue Children's Medical Division there was a considerable number of children who were undernourished or who had heart disease referred for tonsillectomy every year. It was found very early that the loss of weight following operation was excessive when the children were discharged in twenty-four hours. They then adopted the plan of transferring these children from the Throat Wards to the Children's Wards on the day after operation. Since this had been done the results had been much more satisfactory, the loss of weight much less and the recovery more prompt.

Third Day—Thursday, May 23.

Meeting at State Training School for Girls.—The Pediatric Section spent Thursday in making a trip to the State Training School for Girls at Hudson, N. Y. After a tour of inspection of the institution a meeting was held, at which Dr. Lewellys F. Barker of Baltimore discussed the "Faulty Training of the Nervous Child" and the problem of "Adolescent Delinquency" was discussed by Dr. Anna Tefft Bingham of New York City, Dr. William Healy of Boston, Mass., and others.

(To be continued.)

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Original Articles.

A BRIEF BIOGRAPHICAL SKETCH OF FOUR PHYSICIANS OF THE NAPOLEONIC ERA.*

BY PAUL E. BECHET, M.D.,

NEW YORK.

IT might be of interest at this moment, now that we have joined the fight against autocracy, to recall to the memory of the profession four members of their fraternity who a little more than a hundred years ago were engaged in a similar contest. It is interesting in passing to note the similarity of the objectives of the war of 1792-1815 and the present one. In both the rights of the people were at stake; in both it was a struggle between democracy and autocracy. We talk of the debt we owe France for her help at the birth of our republic, but we forget the greater debt we owe her for the manner in which she carried the banner of democracy against all of Europe for 23 years. It is to her and her great Captain that the present free peoples of Europe must be grateful. No nation offered a more inspiring spectacle than did France in her fight to keep inviolate her rights and liberty. It was strange that she was at last overcome and Bourbonism saddled upon her through the efforts of the nation who is now the greatest champion of those rights she denied to France, and whose treatment of Napoleon, despite her apologists, will always remain a blot upon her standard. We are now in the midst of the great struggle foretold by Napoleon when he stated that "in fifty years the world would either be free or Cossack." He used the word Cossack because at that time it expressed everything that the word Prussian represents today. Another peculiarity of the two world wars is that in the past one all of the world was leagued against democracy, and in the present one the opposite is true; if an augury can be drawn from this, Germany will be defeated; fortunately if such prove the case right will prevail over might—not might over right as occurred one hundred years ago. Among the great men grouped around the genius of Napoleon, our profession was well represented. While the rank and file did their full duty Larrey, Corvisart, Desgenettes, and Antommarchi are best remembered, the last named particularly, because of the melancholy duty of assisting at the termination of the St. Helena tragedy. Of the four Larrey is the best known, mostly because of his contributions to military surgery. He was the first to make a practical use of field ambulances, and did much to hasten the removal and ameliorate the suf-

ferings of the wounded to whom he was always as a father.

Jean Dominique Larrey was born in 1776. At the age of 19 he received a commission as assistant surgeon in the French Navy. At 21 he was chief surgeon on a frigate engaged in the protection of French fishermen on the Canadian Coast. On his return to France he entered the Royal Hospital, and treated the wounded after the storming of the Bastille. At the outbreak of the Revolution he adopted the new republican principles, and joined the Republican Army. In 1793 at the siege of Mainz, he brought into use for the first time the



FIG. 1.—Jean Dominique Larrey.

military ambulances, which were called at that time "ambulances volantes." These gave such satisfaction that they were thereafter in general use in the armies of the republic. About the same time Baron Pierre François Percy (1754-1825) organized a corps of brancardiers or stretcher bearers. So it is to these two men that credit must be given for the first efforts at quick removal of the wounded during the progress of a battle. Larrey accompanied Napoleon to Egypt, and thereafter in every one of the campaigns. It was during the retreat from Moscow that he rendered most valued services, being particularly successful in the treatment of frost-bite. In 1807 he was created a

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Knight of the Iron Crown and in 1809 a Baron of the Empire. He died at Lyons in 1842. Napoleon's opinion of him, which I quote in full from O'Meara's "Napoleon in Exile," is a good summing up of the character of this man of sterling qualities: "Larrey was the most honest man and the best friend to the soldier I ever knew. Vigilant and indefatigable in his exertions for the wounded, Larrey was seen on the field of battle, after an action, accompanied by a train of young surgeons, endeavoring to discover if any signs of life remained in the bodies. In the most inclement weather and at all times of the night or day, Larrey was to be found among the wounded. He scarcely allowed a moment's repose to his assistants, and kept them eternally at their posts. He tormented the generals, and disturbed them out of their beds at night whenever he wanted accommodations or assistance for the wounded or sick. They were all afraid of him, as they knew he would instantly come and make a complaint to me. He paid court to none of them and was the implacable enemy of the fournisseurs." A clause in Napoleon's will reads as follows: "To Larrey, surgeon in chief, 100,000 francs. He is the most virtuous man I have ever known." The two most important of Larrey's contributions to medicine were the "Relation Historique et Chirurgicale de L'Expedition de l'Armée de l'Orient en Egypt et en Syrie" and his "Mémoires de Médecine et de Chirurgie Militaires," four volumes, 8vo. Paris, 1813-18.



Corvisart

Fig. 2.—Jean Nicolas Corvisart.

Jean Nicolas Corvisart was born in Drécourt, France, on February 15, 1755. His father wished to make a lawyer of him, but young Corvisart showed no special aptitude. By accident he happened to hear some lectures given by the celebrated physician Antoine Petit, which soon convinced him that medicine was his true vocation. Despite the poverty of the family and the opposition of his father, he studied under Desault and Desbois de

Rochefort. In time he was appointed attending physician to the Hôpital de la Charité. During the Consulate he was employed by the Government, and during the Empire became First Physician. His public and private practice took up so much time that in 1807 he felt obliged to resign several chairs in medicine which he had occupied up to that time. After the fall of the Empire in 1814, he retired to his country place and did not again occupy a place in public affairs. He died on September 18, 1821. His principal medical work was the "Nouvelle Methode pour Reconnaître les Maladies Internes de la Poitrine par la Percussion de cette Cavité," Paris, 1808. This book, though a translation of Auenbrugger's work, was greatly added to by Corvisart. Corvisart occupied the position in relation to Napoleon that Larrey occupied to the army; he was Napoleon's First Physician from the early days of the Consulate to 1814, and in almost daily intimate contact with him. The emperor had great confidence in his ability as a physician, and frequently consulted him in relation not only to himself, but also to his family. In 1812 he wrote to Mme. Montesquieu: "I have confidence in the medical skill of my First Physician Corvisart." Corvisart's salary amounted to 30,000 francs a year, to which must be added an allowance of 30,000 francs attached to his title of baron. He was, however, frequently in debt, as he was rather fond of a gay life. With his old friend Guéhéneuc, the vaudevillists Barré and Desfontaines, the ballet master Despréaux, and other bon-vivants, to say nothing of the female sex, many little fêtes of a not too gentle kind took place. He was also very fond of the chase, and loved to hunt at his country place of La Garenne. When on these hunting trips he never stated where he was going for fear of being disturbed. He had a passion for curiosities, pictures, and objects of art, and received many rare curios from Josephine, Marie Louise, and other patients. He attended Napoleon on Wednesdays and Saturdays, usually during the morning toilet, being frequently received with such jokes as "You there great quack, have you killed many people to-day?" to which Corvisart would reply in kind; thereupon his ear would be pulled and rubbed, a great trick of Napoleon's when in good humor and with the people he liked. When the emperor's health was not discussed Corvisart delighted in showing Napoleon some of his curios. He was particularly fond of a stick which formerly belonged to Jean Jacques Rousseau, for which he had paid 1,500 francs.

René Nicolas Dufriche, Baron Desgenettes, was born in Alençon in 1762. He first studied in Paris and later at Montpellier, where he took his degree in 1789. He served throughout the campaign in Italy, and as a reward for his services became surgeon in chief of the army in Egypt, where he again distinguished himself. It was at Jaffa that he inoculated himself with the plague in order to revive the courage of the soldiers. On his return to Paris he was made physician in chief of the Military Hospital, and in 1804 inspector general in the medical service of the army. He was active in the campaigns of Prussia, Poland, Spain, and Russia. In 1800 he was appointed professor of physics and hygiene at the Ecole de Santé. During the retreat from Moscow he was taken prisoner, but was soon

exchanged and returned to the Grand Army. After the battle of Leipsic he was detained by the Allies, and did not reach France until May, 1814. During the hundred days, Napoleon evidenced great confidence in him; he was given the appointment of

voted much of his time to surgery. He then moved to Florence, where he served an apprenticeship under Mascagni. He was professor of anatomy at Florence in 1819 when he was selected by Cardinal Fesch, Napoleon's half uncle, and Madame Mère, Napoleon's mother, to succeed O'Meara as the emperor's physician, O'Meara having been banished from St. Helena by Sir Hudson Lowe for his devotion to Napoleon's cause; the emperor had been without medical attendance for about two years. Antommarchi accepted the commission and, in company with two priests and two domestics, traveled slowly through Germany, arriving in London on April 19, 1819. Here he met with all kind of difficulties and numberless delays. Offers and insinuations were thrown out in order to prevent his departure for St. Helena. It was then that he had frequent conversations with the faithful O'Meara, and Mr. Stokoe, the surgeon of the Conqueror, who had attended the emperor on a few occasions the preceding winter. He had been forbidden to repeat his visits to the emperor, and sent to England at once by Sir Hudson Lowe, because of his sympathetic attitude toward Napoleon. Antommarchi was at last permitted to take passage on a small trading vessel, which was insufficiently provisioned. After a long and disagreeable passage, subject to many inconveniences, he and his companions arrived at St. Helena on the 18th of September, 1819. He soon gained the confidence and intimacy of the emperor, becoming a companion as well as a physician. Napoleon's fatal illness progressed so rapidly that early in March, 1821, he became confined to his room. On the 28th of April, feeling the end near, the emperor gave Antommarchi instructions about opening his body; he asked him to carry a detailed report of the post-mortem findings to his son, and to instruct him as to the best means of avoiding the disease which had killed the father. He wished to be buried with his ancestors in the Cathedral of Ajaccio in Corsica. On the 2d of May Napoleon became delirious. On the 4th he could take nothing but a little orange flower water, swallowing with great difficulty. Within a few minutes of 6 o'clock on the 5th of May, England's prisoner was no more. Throughout this trying ordeal Antommarchi was in constant attendance. He performed the autopsy, finding a cancerous mass, involving a large part of the stomach, with complete perforation of its walls about an inch from the pylorus. He accompanied the body to the grave, and on the 27th of May embarked for Europe with the rest of the emperor's devoted household. It would be of passing interest here to mention that one of them remained behind mounting guard over the grave of Napoleon for 20 years. As a reward for this extraordinary devotion, he lived to see in 1841 the return of the ashes of France's son to the soil he had loved so well. Antommarchi on his return to Europe partook in the general opprobrium of all those who had served Napoleon faithfully. He lived in poverty in England, Italy, and eventually in France. In the latter country he published a monograph on the famous death mask of Napoleon, which he was supposed to have made immediately after death. It was at this time that he was accused of scientific inaccuracies in various of his medical works, particularly in the publication of Mascagni's anatomical plates, which he was accused



René Nicholas Dufriche

FIG. 3.—René Nicholas Dufriche, Baron Desgenettes.

physician in chief to the Imperial Guard, and was present at Waterloo with this immortal legion. For these services to Napoleon the Bourbons demoted him to the rank he had occupied at the beginning of his career, and it was not until 1819 that his rank was restored. In 1830 he was physician in chief at the Invalides, and mayor of the 10e arrondissement de Paris. He wrote a number of medical works, the most interesting of which was his "Histoire Médicale de l'Armée d'Orient," which was published in 1812.

F. Antommarchi, Italy.

FIG. 4.—Facsimile of Francesco Antommarchi.

The last medical man to share Napoleon's confidence, who remained with him to the very end, trying to alleviate his intense sufferings with whatever slender means he had at his command, was Francesco Antommarchi. He was a compatriot of Napoleon's, having been born in Corsica in 1780. He received his degree at Pisa, after having de-

of having plagiarized. In 1831 he went to Poland in order to give medical aid to the defenders of that unhappy country. He eventually emigrated to Cuba, where he died in 1838. His best remembered book is the "Memoirs of the Last Moments of Napoleon," 2 volumes, Paris, 1825.

40 EAST FORTY-FIRST STREET

LOW DIASTOLIC AND HIGH PULSE PRESSURE IN THREE CASES OF ANEURYSM OF THE AORTA.

BY CHARLES E. STEWART, M.D.

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A LOW systolic blood pressure with a high pulse pressure occurring in three cases of aneurysm of the aorta which have recently been under my care prompts me to report them.

CASE I.—The first case is that of a traveling salesman thirty-nine years of age, whose family history is unimportant. As a child he enjoyed good health; during the Spanish-American war he contracted malaria, and this, together with migrating pains in various parts of his body, kept him ill for a year. He had a Neisserian infection in 1899, but denied ever having had lues. At the time of his application for examination he stated that with the exception of an occasional bilious attack, which was accompanied by more or less vertigo, he was feeling well.

Physical examination revealed a small frame, nutrition slightly below normal, net weight 125 pounds, muscles of medium size and flabby, skin normal in color and texture, and a small amount of subcutaneous fat. Several small scars on left side of neck occasioned by suppurating glands when a child. Chest was small, expansion somewhat limited, resonance normal. The



FIG. 1.—Case I. Roentgenogram showing anterior view.

heart dulness was increased transversely, the apex beat was in the fifth interspace one cm. inside the mid-clavicular line. On auscultation a diastolic mummur was heard at the aortic area and was transmitted in all directions, especially toward the apex and over the right pectoral region.

At this time a fluoroscopic examination of the chest revealed "a diffuse dilatation of the heart amounting to about 25 per cent." Urine and blood examinations were negative. Systolic blood pressure 104, diastolic pressure 26, pulse pressure 78. At the time the low diastolic pressure was thought to be due to what was sup-



FIG. 2.—Case I. Roentgenogram showing an oblique view.

posed to be an aortic insufficiency, which diagnosis later proved to be incorrect.

The patient remained under observation for a few days only, stating when he left that he was feeling splendid. On account of the supposed organic heart

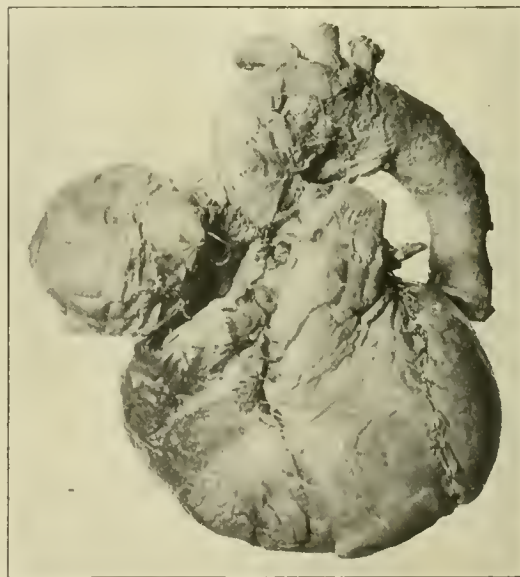


FIG. 3.—Case I. Showing aneurysmal sac,

lesion he was advised against overexertion and to keep in touch with his home physician, which he promised to do.

On November 30, 1915, nearly two years later, he again applied for examination and treatment, stating that since his former visit he had been enjoying good

health until in February, 1915, when after contracting a cold, he experienced a severe pain in his right chest, a little to the right of the sternum and an inch and a half above the level of the nipple; in this region he could feel a "rasping sensation." He described the pain at first as being of a dull aching character, which soon developed into a sharp one, which passed through his chest and side and also into his shoulder and arm, being most intense on the right side. The pain was increased by exercise and relieved by rest in a recumbent position. Heat over the painful areas also gave relief.

For three or four weeks prior to examination the pain had been growing more severe and he had resorted to the use of codeine and iodides with only temporary relief. These pains were so severe that he could not get to sleep for several hours after retiring. He also complained of an aching in his chest as though the muscles were overstrained.

The physical examination at this time revealed a small frame, nutrition considerably below normal, small scars on left side of neck, small amount of subcutaneous fat, skin anemic, dark rings about the eyes, glands negative, tongue coated. Face had an anxious, painful expression. Chest of medium size, large and forcible area of cardiac impulse at apex in fifth interspace in midclavicular line. Veins of neck engorged and pulsated vigorously, jugular bulb large. Chest expansion somewhat limited, respiratory sounds harsher than normal. On palpation a definite well-defined thrill was felt over a large area to the right of the sternum, extending as far out as 1.5 cm. beyond the midclavicular line and of maximum intensity, at the midclavicular line in the third interspace. The thrill was felt as low as the sixth rib and was diastolic in time.

The cardiac dullness was increased in its transverse diameter, extending to the right in the second interspace about 8 cm. from the midsternal line and about 10 cm. to the left in the third interspace.

On auscultation a loud diastolic murmur was heard over the entire pulmonary area above the sixth rib on the right side, both anteriorly and posteriorly, being transmitted into carotids and subclavians, it was also heard over left chest adjacent to the sternum and was of maximum intensity at the midclavicular line in the third interspace, being the area where the thrill was most pronounced. The murmur was very loud and prolonged and during deep inspiration was preceded by a systolic murmur which was confined to an area about the size of a silver dollar. The urine examination was negative; blood examination showed a mild degree of anemia. Systolic blood pressures varied from 140 to 160, diastolic 30 to 40, pulse pressure 100 to 120. A Wassermann test was strongly positive. The x-ray examination was as follows: "There is a rounded bulging the size of a goose egg, apparently at the beginning of the aorta. It has a distinct expansile impulse of its own which is systolic in time. The heart is normal in size."

Two weeks later the patient was found dead in bed, apparently having died while asleep. At autopsy the right pleural cavity was found to be entirely filled with liquid and clotted blood, the heart was slightly enlarged, an aneurysmal sac was discovered about 1.5 cm. above the aortic ring; it was about 5 cm. in diameter and communicated with the aorta by a comparatively small opening; the walls in most places were exceedingly thin and a small buttonhole aperture was observed on the right side of the sac adjacent to the lung. There was diffuse dilatation of the aorta for a distance of 6 cm. beyond the aneurysm. The aortic valves were competent and gave no evidence of sclerosis or other pathological change.

The finding of these valves intact naturally led me to seek for some other cause for the persistently low diastolic pressure. A study of the records of two other cases of aneurysm of the arch of the aorta which had been under my care within a year revealed a close similarity as far as the diastolic pressures were concerned.

CASE II.—Hebrew, male, age 47, merchant, applied for examination in order to determine the cause of a "constant throbbing all over his body." His family his-

tory showed that one sister died at 25 of pulmonary tuberculosis and another at 55 of pernicious anemia. He was robust as a boy and young man; at 19 contracted lues. During the past six months he has been troubled with a constant throbbing all over his body, which at first kept him from sleeping. At present he is not disturbed very much by it. His systolic blood pressure has been as high as 180. He experiences no headaches or vertigo. Bowels are chronically constipated; has used very little tobacco or alcoholics, and has been a hearty eater.

Physical examination: Well developed, skin and mucous membranes anemic, muscles flabby, cutaneous and deep reflexes normal. Pupils unequal, right smaller than left, both react to light and accommodation. Chest of normal size, expansion normal. There is a wide area of dullness over the upper sternal region extending both to right and left. There is forcible pulsation in episternal notch, which can be readily seen, and on palpation a receding and advancing resistant mass is felt which pushes the palpating fingers upward with every systole of the heart.

On auscultation a low systolic murmur is heard at the apex; this increases in intensity as the base is ap-



FIG. 4.—Case II. Roentgenogram showing anterior view.

proached where both systolic and diastolic murmurs are heard. These murmurs are transmitted into the neck and along the subclavians. Palpation over the episternal space and right supraclavicular fossa elicited a well-defined thrill which was coincident with ventricular systole.

The radial arteries were palpable and hypertonic. The systolic pressure ranged from 158 to 168 and the diastolic 48 to 50, pulse pressure 110 to 118. Wassermann test gave positive reaction. The x-ray examination revealed an aneurysm of the arch of the aorta at the junction of the transverse and descending portions. An increase in the transverse diameter of the heart amounting to about thirty per cent. Blood and urine examinations gave negative results.

CASE III.—Hebrew, age 60, actor, applies for treatment for constipation and weakness. Family history: Father died at 70 from Bright's disease; mother at 90 of senility; one sister has chronic rheumatism. Has eight children, all in good health. Wife is troubled with sciatica; had miscarriages prior to marriage to patient.

Personal history: Severe attack of typhoid fever at 19 and made a good recovery; about 25 suffered for a

time with rheumatic pains in arms and side of neck. Had sciatica twelve years ago and was confined to bed for two months. Contracted both gonorrhea and syphilis when a young man. Had Wassermann tests made six and twelve months ago; both positive. Had salvarsan four months ago and thinks that he has felt better since. Has been chronically constipated for 25 years and has had to use laxatives constantly. Is subject to headaches, which are worse when he is most constipated. Some vertigo. Has shooting pains in top of head. Uses very little alcohol, no tobacco. Diet simple as a rule, uses a good deal of spices and condiments. Has nocturia four or five times, has to strain to start flow of urine and has a burning sensation in urethra. Has a diplopia which has existed for four or five years.

About five years ago sugar was found in his urine; treatment at Carlsbad relieved this and no sugar has been found during the past six months. He complains of a frequent dull aching pain in his back adjacent to the left scapula, which causes him a great deal of distress, especially when he stoops over. He also complains of pain in the precordial region which extends to left shoulder and down his arm; this is most apparent when quiet and is not aggravated by exercise. Has lost 20 pounds in past two years.

Physical examination: Weight 180, eyelids puffed, tongue coated, pyorrhea alveolaris. General nutrition very good; muscles flabby, skin anemic. Chest of nor-



FIG. 5.—Case III. Roentgenogram showing anterior view.

mal size, respiratory sounds harsher than normal. Cardiac dullness extends 10 cm. to the left and a out 6 cm. to right of midsternal line in second interspace. Apex beat in midclavicular line fifth interspace. On auscultation a systolic murmur is heard at the aortic area and is transmitted for a short distance to the left.

Abdominal reflexes absent, knee jerks normal. Left pupil larger than right, both reacting sluggishly to light and accommodation. No static ataxia.

Urine examination showed a trace of albumin and a few hyaline and granular casts. Blood examination showed a mild degree of anemia. Systolic pressure 130, diastolic 58, pulse pressure 72. The x-ray examination of the chest revealed an aneurysm of the descending portion of the aortic arch, with marked dilatation of the remainder of the arch, and an increase in the transverse diameter of the heart amounting to rather more than 25 per cent.

These three cases of aneurysm of the arch of the aorta affecting the first, second, and third portions, in which there is a low systolic pressure, associated with a high pulse pressure, cannot be accounted for by an insufficiency of the aortic valves. In the first case, post mortem examination of the heart showed intact aortic valves, in the other two cases there was no diastolic murmur such as is

found in aortic insufficiency. Consequently, the low diastolic pressure and high pulse pressure must be accounted for in some other manner.

In all probability, a considerable widening or weakening of the arch of the aorta has mechanically the same effect on the blood stream during diastole as do incompetent aortic valves; a comparatively large reservoir exists, into which the blood is suddenly forced during diastole, thereby diminishing the diastolic pressure and correspondingly increasing the pulse pressure.

All cases of aneurysm of the aortic arch are not accompanied by low diastolic and high pulse pressure, but where such pressures do exist and the signs of aortic insufficiency are not present, the possibility of the existence of an aneurysm of the aortic arch, we believe, should be considered.

WEAK FEET IN CHILDREN.

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FROM a clinical viewpoint weak feet in children do not differ materially from those in adults; still the history and the symptoms in the former are so different from those in the latter that a special description of the condition is warranted. Search of the literature reveals that this very important ailment in children is little emphasized. Many children are permitted to go through childhood handicapped by weak feet which in the majority of cases would respond to very simple corrective measures. Teeth, eyes, ears, and the remainder of the body are carefully examined for pathological conditions, but the feet which are as vitally important in the proper development of children as any of the above are passed over superficially or entirely overlooked. After a very careful study of an extensive number of cases of weak feet in adults, there is no doubt in the mind of the writer that in the vast majority of them the predisposition to weak feet, or the weak feet themselves, can be traced back to childhood.

In the offspring of parents in whom there is a history of weak feet I have not infrequently found existing weak feet or a predisposition toward them. It is not uncommon to find a mother bringing to the clinic several children, all suffering from weak feet, and the many instances of familial weak feet that I have encountered in the clinics suggests the possibility of an inherited predisposition in those cases.

In infancy and early childhood the feet appear to be flat; this flatness is not permanent, but is the result of the osseous structures of the arch being surrounded by pads of fat. This has been proven by examination of frozen sections of specimens. As the child grows and becomes thinner the fat gradually disappears and the arch becomes more conspicuous. This change usually begins after the second year of life and is completed after the third year. Footprints of infants up to three years of age give a flat impression; these flat impressions are normal for that period. After the third year the impression is the same

as that found in the normal adult foot. As a rule, however, the imprints do not reveal the true clinical picture. Patients suffering severely may have a normal footprint, while other patients having a very flat imprint may suffer very little or not at all.

ward upon the oblique articulating surface of the os calcis, at the same time calling forth an outward rotation of the astragalus. This intended torsion is communicated to the other bones, resulting in a turning outward of the foot. The



FIG. 1.—Non-spastic weak foot; note the eversion of the heels and heel cords, more marked on the left side

Healthy children when left to themselves usually begin to creep during the seventh and eighth months. This should by all means be encouraged, as it meets the natural requirements and trains the bones, joints, and muscles to bear weight later on. After this creeping period comes a more trying period, that of walking. The transition from the former to the latter should be a natural one. Where children are taught to stand on their feet



FIG. 3.—Sol. P., non-spastic weak foot

inner border of the astragalus endures more weight, the os calcis is turned outward, and we have a weak foot. Hence it is safest to permit children to begin to walk when they themselves so desire. Premature walking aided by artificial appliances or devices is harmful and unnatural and should therefore be avoided.

Etiology.—Weak feet occur more frequently in females than in males. It is quite a common condition before the thirteenth year of age is reached. The condition may be congenital or ac-



FIG. 2.—Same as Fig. 1, front view.

too early the untrained muscles, bones, and ligaments yield to the overweight; deformities of the foot are produced that may lead to the marked degree of deformity which we see in flat foot. The weight forces the astragalus forward and down-



FIG. 4.—Same as Fig. 3, front view.

quired. Congenital weak feet are sometimes found in combination with club feet. There is a tendency to pes valgus deformity in a certain percentage of new-born infants. A marked flat-foot deformity is not of frequent occurrence. The

dorsum of the foot during the embryonic stage is pressed against the leg and retained in that position. The feet of the newborn persist in this attitude of rest for a long time. This should not be mistaken for a pathological condition, as time



FIG. 5.—Weak foot associated with genu valgum, note the marked eversion of both heels and heel cords.

elapses the position of the feet in the majority of infants assumes the normal relationship to the legs. Should this attitude of the feet persist it can then be considered to be a case of congenital weak feet. In some of these cases the sole of the foot is flat; in others it is convex. The contours of the bones are visible under the skin. The peroneal, flexor, and dorsal muscles are shortened.

Predisposition to weak feet due to heritage must be considered. Many cases of weak feet are found to be present in the offspring where one or both parents have the condition. I have been strongly impressed with the frequency with which I have been able to demonstrate weak feet in brothers and sisters, as well as in one or both parents.

Acquired weak feet may be the result of or occur in conjunction with many conditions. In children with a general muscular relaxation, weak feet are very often present as the result of muscular weakness. Infantile paralysis in which the



FIG. 6.—Same as Fig. 5, front view

tibialis anticus is involved is the cause of paralytic weak feet. Rickets, especially with genu valgum, is often accompanied by a valgus of the foot. Injuries, among which fractures are the main ones, often give rise to the traumatic weak

foot. Occasionally the trauma is the result of a wagon wheel passing over the foot, or in other instances a weight falls upon the foot. Overweight is a common cause. Prolonged rest in bed from any of the infectious diseases, inflammatory



FIG. 7.—Weak foot from paralysis of the tibial muscles.

or infectious conditions in or around the ankle or foot, may predispose the individual to weak feet. It is true that in a number of cases the history of a predisposing or exciting factor cannot be ascertained. It is a difficult matter to determine the cause in these cases.

Poorly fitting shoes in children can in the majority of cases be eliminated as a causative factor in the production of weak feet. The shoes made for children are very good ones; they have broad toes and are roomy enough to allow for free action of the small muscles. Not only should the shoe be roomy, but stockings should also fit well. Stockings which are too tight or small will cramp the foot and interfere with the proper action of the muscles of the foot, in that manner predisposing the child to weak foot.

Pathology.—In the average case the foot appears to be turned outward below the ankle and the axis of the lower leg presents an outward devi-

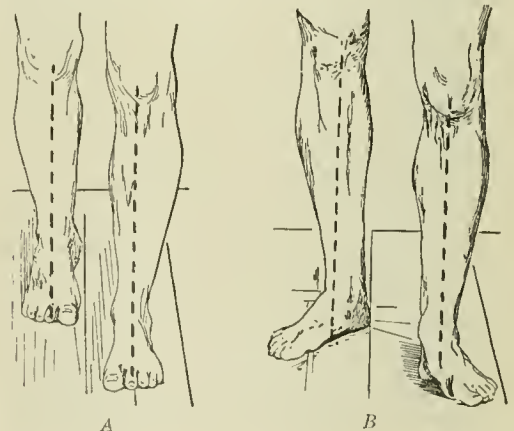


FIG. 8.—The anterior tibial line. A, normal. B, in a case of weak foot.

ation in the plane of the ankle. The internal ankle may project from a slight to a considerable degree. The arch of the foot is not only lowered, but in severe cases appears to be convex, the bulging resulting from constant lowering and outward

turning of the head of the astragalus and scaphoid. The inner border of the foot appears to be much longer than the outer.

Symptomatology.—Subjective: In those cases resulting from a specific cause, such as infantile



FIG. 9.—Method of strapping weak feet.

paralysis, injury, an infectious process, etc., this history is elicited. Some children have a limp, some fall, others turn the ankle; in other cases the children walk with the toes pointing outward. Again there are cases where there are no subjective symptoms. The children are brought to the clinic because they always wear their shoes out on the inner borders of the soles and heels. In these cases the shoes are not only worn out on the inner borders of the soles and heels, but the inner surface of the last of the shoe is distinctly prominent and bulging, the result of the constant pressure of the displaced astragalus. Occasionally the children will complain of pain in one or both legs, the location of which is variable. At times it may be referred to the inner border of the foot, but more often to the calves of the legs. Other children tire easily and want to be carried continually. In a number of cases the children are brought to the clinic to be treated for a sprain or fracture of the ankle and the presence of weak feet is discovered for the first time. In these cases history of any of the aforementioned subjective symptoms cannot be obtained. The mothers are unaware of the fact that their children have weak feet.

Objective: The gait of these children is awkward. They walk upon the entire sole of the foot. The toes turn out and the soles and heels are worn out on the inner border. The most important objective symptom is the eversion of the heels and heel cords. In the normal foot the heels and heel cords are either parallel to or converge slightly toward a line drawn perpendicularly through the center of the trunk and continued downward to the ground. In weak feet there is a tendency for the heels and heel cords to be everted, to roll away from this midline. This eversion varies with each case. In mild cases it

may be very slight, while in the more severe types it is very marked. With this eversion there is a lowering of the arch as a whole. In the early cases disturbance in the osseous structure of the arch is not discernible; nevertheless there may be a slight stretching of the ligamentous and muscular structures. As the condition progresses the ligaments and muscles become more and more stretched until finally there is complete collapse of the keystone of the arch and the sole of the foot is applied flat to the ground, resulting in a pes planus. With these changes the eversion of the heels and heel cords keeps pace, so that marked eversion is always present in these advanced cases.

The evidence derived from an impression of the sole of the foot fails to give us the true status of affairs. Cases suffering very mildly or not at all may give a normal foot impression. In very young children it is of no value, as all the impressions are flat, due to the pad of fat which surrounds the osseous structure of the arch. It is of no value in determining which foot is more profoundly affected. We have found in our experience that very flat impressions were present in feet which gave very slight symptoms, and normal impressions in feet which produced very severe pain and disability.

The displacement of the anterior tibial line is another valuable aid in diagnosing weak feet. Normally the anterior tibial line falls over the first or second toes; in weak feet it usually falls toward the inner side of the big toe or over the center of the inner border of the foot. The anterior tibial line is found by following a line passing along the crest of the tibia and continuing it along the dorsum of the foot.

Spastic or rigid weak feet are rare in children. Occasionally one may be encountered. In these cases there is limitation of the range of motion due to the spasm of the muscles on the dorsum and outer side of the foot; the spasm resulting from shortening and contraction of these muscles owing to the persistent attitude of valgus.

Treatment.—Prophylactic: A great deal can be accomplished in the prevention of weak feet. The feet of children should be examined as frequently



FIG. 10.—External flange of the Whitman brace.

and carefully as the eyes, teeth, or mouth, and where there is any suspicion of weakness or a tendency toward weakness proper measures should be instituted.

The feet of small children should not be forced

or pressed into shoes. The children should be given frequent opportunities to walk in their bare feet. This allows free action of the muscles and hence strengthens them. Creeping should be encouraged as much as possible. Infants should be placed upon their abdomens as soon as practicable. The desire for locomotion will soon induce the children to creep and frequent opportunities will eventually accustom them to this new achievement. This creeping period should not be suppressed. Permitting the child to sit too early will encourage the child to slide over the floor on the buttocks. This will delay creeping, and should not be permitted.

The period of creeping should be changed by the child into one of walking. Only when a child of its own accord attempts to stand up and walk, holding to surrounding objects, should it be permitted to do so. To force them to walk prematurely, with the aid either of nurses or walking appliances is objectionable. All such devices are impracticable and unnatural. Hastening the commencement of locomotion predisposes children to weak feet.

Regardless of the presence or absence of weak feet, broad-soled sandals for the younger children



FIG. 11.—Internal flange of the Whitman brace.

and shoes for the older ones should always be recommended. These allow of free and unrestricted action of the toes and small muscles of the fore part of the feet.

Curative: In very young children proper sandals or shoes alone will usually overcome weak feet. The sandals or shoes should be broad-soled, they should have a lift of an eighth to a quarter of an inch on the inner border of the soles and heels. The thickness of the lift depends upon the amount of valgus present. The mild cases should have a lift of an eighth of an inch and the severer ones a quarter of an inch. Lace shoes are preferred to those that are buttoned.

If after a reasonable length of time the shoes fail to relieve the condition braces must be added to the treatment. The brace which has been found to be very efficient is the Whitman brace. The brace is modeled upon a plaster cast of the foot taken while the foot is held in the fully corrected position. It fits the arch of the foot accurately, extending forward to the ball of the big toe, outward round the outer border of the foot and backward to just in front of the tuberosity of the os calcis. On the inner side it is enlarged

upward and extends to a point one-half inch below the internal malleolus. With a properly made brace the foot should rest upon its normal bases of support, *i. e.* the under surfaces of the heads of the first, fourth, and fifth metatarsal bones and the tuberosity of the os calcis. These braces should be accurately fitted and each should be made for the individual who has to wear them.

The method of taking the cast of the foot which the writer has found efficient is a very simple one. The patient sits upon a chair with his foot upon a second chair of the same height. On this chair is placed a small cushion covered with a towel on which talcum powder has been sprinkled. Plaster of paris is then mixed with water to form a thick cream; a piece of gauze is then steeped in the plaster-of-paris cream and laid upon the towel, underneath the foot, so that the outer border of the sole rests upon it along a line about an inch from the edge. The foot rests upon its outer border and is held at a right angle to the leg. The gauze is then wrapped around the foot, covering in the heel behind and extending as far forward as the cleft between the toes; it should reach up above the internal malleolus, but should not overlap the dorsal surface to any extent. This covering is allowed to set and when the plaster is hard there is no difficulty in removing the foot from it. A fresh plaster cream is now made. The mold is well powdered and the plaster cream is poured into it and arranged so that it fills the mold, but does not project beyond it in any direction. When the plaster has set the sides of the mold are forced aside, the cast is removed and properly carved and marked for the instrument maker.

The brace is made of thin steel or aluminum alloy and should extend forward to the line of the metatarsophalangeal joint of the great toe and backward to the center of the heel; on the outer side it grasps the foot just behind the prominence formed by the fifth metatarsal bone and on the inner side of the foot it extends upward to one-half an inch below the internal malleolus. It should fit the cast accurately, except over the heel, where it should be slightly flattened so as to make it steadier. It should be worn for short periods at first, the length of time being gradually increased as tolerance is established. The length of time the support is necessary varies with the condition of the patient and the strain to which the feet are subjected. The brace should be corrected from time to time so as to conform with the changes taking place under its use.

In older children we have slightly different conditions with which to contend. Pain, rarely present in the younger children, is one of the common complaints of older ones. For the acute pain strapping offers the quickest relief. The method we use has proved very satisfactory. One end of a strip of adhesive plaster about eight inches long and one inch wide is applied to the outer side of the ankle just below the external malleolus; the foot is then adducted as far as possible and the plaster drawn tightly beneath the sole up the inner side of the arch and the leg, being kept in this position by one or two strips about the calf. Strips about three-quarters of an inch wide are

then applied in a figure-of-eight manner about the arch and ankle, beginning at the back of the heel and extending as far forward as the base of the first metatarsal bone. Strapping should be done twice a week and continued until the pain has subsided. Where necessary, shoes and braces should be recommended.

When children are old enough exercises have proven valuable adjuncts in obtaining a successful issue. The following exercises have been found to be very efficient.

1. Tip-toe exercises: the patient places the limbs in the attitude of moderate inward rotation, raises the body on the toes to the extreme limit, the limbs being fully extended at the knees, then sinking slowly, resting the weight on the outer borders of the feet in marked varus, repeating about twenty to thirty times.

2. Walking in bare feet.

3. Walking on the fore part of the foot.

4. Grasping motions with the toes, exercises with foot weights.

5. Bicycling has also proved of value and should be highly recommended.

These exercises should be practised twice daily and should not be carried to the extent of tiring the patient.

In a number of cases operative interference is indicated. This is especially so in those cases due to infantile paralysis and congenital deformities.

If after the period of spontaneous recovery has elapsed paralysis of the tibialis anticus has not been overcome, operation may be necessary. The operations which have proved satisfactory are tendon transplantation and tendon fixation. These operations are too well known to require detailed description. Suffice it to say that they should be employed where the indication exists.

Achillotomy followed by proper after measures should be resorted to in those cases in which the tendo Achillis is contracted.

Arthrodesis, removal of a wedge-shaped portion of the tarsus, bone grafts, have all been advocated. Fortunately these operative procedures are not commonly required.

Summary and Conclusions.—1. Children should be examined for the presence of weak feet.

2. Special prophylactic precautions should be taken in children from whom a history of the presence of weak feet in one or both parents is obtainable.

3. Feet in very early childhood are apparently flat. They should not be considered as pathological unless the flatness persists after the third or fourth year of age.

4. Exercises, such as creeping for the infants, and those previously enumerated for the older children, are very beneficial and should be encouraged.

5. For acute pain rest and strapping are indicated.

6. Proper precautions should be taken in infantile paralysis in which the tibialis anticus muscle is involved. In knock-knee the shoes should be raised from one-eighth to one-quarter of an inch on the inner side of both soles and heels, so as to overcome the tendency to valgus which occurs frequently in this condition.

7. When in spite of proper precautions and prophylactic measures weak feet occur, a support becomes necessary; the Whitman brace has proved to be the most satisfactory.

8. The method above recommended for taking the cast of the foot has the following advantages. First, it is a very simple one. Second, with the method described the foot of the patient is very easily controlled. Those who have had experience with children know how difficult it is to control them until the plaster has set. With this method they are very readily controlled. Finally a more accurate cast of the foot is obtainable.

9. Too much importance should not be placed upon the evidence obtained from foot prints, as in the majority of cases they are misleading and do not give us accurate data of the pathological condition present.

10. Eversion of the heels and heel cords is the most constant diagnostic feature in weak feet.

11. By the application of the foregoing prophylactic measures in every case in early childhood, regardless of the presence or absence of weak feet, suffering, disability, and weak feet in adults will be kept at a minimum.

1051 BOSTON ROAD.

LOCALIZING POSTERIOR GONORRHEAL URETHRITIS.

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THE frequency with which the posterior urethra is involved in our gonorrheas is still a much disputed question. To give the figures of the various authorities would be superfluous, but the conclusion that can be drawn from their observations is that rarely does the posterior urethra escape the insults of the gonococcus. Their figures vary from 60 to 95 per cent.

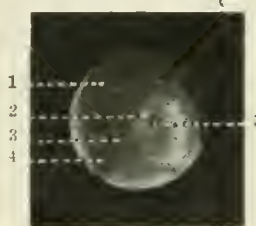


FIG. 1.—Endoscopic view of the posterior urethra. 1, pus coming from the prostatic duct; 2, ejaculatory duct; 3, prostatic duct; 4, prostatic sulcus; 5, sinus pocularis (utricle).

It is not the purpose of this paper to discuss the various reasons for this condition, but it certainly does occur many more times than it rightfully should. Probably the greatest factor producing a posterior urethritis is the promiscuous and unintelligent use of the urethral syringe, and the sooner we disarm our patients of this dangerous instrument the sooner will the percentage of posterior gonorrheal infections decrease.

Were the posterior urethra lined with smooth mucous membrane, chronic gonorrhea would be practically unheard of, but the fact that it gives off various diverticula in the shape of lacunæ, crypts,

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glands, and their ducts, makes it possible for the gonococcus to be harbored for years undetected in these hidden cesspools. These complicated avenues are the chief cause of our inability to make an intelligent diagnosis, and their anatomical complexity makes them practically impossible of therapeutic approach.

A mere glance at the anatomy (Fig. 1) will give us an idea of how intimately these various structures are associated. The verumontanum springs from the floor of the prostatic urethra, much as the uvula projects from the soft palate. It is of firm consistency and composed of definite acini (Rytina). Its bulging into the urethra is mainly due to the pushing forward of the utricle and ejaculatory ducts. On the summit of the verumontanum and a little anterior is the utricle (vagina masculina) which is the embryological remains of the obliterated Mullerian ducts. This is a blind pouch and makes an admirable focus for the harboring of the

pus. While often this is the case, still it may be possible for only one of these structures to be infected. The frequency with which the various structures are infected in the posterior urethra is also a much disputed question, but probably the greatest in frequency are the prostatic ducts on account of their anatomical position, that is emptying into these lateral gutters into which pus easily gravitates. Probably next in frequency is the utricle, next the seminal vesicles, and lastly Cowper's glands. The seminal vesicles are probably spared so frequently from the fact, as I have stated, of being surrounded by a sphincter and guarded by a connective-tissue door. The ejaculatory ducts are closed and in a state of tonic contraction, opening only at the height of the sexual orgasm.

With our increased knowledge of intraurethral surgery, it can readily be seen why a diagnosis of the infected structures is essential. A rational diagnosis is not only important from the standpoint of treatment but will also aid us materially in arriving at some prognostic conclusion, for after all this is the point which so materially concerns our patient, for they will continually bombard us with "Can I, and how long will it take before I am cured?" It is not the purpose of this paper to discuss these points but I merely wish to bring out a procedure which has been of great service to me in localizing the pathology in the posterior urethra.

I would only mention that we are all agreed that we must not use instruments in the urethra before the gonorrheal infection is perfectly quiescent and the patient has had sufficient opportunity to build up a local tissue and general resistance, which is usually about three months. Before the introduction of the urethroscope we relied entirely upon rectal examination for the diagnosis of infections of the seminal vesicles, prostate, and Cowper's glands. In 1890 Fuller insisted on a greater recognition of this procedure,

which is certainly neglected by most men. Much can be learned from rectal examination in the male, and certainly should be instituted as a routine procedure in all our chronic gonorrheics and in other obscure conditions in the male, for the posterior urethra is certainly a prolific source of focal infections. (Billings.)

The method I have been using for localizing a posterior gonorrheal infection is very simple, and while the illustration (Fig. 2) is self-explanatory a few points as to the technique will not be amiss.

Technique.—First. Massage prostate, vesicles, and Cowper's glands, followed by a warm irrigation of boric acid solution. The purpose of the massage is to squeeze out any inspissated debris which may be lying in the ducts and occluding them. The irrigation washes out the entire urethra. A Barnes' bag (medium size) previously lubricated is curled up and inserted into the rectum. Attached to the Barnes' bag is a rubber bulb taken from any blood pressure instrument which makes it easy to control the air. The patient is now placed in a cystoscopic position and the urethroscope passed into

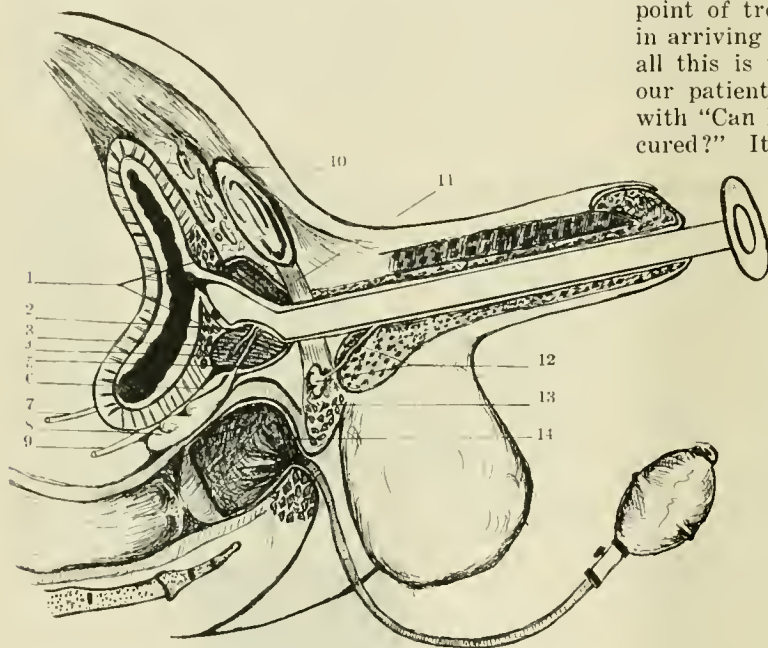


FIG. 2.—The posterior urethra: 1, internal sphincter; 2, verumontanum; 3, sinus pocularis; 4, prostate; 5, ejaculatory duct; 6, ampulla of vas; 7, ureter; 8, seminal vesicle; 9, vas; 10, symphysis pubis; 11, triangular ligament; 12, duct of Cowper's gland; 13, external sphincter (cut-off muscle); 14, Barnes' bag in rectum.

gonococcus. On the acclive or the anterior surface of the verumontanum lying usually below and one on each side of the utricle are the openings of the ejaculatory ducts which have a definite involuntary-muscle sphincter guarded by a tit of connective tissue (Belfield). On each side of the verumontanum is a gutter known as the prostatic sulcus, into which empty about fifty (Woolsey) small ducts (prostatic ducts), invisible to the naked eye when seen through the endoscope. Between the two layers of triangular ligament are Cowper's glands whose ducts pierce the anterior layer of the triangular ligament and empty into the bulb of the anterior urethra. All of these structures occupy an area about three quarters of an inch long and if we bear in mind that the posterior urethra is a closed tube, it is almost impossible to conceive how any of these structures can escape being infected when the posterior urethra is involved and literally bathed

the posterior urethra so that the verumontanum pops into the fenestra which is placed on the heel of the instrument. I have obtained splendid results by using Swinborne's urethroscope. The area of the verumontanum is now swabbed dry with cotton applicators. One now attaches the eye piece which may be magnifying, which brings out the details better. We can now see the utricle, ejaculatory ducts, and lateral sulci. Ordinarily the prostatic ducts cannot be seen; however, if diseased, they are patent and may be surrounded by an inflammatory zone. The bag in the rectum is now inflated. This applies pressure or mild massage to the seminal vesicles and prostate, and if pus is present it will be seen exuding from the ducts of these structures. If nothing comes out of these ducts we may gently probe them with a fine filiform and inflate our bag again. To observe Cowper's ducts one gently withdraws the instrument until it can be felt to escape the grasp of the external sphincter. The heel of the instrument is now in the bulb and one again inflates the bag and looks for pus. Ordinarily it is not possible to see these ducts, but when the gland is infected they are usually patent and may be surrounded by an inflammatory halo.

With this procedure one may arrive at a proper diagnosis and render an intelligent prognosis, and the method is also applicable for treatment. It may be possible to obtain pus from these structures for an autogenous vaccine and through a proper sized cannula medicament may be carried to the structures, or we may insert a fine wire in the utricle, prostatic ducts, and Cowper's ducts and pass our Oudin or d'Arsonval current through them, completely destroying them. The current should never be passed into the ejaculatory ducts for reasons which are self-explanatory.

REFERENCES.

- Rytina: *Jour. A. M. A.*, Vol. LXIV, No. 1.
 Belfield: *Surgery, Gynec. and Obstet.*, Nov., 1906.
 Herbst: *Jour. A. M. A.*, Dec. 21, 1912.
 Lowsley: *American Journal of Anatomy*, July 15, 1912.
 Billings: *Jour. A. M. A.*, Sept. 13, 1913.
 Geraghty: *Ibid.*, Vol. LXVII, No. 10.
 McGowan: *Ibid.*, Sept. 18, 1915.
 Fuller: *Journal of Cut. and G. U. Diseases*, Sept., 1893.
 Culver: *Jour. A. M. A.*, Vol. LXVI, No. 8.
 Young: *N. Y. Med. Jour.*, Jan. 13, 1917.

EUGENICS: ITS RELATION TO MENTAL DISEASES.

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EUGENICS may be defined as the science of race improvement through the application of the laws of heredity. In the words of Sir Francis Galton, who laid the foundations of this science in the year 1865, "Eugenics is the study of the agencies under social control that may improve or impair the racial qualities of future generations, physically, mentally, and morally. The aim of eugenics is obviously the production of a more healthy, more vigorous, more able humanity, and to bring as many influences as can be reasonably employed, to cause the useful classes to contribute their full pro-

portion, or even more than their full proportion, to the next generation and to cause the useless, vicious, and constitutionally diseased and degenerate classes to contribute less than their proportion to the coming generations."

Both the study of eugenics and heredity must be predicated on some consideration of the origin and evolution of the human race. Whatever may have been the origin of the race, whether from ultimate protoplasm or otherwise, racial evolution physically, mentally, and morally during thousands of years, as related to the study of human heredity and eugenics, is of absorbing interest. We know how slowly but triumphantly this complex evolution has gone on, until man and his achievements, notwithstanding human defects and limitations, during the present and recent centuries have become marvels of efficiency.

Eugenics may be spoken of medically as a prophylactic against the continuation of race impairment. As all prophylaxis or preventive medicine is necessarily correlated to the treatment of all racial ills, it follows that we as physicians and psychiatrists may well concern ourselves with the solution of every practical phase of this whole problem as it exists to-day, due to the neglect of eugenic rules, emphasizing particularly the problems here involved of a vast number of preventable mental and other diseases.

The laws of eugenics are based on the laws of heredity, but the application of these laws is different in eugenics. As underlying the laws of heredity we shall merely refer to some of the conclusions of "natural selection" and "survival of the fittest" as an essential factor in the origin of species and of other related laws of evolution as laid down by Charles Darwin, Alfred Russell Wallace, and others, remembering, as Darwin says, that this doctrine forms the only rational explanation of the laws of the gradual development of the innumerable forms of living things and their enormous powers of increase.

The Darwinian law of "the survival of the fittest" is greatly modified in the human race because mankind is exclusively possessed of intellect, which Alfred Russell Wallace, the contemporary of Darwin, calls "the influx of some portion of the Spirit of the Deity, a living soul, into man," which inspires him to conquer in the struggles of life and to help himself and others in dangers, prostrating illness and in providing food, shelter, and comforts, in circumstances where the lower animals could not thus provide. Our modern hospitals and other charitable, educational, protective and humane institutions for conserving the life and welfare of all, particularly the helpless, and for the development of the higher mental and moral faculties, are a sublime illustration of how man's intellect and moral nature differentiates him from the lower animals.

To develop and extend these high human standards of Wallace it is necessary to remedy the unchecked, blind workings of the laws of "natural selection" by what might be called "artificial selection."

In connection with the laws mentioned and the parent sciences of eugenics, namely biology and sociology (to which latter reference will be made

later), and as fundamentally related to heredity and eugenics, let us refer briefly to some processes in reproduction and embryonic life, and show how the splitting into doubles of the chromosomes in the process of fertilization of the female egg by the male sperm cell and the consequent mixing of the chromosomes of the parents result in a mixture of parental traits and characters,—these chromosomes being termed the determiners of heredity, which carry to the offspring the parental qualities, through the mechanism of the nuclear divisions of the sex cells. This mixture of the nuclear chromosomes, called *amphymixis*, probably has other important functions besides that mentioned, creating variations, particularly the larger variations called mutations, which “natural selection” could take hold of; it also has the function of eliminating certain variations which are possessed by only one parent, constantly tending, therefore, to bring the individual progeny back to the type of the species.

Dr. C. B. Davenport, who has contributed largely to this subject, in his several books on “Eugenics and the laws and methods of heredity in man, the lower animals and the vegetable world,” lays down important generalizations, the first of which is “When a determiner of a characteristic is absent from the germ-plasm of both parents, as proved by its absence from their bodies, it will be absent in all of their offspring, this being called nulliplex. Therefore, in order to predict the result of a particular mating, it is necessary first to know which similar unit characteristic both of the parents lack, which they both possess, and whether the characteristics are due to the presence of a determiner or to its absence. This can, in part, be determined experimentally or inferred from pedigrees.” It follows, according to Davenport, that we do not inherit from our parents, grandparents, or collaterals but that related individuals have some common characteristics because developed out of the same germ-plasm with the same determiners. A child resembles his father because he and his father are developed from the same stuff. Both are “chips from the same old block.” Some determiners carry characteristics that are positive and others characteristics that are negative, which latter depend upon the absence of a determiner. Thus the presence of brown eyes depends upon an enzyme that produces the sepia-colored pigment, while blue eyes depend upon the absence of such an enzyme. It is not always easy to say in advance whether a given characteristic is positive or negative, as for instance, the long hair of angora cats, of sheep, or guinea-pigs is apparently not due to a factor added to conditions that would produce short hair, but rather to the absence of a determiner that stops the growth of hair in short-haired animals.

If both parents have the character as a single or simplex character, then the two determiners will meet in one force of the union of egg and sperm, the two simplex characters will both be absent in one-fourth of the progeny and only one simplex character will occur in half of the progeny.

If one parent has the characteristic simplex and the other duplex, then half the offspring will have it simplex and the other duplex. The inheritance or non-inheritance of some of these traits like hair, the color of the eyes, etc., which so well illustrates

the precision of the modern science of heredity, though originally considered to be immaterial to well-being, are important, if the observations of Major C. E. Woodruff, M.D., that pigmentation protects individuals from the injurious effects of the tropical sun's rays are true.

The combinations or blending of these characteristics is so complex, and has such an infinite variety of results to the human being growing from the fertilization of the ovum (a fertilization that leads to but one out of thousands of possible combinations) there is a plain duty to all who may become parents to keep themselves in the best possible condition physically, mentally and morally.

The germ-plasm or germ cells are differentiated from the body or soma cells very early in the course of development and reside in the ovaries and testes, being in a measure out of relation to the body cells and leading a relatively independent existence, except for the fluids surrounding them and from which they derive nourishment. This gives rise to *the theory of the continuity of the germ-plasm*, meaning that they, the sex cells, carry on through all generations the purely hereditary factors, from individual to individual, practically uninfluenced by what may occur in the body at large, so that regardless of such accidents to the body, as for example, the loss or mutilation of a limb, or other similar changes or the acquirement of some special skill in one direction, the germ cells are uninfluenced and carry on from generation to generation only what they originally contained.

The inference from this theory of the continuity of the germ-plasm is that characters acquired by individuals in their lifetime, or characters possessed by the individual but not inherited by them cannot be transmitted. Weismann and his school insist that the inheritance by the offspring of the acquired characters of the parent is inconceivable. They admit that the germ-plasm itself possesses all the marvelous potentialities which are necessary to account for the highest development of mankind. If Weismann is right in his contention that no acquired characters can be transmitted to posterity then all of the achievements of our education, training, and civilization, which have been going on during thousands of years and which have been so rapid in their strides since the invention of the printing press, are completely lost, so far as they affect the innate character of posterity. While all authorities agree with Weismann that the so-called innate or inborn traits are sure to be transmitted, many authorities believe that the effects through many generations of all these acquired characteristics so react on the body and mind and moral nature of human beings that they result in corresponding variations, which have commenced long ago, as a consequence of these forces.

The Lamarckian theory insists that structures came into existence or went out of existence by the results of use or disuse and that the effects in either case were transmissible by inheritance.

The Neo-Darwinian theory, as stated by Dr. J. William White (who has contributed so much of value to this whole subject in the two volumes on “Mental and Nervous Diseases,” edited by him and Dr. Smith Ely Jelliffe), explains the effects of use and disuse only as bringing out or suppressing

certain potentialities. "The muscles of the blacksmith's arm grow larger by use, but they could not grow larger as a result of use if there were not resident within them the potentiality to increase in size, and it is this potentiality the Neo-Darwinians would say, that is passed on in the germ-plasm, and nothing more. Such changes as the unusual growth of the muscles of the blacksmith's arm, however, should not be lost sight of as evidencing the very material way in which the individual may be influenced."

One of the most absorbing features of the study of eugenics and heredity is to follow the inheritance by children of the infinite variety of mental, moral, as well as physical traits of their ancestors. This brings us to that phase of the subject known as variations from type, which has already been referred to in the mixing by the chromosomes in the germ-plasm.

Variations or modifications must be what is called determinate and not haphazard, as nothing in nature may be assumed as occurring, except in accordance with natural law. The variations caused by the presence of poisons like alcohol or diseases like syphilis, of the stunting effects, during embryonic life and of the lack of proper food, constitute a variation from the type entirely different from those variations here referred to as being determined by the mixing of the parental chromosomes or determiners.

The determination of variations by environment, religious and moral training, and all the educational and civilizing influences during thousands of years form an interesting part of this study as to the exact effects of which the highest authorities have radically differed, as has been pointed out in the brief reference to the theories of Weismann, Lamarck and the Neo-Darwinian theory.

The Mendelian theory of inheritance is based on the conclusions from experiments with plants chiefly, that there are certain characteristics of the individual called unit characters which are represented by the determiners of the germ-plasm, these being conceived to be definite material entities carrying special characters that cannot be blended when used in the true sense of that term, but must be an inheritance dependent upon the segregation and grouping of the determiners. Mendel formulated to the satisfaction of his followers with mathematical precision the ways in which inheritance would manifest itself by determining all the possible combinations in which these determiners would group themselves. In studying the Mendelian law it is essential to remember that certain determiners are dominant and certain others are recessive; as for example, if a flower contained a determiner for the red color and a determiner for the white color and the red determiner was dominant, the color would be red, but if the germ-plasm contained a white determiner which is recessive, this recessive determiner, white, would produce a certain number at least of white progeny. If a given determiner comes from one parent only, the heredity is simplex, while if it comes from both parents it is duplex. If there are no determiners on either side for a given quality, it is absent and the heredity is said to be nulliplex. Theoretical expectations and actual findings as related to the Mendelian theory,

do not, as is to be expected, always show an exact correspondence but are an expression of probable chance.

One of the interesting conclusions of Mendel is that a pure bred may be derived from a hybrid in one generation, and that the hybrid of a pure bred produced by a long series of hybrid individuals is just as pure as the pure bred which has never had a hybrid ancestry. Another important consequence is, that among the offspring of the same parents some individuals may be pure bred and others hybrid. Community of parentage does not necessarily denote community of characteristics among the offspring.

Among the high American authorities, who have made valuable contributions supporting the idea that the Mendelian proportions obtained in the inheritance of epilepsy and feeble-mindedness, are Weeks and Davenport, in their notable work on "Epilepsy and Feeble-mindedness," and in which they present research and a large number of pedigrees well worthy of the serious attention of students of this subject.

It must be borne in mind that Mendel's interesting experiments were confined to the hereditary manifestations in flowers and plants and certain of the lower animals, and that while they are full of suggestiveness they did not go far enough to justify us in saying that all of his conclusions were applicable to heredity in human beings. Bateson, a leading English authority, says of the Mendelian theory that "we have the certainty that it extends far and that there are ample indications for supposing that we should probably be right in assuming that it covers most of the features whether of the mind or of the body"; but he doubts if the Mendelian proportion exists as applicable to the inheritance of mental and other diseases. F. W. Mott, to whose great work we shall refer later, expresses substantially the same view.

In harmony with the Mendelian experiences are the following lines from Goethe:

"Stature from father, and the mood
Stern views of life compelling;
From mother I take the joyous heart
And the love of story telling.

"Great-grand sire's passion was the fair—
What if I still reveal it?
Great-grandmam's pomp and gold and show,
And in my bones I feel it.

"Of all the various elements
That make up this complexity,
What is there left when all is done
To call originality?"

Goethe's version of his own traits derived from inheritance suggests that the characters from either parent exist side by side, like the single units in the ordinary mosaic or tiles in a tiled floor.

Galton's "Law of Ancestral Inheritance" has distinct reference to the mechanism of the final splitting up of the chromosomes and their union (not blending) with corresponding portions of the opposite sex, so that each new germ cell contains chromosomes, some of maternal and some of paternal origin, each with its contained determiners, or the transmitters of each separate character of one parent or both parents. This law, which is satis-

factory as a whole, was formulated by Galton, not to apply to individuals, but to express the general result when applied to a large number of individuals in many generations; and it holds true only if we consider the chromosomes as being uniform in structure and the part going to form each nucleus being equal not only in quantity but quality. Galton showed that the older and more fixed a characteristic is, the more liable it is to the law of "filial regression." Galton's law compared with Mendel's applies only to masses of people and not to individuals. Galton said, "though one-half of a child may be derived from either parent yet the child may receive a heritage from a distant ancestor, which neither of his parents possessed. Galton's statistical inquiry into good and bad tempers in a family tend to show that they exist in different members at haphazard; another tends to assimilate them in such a way that they shall be all good or all bad; a third set tends to divide families into contrasted portions.

The approximate formula of Galton and others for the inheritance of ancestral qualities, stated briefly, is that a man inherits his qualities—physical, mental, and moral—one-fourth from each of his parents; one sixteenth from each of his grandparents, and one sixty-fourth from each of his great-grandparents; and it has been well said that the one remaining eighth in the final make-up of a man comes from "an unknown and certainly negligible part of gain through the father's activity; an unknown and negligible part of gain through the mother's activity; an unknown part, fortunately also negligible, of loss through the idleness or non-development of each; an unknown and doubtful change through pre-natal influences received through the mother; the whole reduced by untoward influences, many or few arising from transmission or failure in early nutrition, and to be modified in every part by the fact that he is a man."

"But these fractions indicate only potentialities. These make up the architect's plan on which the man is to be built. The plan admits of much room for deviation. Every wind that blows will change it a little. These elements themselves are of varied character. They do not belong together nor are they held in place, so far as we know, by any 'ego' except that made by the cell alliance on which they depend. Some of these elements the experiences of life will tend to reduce or destroy. Some of them will be systematically fostered or checked by those who determine the man's early environment. The final details will be beyond prediction. The ego or self in the life of the man is the sum of his inheritance, bound together by the resultant of the consequences of the thoughts and deeds which have been performed by him and by others also. Thus each day in his life goes to form a link in the chain which binds his conscious processes together. The vanished yesterdays are the tyrants of tomorrow. The higher heredity is the heredity from ourselves."

Race improvement must rest on "selection," good or bad. In other words, a wise process of selection will determine the future welfare of the race. What are some of the fundamental factors in that selection or as it may be called "artificial selection" that would work practically for this desired result?

Obviously, as far as possible, because of their direct or remote influences environmental conditions should be made wholesome, and reference to this will be made following some suggestions to be made on improving the mating conditions of that large and educable class known as normal recessives—meaning of course, persons who are themselves normal but having in their bodies the certainty of transmitting certain diseases or the tendency to these diseases, to their offspring in the first or succeeding generations.

Preliminary to some suggestions in relation to the mating of recessives with taints tending toward insanity and the psychoneurotic states it is necessary to note that there are six combinations of mates with reference to insanity that give rise to the theoretical expectation of different kinds of offspring, as follows (according to Dr. A. J. Rosanoff):

(1) Both parents being insane all the children will be insane.

(2) One parent being normal but with an inherited insane taint from his ancestors, and the other parent being frankly insane; half the children will be normal and the other half will be insane; but even the normal children from such a mating will carry the taint of insanity in their germ-plasm and will be capable of transmitting it to subsequent generations.

(3) One parent being normal and of pure normal ancestry and the other parent being insane, all the children will be normal, but will all carry the insane taint in their germ-plasm.

(4) Both parents being normal but each with the insane taint from the ancestors, one-fourth of the children will be normal and not capable of transmitting insanity to their progeny; one-half will be normal but capable of transmitting the insane make-up; and the remaining one-fourth will be insane.

(5) Both parents being normal, one of pure normal stock and the other with the insane taint from his ancestors, all the children will be normal, but half of them will carry the taint of insanity in their germ-plasm.

(6) Both parents being normal and of pure normal stock all the children will be normal and entirely free from the taint of insanity.

Theoretical expectations and actual findings, as related to the Mendelian theory, do not, as is to be expected, always show an exact correspondence, but are an expression of possible chance. Dr. Rosanoff's tables in his article on "Heredity; In Relation to Insanity and Eugenics," relating to psychoneuropathic offspring and normal offspring, according to the Mendelian theory, are well worth studying and justify the conclusion, he thinks, that insanity is transmitted from generation to generation according to the Mendelian proportions.

These six possible combinations should always be borne in mind in our effort to solve the marriage and mating problem of not only those suffering with the frank symptoms of inherited insanity but those normals whose sane and high sentiments make them more difficult to deal with in this regard.

Sensational or drastic methods or of legislation are not here proposed to prevent normal recessives

from marrying or mating. The slogan to bring about a change of public sentiment as to the danger of unsuitable matings must be, "educate, educate." We should have by every possible means of publicity and education, the main truths brought out with regard to insanity, promulgated by physicians, by public speakers and lecturers, by ministers of the Gospel, by the school books on sexual hygiene and physiology, by means of popular articles in the lay and scientific publications, and by every other possible means.

Such a widespread campaign of education of the people as to the truths of heredity and eugenics, the means of race improvement, should be accompanied by plain warnings as to the danger of unfit matings and at the same time confidential, free medical advice to the poor should be provided by law, so that those interested would be stimulated and encouraged to discuss this question as widely as possible and to seek counsel and advice from physicians and others competent to counsel and advise them.

We have only to recall case after case in our own experiences and to look up some of the thousands of charts that are accessible, showing the lamentable consequences of such unsuitable matings, to be impressed that the final elimination of insanity and many other hereditary diseases by the education of this large class of normal recessives in this direction, would prove on our part and on the part of the nation, worthy of our best efforts and any expense. In working out the problem we must also have in mind how neuropathic and other tainted stock is developed by bad mating out of an original healthy stock and how even epilepsy, insanity, and neuropathic and psychopathic states have been thus developed through a number of generations, notwithstanding nature is always trying "to end or mend" by "natural selection," sexual selection—aided by anticipation—stock that has become degenerate. As illustrating the elimination of even epilepsy running through several generations of tainted stock, by suitable matings of the normal recessives of that stock, and also as illustrating the development of epilepsy, insanity, neuropathic and psychopathic states in previously healthy stock by matings with tainted stock, the hereditary charts and family histories prepared by F. W. Mott, an eminent English authority, are illuminating and suggestive along the lines of the object of my paper, which is chiefly, to present some practical unsensational suggestions that, if followed, would materially lessen the preventable race impairment that is now surely going on.

If we consider not only the economic loss, amounting annually to hundreds of millions of dollars, caused largely by inherited diseases, as represented in the dependent classes in the United States according to the last United States census (approximately over 125,000 insane; over 100,000 feeble-minded; 100,000 deaf and dumb; 100,000 blind; 100,000 in prisons; 150,000 in reformatories and industrial institutions; 75,000 paupers and in almshouses; 500,000 defective in intellect, hearing, and vision; over 100,000 sick, deformed and crippled; approximately 2,000,000 in hospitals, homes, etc., or a total of approximately nearly 3,000,000 dependents, in all these classes), but also

the loss to the race caused by the death of one-half million children yearly in the United States and fifty million children yearly in the whole world and the further enormous economic and racial loss caused by the fact that of the children who survive in the U. S. approximately 30,000 to 40,000 are born through such bad hereditary conditions and with such serious physical or mental defects that they are a burden to themselves and to society, which is more and more contaminated by them, we, as physicians, humanitarians, and economists realize the importance of doing our part to help in the solution of this difficult problem.

Can we define ours as a truly enlightened, highly civilized and efficient nation, in which one person in about every thirty-three must be classed as inefficient, defective, or dependent?

In the words of Kellicott, "the time is arriving (and I will add that in fact it has arrived), when we must begin to think of the future of our communities and nations and of our race, rather than to contentedly read of and meditate upon the great achievements of our past, or to parade with self-satisfied air through the glass houses of Anglo-Saxon supremacy. Even were we unthreatened (and I would add that we are now actually threatened) were we amply holding our own, the mere fact of the possibility of a natural increase of human capacity would make it a practical subject of the utmost importance. We may be sure that somewhere a nation will avail itself of such a possibility as the increase of inherent, native, latent, physical, mental and moral inheritance, and will tend to become strong and dominant people. Why should we not be that people?"

Appreciating the well accepted idea of the influence of environment and training, how shall we nurture, protect, and develop the approximate one-tenth of the human species who are to become the parents of the coming race, by environmental influences?

If the United States government can, by wisely expending, as it does, hundreds of thousands of dollars annually to eliminate diseases of cattle, of swine, and the spirochete disease in the horse (comparable to syphilis in the human race) why could it not with more humanitarianism and wisdom, spend greater amounts for the same and similar purposes to benefit human beings, whose physical, mental, and moral health must in the end be either the glory or downfall of the republic? Parenthood with the race is everything that makes for either progress or impairment and probably the more important element in parenthood is motherhood.

Are the federal and state health agencies doing their full duty to eliminate disease, particularly those diseases which by impairing the health of the mother during and before the child-carrying period, naturally impairs the health of the fetus, and the adult growing from the fetus? Surely our economic and sociologic good sense should teach us that the first essential in well-ordered society is to see that the slums, sweatshops, bad factory and industrial conditions, poisoned foods, poisoned moral surroundings, vicious environment and all that militates against the physical, mental, and moral health of the masses of the people, especially

the pregnant and nursing women, as well as the children and younger people, should be intelligently and rigorously stamped out. It is inconceivable that there should be in this great republic, in this day and generation, such an economic condition as would allow the mothers of the future race to dwell in squalor, filth, and generally bad and unhygienic surroundings and without sufficient food.

No generation, either of man or animals or plants, determines or provides the future of the race; as a small percentage, as a rule of any species reach maturity and only about one-tenth of those give birth to the next generation. The world may owe much to some of its geniuses whose extraordinary mental abilities may have been, as pointed out by Lombrosa, the expression of epileptic equivalents, or the "degeneration of genius," without the force of which we may not have had the influences of some of our greatest reformers, like Mohammed, Joan of Arc, and others. "A Kant or a Spencer dying childless may leave what we call immortal works, but unless they and their class become parents or unless the average parents of *each* generation are rightly chosen or selected, a new and inferior generation will arise, to whom the greatest achievements of past generations are as nothing—'as pearls before swine.'" The average wholesome people, after all, as Saleeby says, make history that is most worth while.

Some of the great laws—the "Law of Averages" and the "Laws of Evolution"—to which reference has been made, have enabled us to preserve what sanity and stability we have. But for the workings of these laws, we would probably be overrun by the monkey geniuses and the matooids of Lombrosa and other degenerates, as well as thousands of educated, over-cultured inspired idiots and fools of all ages, all or most of whom are capable of propagating their species. Another law applicable, is that nature seems to strive for mediocrity; as a seeming contradiction to this law there frequently arises from the happy mating of so-called common or mediocre folk some splendid children, like the illustrious Abraham Lincoln and many others of the world's notables, who sprang from average, rugged, hard-headed ancestors, who, like Lincoln's immediate ancestors, had a good lineage generations back and an immediate ancestry that was hardy and healthy in the sense that their transmitted characteristics were convergent or cumulative in the person of Lincoln. The same may be said of the famous John and John Quincy Adams, father and son! It is interesting to note in this connection on the authority of Reibmayr, that genius does not carry down the stock and that on the contrary, it is a remarkable fact that the male line, where there are children, rarely extends beyond the third generation (see a list and table of the world's geniuses by Reibmayr). A striking comparison is here suggested between the Adams family of Massachusetts and the notorious Jukes family. The ancestor of the Jukes family, born in Orange County, New York, lived immorally, to a great age and became blind, leaving numerous progeny, many illegitimate. The number of individuals of this family, through several generations, aggregated about 1,200 including mostly criminals, prostitutes, vagabonds, and paupers, and only a small proportion of honest workers.

The sociological side of eugenics was, as far as we know, first emphasized during early Greek civilization. As expressing this Plato, stating clearly the essential idea of inheritance of individual qualities and the danger to the State of a large and increasing number of degenerates and defectives, called upon the legislators and sociologists to purify the State with the result that exists in our own day, namely, that the able-bodied and able-minded continued to be sacrificed to the god of war, while the less fit, the weak, the degenerates and defectives were left at home to become the fathers of future generations. Greece is today and has been for many decades past, a most conspicuous warning of such a policy.

The eugenics of the gigantic world war, involving as it does, most of the great races of men, is racially, economically, and sociologically one of the largest questions connected with the war, or rather of its dreadful consequences. With the flower of the manhood of the belligerent nations engaged in destructive fighting at the front, the normal birth rate in even so fruitful a country as Germany has sharply declined, after the first year of the war, at least 30 per cent. This is true both because of the absence of so many fruitful younger men and because of the impaired physical condition resulting from the stress and privations of war of the men and women who remain at home.

It was observed in France commencing with the first generation after the conclusion of the Franco-German war that the average height of the men was two or more inches less than previous to the war, and this same effect (and other effects of physical stunting) of other great wars have been noted. It is easy to see the effects of children begotten under the conditions named, and under conditions of lowered vitality of the older men who stay at home. Fortunately the law of the continuity of the germ plasm applies in the cases of the thousands of legless and armless fathers, so that their children will not inherit such conditions.

Aside from vicious environmental conditions, we know that tainted heredity from all causes is responsible for the direct inheritance of, and the diathesis to, such mental and neuropathic diseases as the manic-depressive psychosis, dementia precox, epilepsy, imbecility, idiocy, feeble-mindedness, Huntington's chorea, Friedreich's disease (hereditary ataxia), Thompson's disease, familial tremors, muscular atrophies and dystrophies, multiple sclerosis, cerebral hemorrhage, arteriosclerosis, the neuropathic constitution, etc., as well as the diathesis to tuberculosis, diseases of the respiratory mucous membranes, syphilitic taints, heart diseases, eye defects, rheumatism, kidney diseases, skin diseases, etc., as well as cases of alcoholism that are apparently inherited and which must be included in this large class of inherited mental diseases, as must also a certain class of explosive persons who find it impossible to control their impulses and animal instincts.

Some able investigators and thinkers along these lines have concluded that while race impairment is appalling and preventable, the time has not yet arrived, in their opinion, to take genuine, practical steps to remedy the evil. The day and time in which we live is characterized by the stern disposition to meet emergencies and social evils, as never

before, and while I do not advocate too drastic or unconstitutional methods and laws to control the propagation of the grossly unfit, such as confirmed, habitual criminals, rapists, certain defectives, degenerates and feeble-minded, I am of the opinion that the worst of these classes, who cannot be effectively and constantly segregated, should come within the laws enacted by the states of California, Iowa, Indiana, Connecticut, and other States, requiring the sterilization of both men and women of these classes under conditions that safeguard their personal and constitutional rights. That these laws, drastic as they may seem, are not considered inhuman or cruel by those to whom they apply, is evidenced by the fact that individuals not coming strictly within the provisions of these laws have, as is recorded in the State of Iowa, requested that they be sterilized by the operation in the male of vasectomy or, in the case of the female, by the removal and tying off of a small portion of the Fallopian tubes. One of the most urgent reforms in the direction of segregation are better regulations by the Local and State Boards of Health for following up those suffering with chronic alcoholism and also that large class, primary secondary, and some of the tertiary stages of syphilis and other communicable venereal and other diseases; in the case of the syphilitic the observation and regulation should extend for at least a period of five years, after which period they may, in some cases, according to certain authorities, beget healthy children. This suggests every possible extension of the work of the American Association for Education in Sex Hygiene.

Recent laws enacted in the states of New York, Minnesota, and other states of the Union, designed to promote eugenic marriages, require that applicants for marriage licenses shall make a sworn affidavit that they are not suffering with communicable venereal diseases. While these laws may not deter the most thoughtless and vicious, they will undoubtedly prove beneficial by punishing violators, in certain cases, for perjury, and will thus also become educational.

These and other laws and marriage regulations, like those suggested by Dr. Adolf Meyer in his valuable contribution to eugenics and heredity, "The Right to Marry," in which he advocates the publishing in this country for three weeks of the marriage banns, as is widely done in most European countries, will in the end have a salutary effect, both by preventing some ill-considered matings and in a larger degree by calling public attention to this whole subject.

I would suggest that supplementing the marriage laws and regulations already in force in some of the States that there be enacted in every State of the Union uniform laws providing for an impartial board of competent, high-minded physicians and sociologists, to be appointed, as free from political considerations as possible, by the governor of each State, which board shall act upon every application for marriage licenses, with the power, if in their opinion it is necessary, to make a thorough physical and mental examination of every applicant for marriage license. The members of this official board should not in any case receive money or compensation from the applicants themselves, but

should be paid a fixed ample salary by the State, the same fee whether they grant or withhold licenses.

To deal with all of the cases of normal recessives wisely and humanely would constitute a difficult task of the board I have proposed and to deal with even measurable success with this large and important class—in so many cases a useful and helpful factor in society—would solve one of the greatest sociological, economical, and humanitarian problems of the age. Here there is the widest field for the exercise of humanitarianism, good sense, and profound sociological and scientific medical training. The official acts of the board in the cases of most normal recessives should, of course, be in an advisory capacity to those who apply for guidance and advice with regard to mating. Tactful procedure and proper educational methods with them will doubtless bring to them and to society at large astonishing results in a few generations. It is obvious that the membership of the proposed board should be made up of several of the larger elements of society, namely, a physician practically trained in insanity, hereditary diseases, eugenics, criminology, and sociology; two or more members who should represent the dominant religious organizations of the respective States; one member representing the masses of people; a broad minded representative of the best labor and agricultural organizations; a layman who should be a broad student of sociology in the modern sense, and a legal member to safeguard the board in proceeding according to the strict forms of law and the constitution of the respective States and the United States, all of which guarantees the protection of personal liberties of persons to be passed upon by the board. The board should carefully study and, as a whole board, decide the case of each person whose case shall under statute come before the board for vasectomy, ovariectomy, or segregation or as grossly unfit to beget children. This board should be composed of the most highly trained, conscientious, and fearless citizens—men and women—and should be selected and continued in office without political considerations and hamperings. The board should also encourage by an organized campaign of education all who have communicable diseases or known taints or predisposition to insanity, neuropathic states, and other hereditary diseases to freely consult its members or their representatives with regard to the proposed matings of normal recessives and all others proposing marriage. The board's powers should be exercised with prudence and fairness, but it should, nevertheless, be fully exercised to prevent the marriage of the grossly unfit, already mentioned, as well as numerous insane and neuropathic persons, epileptics, and others with certain hereditary diseases.

The details and machinery for the creation and workings of such a proposed board could be made an extension of the present powers of the existing boards of health, local, State, and Federal.

Since the individual is only the product of what is in his father and mother, plus the individual's environment, mating is a matter of vital importance, and it is in this matter that we as physicians can, by employing the laws of eugenics, be of the

greatest service to posterity and to those who are wise enough to consult us regarding proper mating. By encouraging this practice the physician can, more than any other social agent, help to eliminate the inheritance of mental and other hereditary diseases and of bad traits and tendencies.

In spite of our best efforts in the direction of better mating we shall for a long time have defectives in our midst. Believing that many a just cause, scientific as well as moral, has been injured by wild, impractical claims of too enthusiastic but well-meaning reformers, who would in a moment reform everything in the world except themselves, I do not wish to be construed as approaching this subject in the spirit of claiming that eugenics has advanced as rapidly as some other sciences or that it or any of the other of the many sciences have as yet been perfected into exact sciences, or that the beneficial principles of eugenics will or can be so rapidly carried out as to produce in a few decades a perfect race of super-men or super-women, or physical or mental giants, but I do insist that if its great underlying laws are sufficiently understood and seriously considered, that fair-minded men and women will admit that the present investigations and known truths regarding eugenics justify the full acceptance of certain generalities on this subject, which if properly applied would lead to the immense improvement of the race by better breeding and the elimination of a vast number of preventable mental and other diseases.

RIVER CREST SANITARIUM.

Medicolegal Notes.

Action for Malpractice—Contributory Negligence—Expert Evidence—Hypothetical Questions.—In an action for malpractice in setting a broken arm it appeared that the plaintiff broke both bones of his right forearm while cranking an automobile. The radius was fractured transversely at a point about three inches, and the ulna obliquely at a point about five inches above the wrist joint. The defendant was called to set the arm. He first attempted to reduce the fractures with the assistance of a trained nurse, retaining the bones in temporary wooden splints. On the same day he took the plaintiff to a neighboring town, where an x-ray examination disclosed that one of the bones had slipped out of alignment. Five unsuccessful attempts were made by the defendant with the assistance of two other surgeons to reduce the fracture by manipulation. The radius would slip out of alignment at one time and the ulna at another. The three surgeons decided it was a case for incise operation, as, in their opinion, fascia or muscular tissue had intervened between the broken ends of the bones. The plaintiff was thereupon taken to a hospital, placed under an anesthetic, and the fracture treated according to the Lane plate method, three-holed plates being employed on each bone. Because of the danger of splitting the ulna, instead of using the screw in the middle hole, a wire was wound around the plate and bone. The plaintiff continued in the hospital the whole of the next day, during which he developed a considerable temperature and considerable bronchitis. On the following day he insisted on returning to his home, where he suffered a chill, followed by high temperature. The day after reaching home a severe case of infection developed, and the wound over the ulna was on the following day opened and discharged much pus. The plaintiff charged that the infection was due to the use of unsterilized wire or some other negligence in the operation, while the defendant claimed that it was due to a constitutional condition resulting from the bronchial trouble. The wound was dressed twice a day for about two weeks and then

once a day for a few days, when the plate and wire were removed from the ulna. During all this time the wound had been discharging pus, but after the removal of the plate and wire the discharge gradually subsided and finally ceased. The surgeons who had been consulted when the plates were applied, as well as the defendant, subsequently advised a curettement of the ulna for the removal of dead bone and waste matter so as to allow the ends of the living bone to bridge over the fracture. The plaintiff did not consent to the operation until about a month later. There was, however, some evidence that the defendant consented to a delay. At the time of the curettement the bones were in apposition and alignment, and there was a partial union of both fractures, that of the ulna, however, only at one edge, and very slight. On applying the last dressing in September, 1913, the defendant told the plaintiff that there was a delayed union, but with prudent care he would have a good arm by next spring. There was evidence that as early as July, 1913, the plaintiff made some use of his arm in driving his automobile and in working about his store. The fracture did not heal properly, and in August, 1914, the plaintiff had an examination made by another physician and was informed that the ulna had no bony union, but was connected only by fibrous tissue, and that another operation in the nature of bone grafting would be necessary. Later other eminent surgeons were consulted and confirmed that diagnosis. The radius had not healed in proper alignment, but was slightly bowed or curved, and the fractured ends of the ulna were separated by a space of about one-eighth of an inch. In May, 1915, the plaintiff commenced action for malpractice, also alleging fraud in concealing from the plaintiff, at the time the defendant discontinued treatment, that there was a false union, and then assuring him that there was merely a delayed union, which would become complete and perfect in half a year without the necessity of further surgical assistance. The answer denied negligence and also set up contributory negligence in leaving the hospital contrary to instructions, in prematurely using the arm, and in failing to comply promptly with the defendant's recommendation to submit to a curettement. The plaintiff obtained a verdict and judgment in the trial court. The judgment was reversed on appeal by the Washington Supreme Court, which made the following rulings:

A charge against a physician of negligence in the choice of a treatment is refuted as a matter of law by showing that a respectable minority of expert physicians approved of the method selected. Where a physician is charged with negligence in the actual performance of a treatment after its method was chosen over others; if there is any evidence tending to show such negligence, the case is for the jury, though the method of treatment itself is one approved by a respectable minority of physicians. The questions of the defendant's negligence and the plaintiff's contributory negligence were both held for the jury. It was held that the opinion of a medical expert, in an action for malpractice, is admissible, though based on the study of books rather than his own experience, so that an osteopathic physician was not disqualified as a witness in an action for malpractice against an allopathic physician because he had no right to practice the allopathic system and had only a theoretical knowledge of it.

Hypothetical questions to a medical expert testifying in an action for malpractice calling for the witness' opinion as to whether or not the use of a single screw in each end of the plate used to secure fractured forearm bones accounted for the healing of the radius in a bowed condition should have included a reference to all the conditions, among them the use of external splints and casts. A hypothetical question directed solely to the manner of placing the plates should have included the fact that splints or a cast and wire wrapping were also used. A question relating to the cause of infection of the arm, including an assumption that a wire used to wrap the bones was not sterilized, and the answer thereto, should have been excluded as assuming negligence, while the evidence on the point was conflicting. A hypothetical question directed to the failure to remove certain tissue at a certain time, assuming a fact of which there was no evidence, should have been excluded.—*Swanson v. Hood*, (Wash.), 170 Pac. 135.

Military Medicine.

AVIATORS' SICKNESS.

THE General Direction of Aeronautics, Italy, has instituted at Naples and Turin a psychophysiological research into the proper testing of aviation candidates for organic and functional disqualifications. The movement is under the supervision of Gradenigo and Herlitzka. In the end the rarefaction of the air will, of course, unless compensated, prove too great a barrier for the most perfect human machine and the hardest pilot must suffer. What then may be done for the inevitable ailments? In the March 31 number of the *Giornale di medicina militare*, Aggazzotti of the Physiological Department of the University of Turin considers the subject of the treatment of rarefied-air sickness, a malady which must be overcome if the Italian aviators are to maintain superiority. The writer has recently interviewed Captain Ruffo, who has won many battles at high altitudes. This expert informed him that at 6,000 meters (about 20,000 feet) there is experienced a heaviness of the head, a somnolence and mental and physical torpor which is very prejudicial to the chances of the fighter in an air combat where all depends on quickness of wit and movement. The syndrome is one of nervous depression due purely to rarefaction of air, such as can be studied in pneumatic cabinets on man and the higher animals. In such a cabinet the author has experienced the same sensations when the air pressure was reduced to 360 mm. mercury, equal to an altitude of 6,000 meters. This degree of rarefaction represents the limit of human adaptation. To proceed further would surely mean complete defect of all of the higher faculties. Nevertheless some aviators could sojourn for a brief interval as high as 7,000 meters; while on the other hand the altitude 4,000-7,000 meters is a zone in which all aviators suffer more or less from rarefaction. As is well known, mountain sickness occurs at a lower level—3,000 to 4,000 meters (9,750 to 13,000 feet)—because to the influence of rarefaction of air is added fatigue. The author has seen amateur photographers climb to this elevation, but once it was attained the mountain sickness robbed them of all their esthetic feelings and they became entirely indifferent to the magnificence of the scenery.

The aviator may suffer from symptoms not due to rarefaction. In rapid descent he experiences discomfort from recompression, just as in the pneumatic cabinet. One such symptom is earache from entrance of air into the drum. A little water sipped during recompression may prevent this disorder, for it makes swallowing possible so that the entrance of air into the ear drum is not so abrupt. During ascent the throat becomes dry and swallowing difficult. Another preventive is the holding in the mouth of some article or substance to stimulate the production of saliva.

To return to air rarefaction, its mechanism has been studied exhaustively by Mosso. Two components are in evidence, viz., anoxemia or too little oxygen in the blood and acapnia or too little carbon dioxide. In other words, too little oxygen

enters while too much CO₂ escapes from the blood. The diminution in the weight of the air upon the surface of the body cuts no figure. The use of oxygen reservoirs was tried out many years ago in ballooning. Even when 60 per cent. of oxygen was present in the respired air the men could not ascend above 8,000 meters (26,000 feet) and two men succumbed during the tests. The author has therefore experimented with certain mixtures of air in the pneumatic cabinet in which both O and CO₂ were present in excess—for inhalation of CO₂ is the rational remedy for acapnia. The first mixture used was O 67, CO₂ 12.7 in a rarefaction equal to 6,000 meters altitude. The effects were all that were desired and the author then rarefied to a mercury pressure of 140 mm.—equal to an altitude of more than 13,000 meters. The author made this experiment on himself and inhaled 11 liters of the breathing mixture at the rate of 22 inspirations a minute. He remained in this rarefaction for 18 minutes without disturbance of any sort. He continued with still greater rarefactions—much higher than have ever been reached in balloons—equal to an altitude of more than 50,000 feet—all without any disturbance as long as the O-CO₂ mixture was breathed. Mosso's explanation of altitude sickness as anoxemia plus acapnia seems firmly established.

It has long been known that muscular exertion can neutralize rarefaction to a certain extent for the obvious reason that more O is consumed and more CO₂ formed—just as if a certain amount of the breathing mixture had been breathed. As a result of what we now know aviators will be provided with tanks of the O-CO₂ mixture containing 300 liters. They are not to breathe the mixture exclusively but from time to time as needed. It will probably be found best to compress the mixture into small containers. Special masks will be necessary as in differential overpressure work in thoracic surgery.

Odd Death of a Malingerer.—Suicide in soldiers is by no means unknown, while malingering to escape duty is only too common; but it is doubtless extremely rare for an ordinary malingerer to cause his own death by inadvertence. Professor Pusateri reports such a sequence in the *Archivio italiano di otologia* for February 28. A soldier who had a strong motive for getting home took the chance that a burn behind the right ear made with nitric acid would lead to his being invalided temporarily, or discharged. He was at once seized with high fever, vomiting, vertigo, and acute pain in the mastoid process. Seventeen days later he presented right facial paralysis and one week after profuse and then persistent hemorrhage from the ear and nose. The latter ceased spontaneously within a month. Five months after date of injury, a slight otorrhea having persisted, he underwent exenteration of the tympanum without benefit. He was now allowed to go home, after which some of the various symptoms reappeared—fever, profuse nosebleed, etc.—and death occurred with patient unconscious six and one-half months after receipt of the lesion.

Autopsy revealed the mechanism of the case.

Aneurysms had formed in both the bulb of the internal jugular vein and the internal carotid artery, and these had undergone rupture. Erosions had previously been caused by the aneurysms in the vault of the carotid canal and inner aspect of the dura and pus had formed in the middle fossa of the skull, so that a large abscess cavity resulted with fusion of the carotid canal and jugular fossa, and implication of the tympanum. The immediate cause of death had been leptomeningitis. The necrotic and suppurative process initiated by the nitric acid burn had implicated the walls of the two large vessels. The medical history of the war shows that injury to the ear is rather a favorite mode of malingering because not so readily suspected as other self-inflicted lesions, or perhaps because lesions affecting the ear are more apt to procure the desired furlough or discharge from military service.

Deliberate Bombing of Hospitals Continues.—With the renewal of the German offensive come reports of several air raids on hospitals. Among these was an attack on a Canadian Hospital, which exacted a considerable toll of casualties. Among those killed was an American medical officer who was administering an anesthetic to a British officer in the operating room. This hospital was a large one marked by huge Red Cross signs. Several apparently deliberate attempts have also been made to destroy American hospitals behind the lines in Picardy. Bombs were dropped on one hospital in which there were scores of American wounded and hundreds of French sick and wounded. It is said that nearly every window in one hospital was shattered and that it was necessary to remove the patients to the cellar. As the wounded continued to be brought to the hospital the surgeons worked on through the night in the midst of the attack. Among the men who stuck to their work were Major Fred G. Murphy of St. Louis, Captain Charles Farmer of Louisville, Ky.; Lieutenant Joseph McDevitt of New York City, Lieutenant Thomas Hardy of Richmond, Va., and Dr. William Clark of Washington, D. C. Andrew Bonar Law, the government leader in the House of Commons some time ago, told the lower house of parliament that 300 casualties to hospital cases had been caused by the bombing of British hospitals in France by German aviators. Since then a number of other hospitals have been attacked by the German miscreants.

United States Preparing Hospitals in London.—The United States Army took over a 2,000-bed hospital in London on May 29, for the care of American wounded. The hospital is to be operated by an American medical staff consisting of 50 doctors, 150 nurses, and 300 orderlies. Plans have been completed for the erection of an American hospital in Windsor Park for the care of wounded Americans. It will be composed of huts and will be equipped with 500 beds.

American Doctors Captured.—A German telegram to Amsterdam, giving an account of the fighting along the Chemin des Dames, mentions that among the prisoners taken from the British were a number of American doctors.

Health of Army Camps.—A report from Washington, under date of May 30, states that health conditions throughout the home camps continue good. The report of the surgeon-general for the week ended May 24 shows that pneumonia is prevalent at Camp Travis, Texas; Camp Dodge, Iowa, and Camp Gordon, Georgia. Measles continues to be prevalent at all the camps. Deaths for this week numbered 161 as against 178 for the preceding week.

Narcotic Inquiry in Camps.—Dr. Charles A. Rosenwater of Newark, N. J., recently submitted to Secretary Baker a survey which he made of the Southern States for the Alabama and Georgia Boards of Health with reference to the use narcotic and habit forming drugs. The report states that the Harrison law is inadequate to cope with the illegitimate traffic in habit-forming drugs and cites a purchase of 200 ounces of cocaine for export which it is believed ultimately reached American soldiers. Dr. Rosenwater urges a thorough investigation of the army camps in reference to the use of narcotic drugs.

Medical and Divinity Students Must Register.—The War Department authorizes the following statement from the Provost Marshal General: "Divinity students and students of medicine must register. Registration comes first and exemption afterwards. It is absolutely necessary that these students register." The only men not affected by the new law are those now actually in the military or naval service.

New York Hospitals Aid Draft Registrants.—The hospitals of New York City have notified Adjutant General Charles H. Sherrill that they are prepared to give surgical and medical treatment to those registrants of Class I who have been classified as eligible for military service subject to necessary surgical operation or medical treatment. This action was taken in response to an appeal from the Government. Dr. Victor C. Pederesen, chief medical officer of the selective draft for New York, will be in general charge of this part of the draft work in New York.

First Prosecution for Food Hoarding.—The first prosecution for food hoarding under the terms of the food control law was undertaken on May 29 by the Food Administrator of the District of Columbia. The indictment handed up by the Grand Jury in the Supreme Court of the District of Columbia charges a naval surgeon and his wife with the hoarding of nearly \$2,000 worth of food stuffs, a quantity far in excess of the needs of their family.

Red Cross Drive for Nurses.—The Atlantic Division of the American Red Cross started a drive for nurses on June 3. It states that 5,000 additional nurses are needed by the army right now. Ten thousand should be available by January 1, 1919. The expansion of the American Army abroad may demand the enrolment of 25,000 additional nurses before the close of the year. The campaign will be carried on by moving pictures, meetings, and speeches. Hospitals and schools will be enlisted in the effort to get more young women to enroll as pupil nurses.

Petition President to Retain Surgeon General Gorgas.—The American Laryngological Associa-

tion, the Laryngological, Rhinological, and Otological Society, and the American Otological Society, which held their annual meetings in Atlantic City during the week of May 27, drew up petitions which will be submitted to President Wilson requesting that General Gorgas be continued in his present office as long as he is physically able to perform his duties. General Gorgas will attain the age limit which would place him on the retired list after October 1, 1918. The resolutions formulated express the opinion that it would be a national misfortune to lose his services at this time.

Mackay Home Offered As Hospital.—Clarence H. Mackay has offered his estate at Roslyn, L. I., with its 600 acres of land and buildings, to the American Red Cross for use as a base hospital. It is estimated that four or five hundred patients could be cared for without difficulty.

Medical Aid for Palestine.—The New York Chapter of Hadassah, the women's Zionist organization, announces that it has about completed the organization of a medical unit for Palestine. The equipment still lacks a motor truck and an appeal has been made for \$1,000 to provide for this need. This unit, consisting of fifty-one physicians and nurses, will form the foundation of a large and permanent system of medical relief work that is to be conducted on a basis of assistance to all who need it, irrespective of race or religion.

American Doctors Honored.—Captain Thomas Edward Walker and Lieutenant Linwood M. Gable of New York have been awarded the British Military Cross. Other American lieutenants in the Medical Service similarly honored are Arthur Irving Haskell, James B. Clinton, Samuel Adams, Gouverneur Boyer, Harold Foster, John Gregg, Albert I. L. Jones, Baldwin L. Keyes, Guy D. Tibbetts, and Harvey C. Updegrove.

Woman Doctor In Army.—Dr. Loy McAfee of New York has been appointed to the Army Medical Department in Washington, with the official title of contract surgeon. Her duties are those of secretary to the Board of Publication of the Surgeon General's Office.

Mayor Hylan Discourages Enlistment.—Dr. Curtin, an assistant medical examiner in New York City who was recently commissioned captain in the Medical Reserve Corps of the U. S. Army, applied for leave without pay during his term of army service. The mayor refused to grant the leave, thus forcing Dr. Curtin to resign from the service of his country or to give up his appointment as assistant examiner. Of course he remained in the service of his country.

A Million Invalid Prisoners.—A recent communication from Moscow to the Associated Press states that of 3,100,000 Russian war prisoners held in Germany and Austria-Hungary 1,000,000 are total invalids. It is said that one-half of these prisoners are in the last stages of tuberculosis and that the rest are suffering from other contagious diseases. Their return to Russia presents a great problem on account of lack of food, proper accommodations, and medical assistance.

War Medals for American Doctors.—It is reported from France that more than thirty American doctors have been recommended for the American

Distinguished Service Medal in recognition of great bravery. During a recent shelling and gas attack, in which many American troops were wounded or gassed, the medical corps men rushed to the scene of the attack and in the midst of the shells and gas removed their masks in order to work rapidly and give relief to as many of the wounded as possible before they themselves fell victims of mustard gas. Some of these men have also been recommended for the French War Cross. The army regulations forbid the mention of the names of these heroes until the recommendations for the granting of the medals have been approved.

Many Disabled Germans Returned to Ranks.—According to a report recently made to the Reichstag by Surgeon General Schultze more than 2,700,000 wounded and sick men have been returned to the fighting front, and 692,000 soldiers have been discharged from the German Army as unfit for further service. Surgeon General Schultze declares that the percentage of men discharged from the hospitals as fit for further service is very high, but the number of cripples at this time is about 98,000. With the exception of those killed the deaths in the army were from 1 to 1½ per cent. of the wounded.

Senators Oppose Rehabilitation Under the Education Board.—The bill proposed by Senator Smith of Georgia which provides for placing the work of the rehabilitation of disabled soldiers with the Federal Education Board and carries an appropriation of \$2,000,000 is meeting with considerable opposition. The opponents of the measure claim that obviously the War and Navy Departments, each through its Surgeon General's office, form the natural and most effective agency in which authority should be concentrated, but they believe that the Board of Education and the Federal Board for Vocational Education should be represented. A central and unified control for administering the rehabilitation work was urged in resolutions adopted by the National Education Association's Commission on the National Emergency in Education.

American Hospital Near Front Lines.—A report from the American Army in France to the Associated Press describes some of the work of the American Hospital units near the front. They have won high praise by the establishment of a non-transportable field hospital only a short distance from the front line, the first of its kind to be introduced. With this hospital and equipment it has been possible to perform operations that hitherto have been impractical at the front, and they have thereby been able to save the lives of many more soldiers than could otherwise have been done. Of 155 cases recently admitted, operations were performed on 118 men and the mortality was only 30 per cent., whereas under the former methods a mortality of 80 to 90 per cent. would have been expected.

United States to Start School of Nursing.—Secretary Baker has authorized Surgeon General Gorgas to establish an army school of nursing to train women for service in the military hospitals. The location of the school has not yet been selected. Branch schools will be located in various military hospitals.

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ACUTE INFECTIOUS JAUNDICE.

ACUTE infectious jaundice has been more or less prevalent among the allied armies almost from the outset of the war. The disease is one that presents many features of interest to sanitarians of this country, mainly on account of the fact that it is presumably conveyed by the agency of the rat. It is believed that in the great majority of cases this type of jaundice is due to the *Spirocheta icterohemorrhagiae* discovered by Inada and his coworkers. In *Public Health Reports* for May 10, 1918, is a paper by Dr. M. H. Neill, Passed Assistant Surgeon, U.S.P.H.S., dealing with the problem of acute infectious jaundice in the United States. He points out that Noguchi found that rats captured in New York City and neighborhood were infested with a spirochete identical in appearance with that causing acute spirochetal jaundice in man. Neill, by means of cross immunity tests, obtained further evidence that the parasites causing the human disease in Europe and Japan and those found in New York rats were the same. All evidence, indeed, seems to indicate pretty conclusively that *Spirocheta icterohemorrhagiae*, the cause of acute spirochetal jaundice in man, is rather widely disseminated among rats. Epidemic jaundice was prevalent during the Civil War, according to reports, and epidemics of jaundice simulating closely those known to be caused by *Spirocheta icterohemorrhagiae* have occasionally appeared in this country, and were possibly due to this parasite.

English and French workers have demonstrated the presence of *Spirocheta icterohemorrhagiae* in rats taken from the trenches in which the disease prevailed among troops. Neill draws attention to the fact that with regard to the relation between rat infestation and human infection with this spirochete, two possibilities present themselves. First, it is possible that no transfer from rats to man takes place, or only exceptionally, as in case of a bite. It may be that some cause is at work in the trenches and mines which tends to infect man and rats with the spirochete entirely independently of each other. On the other hand, it seems more probable that the spirochetes may be interchanged between men and rats living in such environments as obtain in the trenches, by means of their urine.

There is evidence to show that infection can take place either through the skin or by the mouth. There is no adequate evidence that any insect plays a part in the transmission of the disease in nature, although the experimental evidence in this regard is by no means complete. The epidemiology of the disease appears to point rather definitely to a moist soil at an equable temperature, as a means of keeping alive the virus.

Neill thinks that from a consideration of all the points involved, the following is a reasonable hypothesis of the mode of transfer. About 10 per cent. of all wild rats, wherever located, probably carry the *Spirocheta icterohemorrhagiae* in their kidneys and excrete them in their urine. If this organism finds a favorable environment in the soil a sufficient number may live long enough to infect a human being, who gets them in the mouth or on the skin. Under these conditions a larger number of rats also take up the spirochetes.

The evidence that acute infectious jaundice is caused by a spirochete is fairly clear, and that the rat is a carrier of the disease appears to have been proved. The manner of its transfer to man is somewhat obscure, but Neill's hypothesis appears as reasonable as any which has been advanced. In view of the fact that the rat conveys the disease, the logical mode of prevention, or at least of arresting its spread, would seem to be the destruction of rats. Unfortunately, the rat is an animal particularly difficult to eradicate, and a campaign against him must be characterized by a cunning equal to his own. The deratization of cities visited by the plague has been effected, and although the conditions in the trenches are less favorable the freeing of them from rats does not seem impossible of accomplishment.

THE VITAMINE CONTENT OF CEREAL FOODS.

THE question of food is the dominant factor in the present situation. Of all foods, bread is the most important, that is among Europeans, and the inhabitants of this Continent. The reputation of bread as a nourishing article of diet has been considerably enhanced during the present war. Indeed, the staple of diet among the Italians, French, and Austrians is bread.

This being so, the object is to present bread in its most nutritive form. The bulk of the cereal component of the diet of people of Europe is represented by wheat bread. Now all natural cereals contain an abundance of antineuritic vitamine, an accessory food element the consumption of which in sufficient quantities is essential to good health. Moreover, it is believed, in fact seems to have been proved, that the vitamine content of a cereal is in the outer covering of the grain. But flour made by modern milling contains, as a rule, only about 70 per cent. of the wheat from which it is milled. Therefore, the important question remains, does bread made from "white" flour or "highly

milled" corn meal include all the essential food elements contained in the intact grain.

In Public Health Reports of May 3, 1918, Carl Voegtlin, G. C. Lake, and C. N. Myers have a paper which continues the work done by others with respect to the antineuritic vitamine of corn and wheat products used in nutrition. Pigeons were employed in their experiments and full-grown birds were used. Their conclusions were as follows: (1) The results obtained in the investigation clearly show that for pigeons an exclusive diet of whole wheat or corn furnishes an adequate supply of antineuritic vitamine. (2) The antineuritic vitamine seems to reside in the peripheral layer, whereas the endosperm is relatively poor in the substance. (3) If wheat and corn foods containing only a small percentage of the peripheral layers and germ of the seed are fed to pigeons and chickens exclusive of other food, polyneuritic symptoms appear on an average of three weeks after the beginning of the feeding period. The appearance of polyneuritis is preceded by a gradual loss in body weight. The birds can be relieved of their paralysis in a striking way by the oral or subcutaneous administration of a highly concentrated preparation of antineuritic vitamine derived from "whole wheat" bread, yeast, ox liver, rice polishings, or beans. (4) The addition of yeast, in amounts used by bakers in the preparation of bread from highly milled flour, does not prevent the appearance of polyneuritis in birds fed on this food, but prolongs slightly the period of incubation. (5) The addition to highly milled flour or to bread made from highly milled flour of a small amount of antineuritic vitamine preparation will correct this particular dietary deficiency, and will prevent the appearance of polyneuritis and the loss of body weight. (6) The total phosphorus content of corn and wheat foods is a fairly satisfactory index of the amount of antineuritic vitamine contained in these foods. In a general way, it can be said that a high total phosphorus content is an indication that the particular corn or wheat product is relatively rich in antineuritic vitamine.

These investigations further clinch the argument that whole wheat and corn breads are the most wholesome. The authors in a subsequent paper will consider certain other dietary attributes of these foods in their relation to growth.

THE EQUILIBRIUM REACTIONS IN TESTING THE FUNCTIONS OF THE INTERNAL EAR.

THE Bárány tests have been much used of late in connection with fitness for aviation and also after injury involving the labyrinth. Irrespective of war conditions there is also an extensive field for these tests in the diagnosis of the nature of vertigo. Coulon, in a contribution to the *Revue de laryngologie, otologie et rhinologie* for April 15, expresses the opinion that this species of testing is imperfectly carried out. He mentions first the caloric tests with cold water—18° to 25° C.—and warm

water—40° to 45° C. These he has used over a hundred times with the following results: In the normal subject cold water gives a lateropulsion toward the irrigated side while with warm water this behavior is reversed. With cold water after 30 to 40 seconds of irrigation nystagmus appears, usually rotatory but sometimes horizontal, on the opposite side and of one minute's duration. With warm water the latent interval is 60 to 90 seconds, the nystagmus appears on the irrigated side, and the duration is 1½ to 2 minutes. In subjects with labyrinthine disease the latent interval and duration both vary, according as we have to deal with hyper- or hypoeccitability or nonexcitability.

In the rotation test the subject closes his eyes or has them bandaged and is turned in his chair evenly 10 times in 20 seconds. Instead of the confusing words right and left, Coulon prefers positive and negative; but as the result is quite the same irrespective of direction the distinction is not vital. The nystagmus produced is rhythmic and indicates that the vestibule reacts. Positive rotation gives a left nystagmus and left lateropulsion, and negative rotation the reverse behavior. The author modifies the rotation as follows: The shoulders are fastened to the chair while the head is held in the operator's hands as rotation is practised 40 times in 30 seconds. At the moment of cessation both nystagmus and lateropulsion usually appear in the normal subject. In the positive test right nystagmus appears and lasts 15 seconds and in the negative test left nystagmus of about the same duration. In disease of the vestibule we also see the reactions of hyper-, hypo-, and nonexcitability. These tests should be used in all cases of shell shock, etc., in order to learn whether or not the internal ear is compromised. The symptomatology in these cases is barren enough and any induced tests which can throw light on the underlying pathology should be welcome.

THE IMPORTANCE OF ELIMINATING THE POTENTIAL NEUROTIC.

If the present war has demonstrated one thing forcibly, it is that physical excellence is not necessarily synonymous with the highest efficiency as determined by the actual accomplishment of hazardous tasks. This does not mean that physical perfection and freedom from bodily disease are factors to be ignored in the slightest degree, but rather that the mental and psychic features of the prospective soldier should also be scrutinized with the idea of determining his ability, in so far as it is possible, to stand up under the terrific strain that he will eventually encounter when he gets into active service. The old adage, "mens sana in corpore sano," is particularly apropos at this period in the history of the world. It is now a matter of record, however, that deeds of courage and bravery have been performed in this great conflict by men who could not be classified as physically robust, but who possessed well-balanced minds that were able to resist the

repeated psychic shocks to which they were exposed.

The problem of how to detect the mental stability of recruits without consuming too much time in detailed psychological tests, has not as yet been thoroughly worked out. Progress is being made in this direction and valuable data are being accumulated constantly. Morgan, in discussing the situation in *The Scientific Monthly*, January, 1918, calls attention to the fact that intelligence tests, as usually applied, will not detect the potential neurotic, who may break down under long-continued strain. Undoubtedly the number of such individuals is fairly large. Morgan is of the opinion that if no test can be used now with enough confidence to make a selection of recruits, tests that look promising could be made on all those examined, the records of those who succumb being compared with the records of those who survive the strain. He points to the fact that this procedure would give information which would be valuable not only in war time but also for use in vocational guidance in times of peace. It is quite evident that the problem is decidedly worth while following up, not only by way of averting loss to the government, but for the good of the recruit himself. That the Army Medical Department is fully alive to the importance of this phase of the examination is indicated by the appointment of several expert psychologists and psychiatrists to the service.

THE PREVENTION OF VENEREAL DISEASE.

IN this country, and more especially in Europe, there has been free and somewhat acidulated discussion as to the best methods of preventing venereal disease. There is no doubt with regard to the prevalence of both syphilis and gonorrhea, and there is also no doubt that these diseases constitute a serious menace to the public health. All this is recognized by the medical profession at large, but its individual members are at odds regarding the most efficient means of staying the plague. It has been stated on excellent authority that direct prophylaxis on the Metchnikoff plan, if used in time, is a sure preventive, and the records of practical experience appear to bear out the statement. An attempt has been made recently by a portion of the medical profession, to introduce direct prophylaxis into Great Britain or, at any rate, into the army. However, the attempt has met with much opposition based on so-called moral grounds. A controversy is raging at the present time in the medical and lay press between champions of personal prophylaxis and those who hold contrary views. The opponents of the method, while allowing that it may be and probably is all that is claimed for it as a prophylactic, take the stand that it is quite arguable that venereal disease may be abolished at too great a moral cost, tragic though the consequences of inaction may be to innocent women and children and the public health generally. The cost referred to is the State recognition and practical encouragement of sexual vice as a necessary evil. On the other hand, the supporters of the method contend that this phase of the question is disposed of by relegating it to instruction by "parents, guardians, priests, dea-

cons, and philosophers," or teachers and governesses. Moreover, the advocates of direct prophylaxis assert that it would not be long ere venereal diseases would be entirely eradicated if such measures were strictly carried out. Dr. Montague Lomax, writing in the *Medical Press*, April 3, 1918, weighs the "fors and againsts" and, although he endeavors to maintain an open mind, it is plain to see that he apprehends many difficulties in the way of making direct prophylaxis general. He does not believe that promiscuous sexual intercourse can ever be physically right. In his opinion "rightness" is a question of morals, and morals alone. An action may be physically natural and yet not physically right. Lomax strenuously contends that chastity, whether voluntary or enforced, does not do a tithe of the harm, personal and social, that results from promiscuous unchastity. While it may be extremely hard from many points of view to reconcile the moral and physical aspects of the case, yet at the same time the fact must be borne in mind that soldiers should be protected, at least during war time, against the contraction of venereal diseases. If direct prophylaxis used in time will prevent infection, then by all means direct prophylaxis should not only be practised among soldiers, but enforced. Good health is essential to the fighters.

News of the Week.

The Primary Causes of Shock.—In the article under this title, by Dr. Turck, published in the MEDICAL RECORD of June 1, the following errata are to be noted: On page 928, 2d column, 6th line from the top, the reference figure ¹⁴ should be ¹⁸, and in the 5th line below this ¹⁷ should also be ¹⁸; on page 929, 1st column, 21st line from the bottom, reference figure ³ should be ³¹. On page 932, the legends of Figs. 3 and 4 should be transposed.

Grippe Epidemic in Madrid.—An epidemic resembling grippe is sweeping over Spain with increasing severity. There are said to be more than 150,000 cases in Madrid. Over 600 doctors are suffering from the effects of the malady, which very much hampers efforts to fight the epidemic.

Epidemic of Dropsy.—Advices recently received from Copenhagen state that an epidemic of dropsy has broken out in Sweden which is attributed to poor and insufficient food. Several thousand cases of the disease are reported.

China Suffers from Epidemic Influenza.—A despatch from Peking reports that a curious epidemic somewhat resembling influenza is sweeping over North China. There are 20,000 cases in Tientsin and thousands in Peking, where business places have been closed down. The affection is not fatal and runs a short course.

Fire in State Hospital.—A fire which destroyed one of the wards of the State Hospital for the Insane at Columbia, S. C., resulted in the death of sixteen patients. Eleven others are missing and five were seriously burned.

German Hospitals Change Their Name.—The Ways and Means Committee of the Board of Trustees of the German Hospital, Brooklyn, has drawn up and presented a petition to change the name of that institution. The petition will be acted on at the next meeting of the Board of Trus-

tees on June 10. It is reported that the German Hospital in Manhattan will also change its title. The institution hitherto known as the German Hospital of Newark has changed its name, under a re-incorporation, to the Newark Memorial Hospital.

British Doctors Arrive.—A delegation from the British Medical Association arrived in this country on May 29, having come to attend the meetings of the American Surgical Association and of the American Medical Association. The delegation included Sir James Mackenzie, Sir Arbuthnot Lane, and Colonel Herbert A. Bruce, consulting surgeon of the British forces in France.

Hospital Heads Resign.—Three heads of departments of the Cumberland Street Hospital, Brooklyn, have sent in their resignations because they disapprove of the plans of Commissioner Coler for reorganization. Commissioner Coler plans to do away with that form of organization under which there is a head for each department and to go back to the old method whereby a general staff is created with the members taking turns in the various services. The men who have resigned are Dr. Herbert C. Allen, Dr. J. Hubley Schall, and Dr. E. Rodney Fiske.

Death of a Centenarian.—Mrs. Aristine Pixley Munn, widow of Dr. Edwin G. Munn and mother of Dr. John P. Munn of New York City, died at her home at Gates, N. Y., on May 29. She was 100 years old on October 29, 1917. She retained good health and a clear mind up to the time of her death.

Accused Health Official Denied Trial.—Dr. Lucius P. Brown, director of the Bureau of Food and Drugs of the New York Health Department, who was suspended pending the investigation of charges made against him, has been formally charged with neglect of duty, inefficiency, and incompetency, and will be granted a hearing on June 10. It was understood that he was to have an open trial with the privilege of calling witnesses and of being represented by his counsel. Such a trial has been denied him for some reason by Health Commissioner Copeland; the public, however, will graciously be permitted to be present at the hearing.

General Gorgas Addresses Medical Faculty.—Surgeon General William C. Gorgas delivered an address before the Faculty of New York University and Bellevue Hospital Medical College on the afternoon of June 5 on "The Activities of the Medical Department of the United States Army." The address was delivered in the auditorium of the Carnegie Laboratory.

Benefit for People's Hospital.—A recent benefit performance at the Maxine Elliot Theater for the new building of the People's Hospital netted \$50,000.

Dr. Charles E. Nammack of New York has removed to No. 379 Park Avenue.

Medical Society Elections.—The AMERICAN PEDIATRIC SOCIETY, at its thirtieth annual meeting in Lenox, Mass., on May 27, 28, and 29, elected the following officers: *President*, Dr. Edwin E. Graham of Philadelphia; *Treasurer*, Dr. Charles Hunter of New York; *Secretary*, Dr. Howard C. Carpenter of Philadelphia; *Treasurer*, Dr. Charles Hunter Dunn of Boston; *Recorder*, Dr. Oscar M. Schloss of New York.

Obituary Notes.—Dr. NEIL JAMIESON HEPBURN died at his home in New York City on May 28, aged 71 years. He was a graduate of the College of Physicians and Surgeons, New York, in 1868, a Fellow of the American College of Surgeons, a member of the American Ophthalmological Society and the American Otological Society, consulting ophthalmologist to the Manhattan Eye, Ear, and Throat Hospital, and the Paterson, N. J., Eye and Ear Infirmary. Dr. Hepburn was a member of the Old Guard. He served in the Sanitary Corps during the Civil War.

Dr. LEWIS E. MEEKER, retired, died at his home in Brooklyn, N. Y., on May 23, aged 67 years. He was a graduate of the Detroit Medical School in 1872. He was formerly president of the Eastern District Savings Bank of Brooklyn.

Dr. STEPHEN W. DRIVER, a graduate of Harvard Medical School, in 1863, and for twenty years secretary of the Harvard Class of 1860, died at his home in Cambridge, Mass., on May 21, aged 85 years.

Dr. W. CONSTANTINE GOODELL died at Philadelphia, on May 14, at the age of 55 years. He was graduated from the medical department of the University of Pennsylvania, in the class of 1885. He was a son of the late Dr. Wm. Goodell.

Dr. NICHOLAS B. VANHOUTON of New York City, a graduate of the College of Physicians and Surgeons, New York, in 1867, and physician and surgeon of the Rockland County Jail for forty years, died on May 29, aged 76 years.

Dr. FRANK OAKLEY STOCKTON, a graduate of the College of Physicians and Surgeons, New York, in 1881, died at his home in East Orange, N. J., on May 27, aged 69 years.

Correspondence.

THE VOLUNTEER MEDICAL SERVICE CORPS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Your editorial on the Volunteer Medical Service Corps must have given real delight to the many "stay-at-home" physicians who for one reason or another are ineligible for the Reserve Corps, and who are, nevertheless, anxious to serve. The formation of the new volunteer corps will give thousands of physicians the opportunity they have been hoping for, namely, that of serving in or near their homes.

It would appear, however, from your editorial explanation of the workings of the volunteer corps that its members will be called upon only from time to time, at such times when there may appear to be some need for the special services which they may be able to render. If this interpretation of the new corps is correct, it appears to the writer that comparatively little, if anything, will be gained by the military medical service at large, for the opportunities thus afforded for actual service will not be very great or numerous.

This volunteer corps can be made a most important factor in the medical service by an intelligent study of its great possibilities. To the writer it has appeared perfectly feasible to utilize the services of the "stay-at-homes" to their fullest capacity, and thus release for duty abroad many young, active

men who are at present doing routine work here which can be done very well, and even better, by the men who are about to constitute the volunteer corps.

It is not unusual to hear of a young surgeon who enlisted in the Reserve Corps, in the hope of active service abroad, being detailed to some receiving or evacuation station, performing duties for which he is not fitted by training or inclination, while the work that he can best do is being done indifferently by some other man equally misplaced. As an example, a man who has been specializing in *x-ray* work for years was detailed as internist in a large Western camp, while other medical men were being instructed as radiographers to make good the shortage.

It is evident that such things had to happen when the sudden expansion of our medical service took place, but it is likewise evident that this state of affairs is largely due to the fact that men who ought to be serving in France in their most efficient capacities were needed at home to take care of the camps, receiving, and evacuation stations. If, however, the system were made so flexible that the "stay-at-homes" could be utilized for the work at the camps and other local stations, hundreds and possibly thousands of regular Reserve Corps men would at once be released for active duty abroad.

This is the suggestion the writer has in mind: That the medical needs of local camps, local base hospitals, and stations be taken care of, as far as possible, by members of the volunteer reserve corps, working in the same non-resident manner as the visiting staff of a hospital. The volunteer reserve corps will include among its members the most competent and expert men in the profession, who, because of age or physical defects or dependents, are unable to go abroad. It would appear to be wise policy to utilize the services of these men, not spasmodically, as special occasion may call for, but continuously, for the duration of the war. Every man can give up some part of his time; some can give up mornings, some afternoons. Between them the full day can be covered, and the medical service would thus be enriched by the valuable experience and abilities of these mature men.

The volunteer corps would be a splendid addition to the regular Reserve Corps, but the men who join it should give up as much time as possible, and should serve continuously and not spasmodically. In this way the shortage of physicians in Europe will be materially relieved.

ABR. L. WOLBARST, M. D.

113 EAST NINETEENTH STREET, NEW YORK.

QUININE AND WARBURG'S TINCTURE IN MALARIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In your issue of May 18 there is an article by Dr. Beverley Robinson on the treatment of malaria, in which he strongly advocates the use of Warburg's tincture in malaria instead of quinine, and of which he expects the "happiest results." In some forms, he says, nothing remedial equals or approaches the value of this tincture, and he can recall not a few instances where quinine failed him and the Warburg tincture, fortunately, helped cure the patient.

I would not try to minimize the therapeutic value of the tincture, but it seems to have escaped Dr. Robinson's memory that the Warburg tincture also contains quinine sulphate, to which its therapeutic value is probably due, and although it contains also other ingredients, as angelica, zedoaria, camphor, etc., the tincture cannot be called *another* remedy as long as it also contains quinine, and in a quite considerable dose. If you eliminate any of the other ingredients, as you do, for instance, the aloes, the tincture retains its antiperiodic property; but without the quinine it remains only a mild aromatic bitter.

H. RABINOWITSCH, M. D.

432 WEST THIRTY-FOURTH STREET, NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

MEDICAL STUDENTS AND MILITARY SERVICE—FOOD AND THE LAPDOG—PREVENTION OF VENEREAL DISEASE—A MEDICAL INSURANCE SCHEME.

LONDON, May 9, 1918.

MR. HAYES FISHER, president of the Local Government Board, made a statement in Parliament last week on the work of his Department, the usual formal opportunity being given by the necessity for taking a vote on supply. His remarks on the coordination of the health agencies of the country proved to be of considerable significance to the medical profession which is awaiting any official pronouncement with regard to the evolution of national health activities which will serve as an indication of the influence and position which the projected Ministry of National Health may be expected to enjoy. Mr. Hayes Fisher introduced the subject of public health administration by reference to the housing of the poor, which is reasonable, considering the influence that bad housing has alike on the dissemination and prevention and cure of disease; but to medical men the subject of bad housing has become rather tedious as it is an invariable prelude to a policy of do-nothing. When medical men press upon a community the value of notification of contacts in infectious diseases, of early treatment of conditions noticed in the children of the State schools, of the value of medical inspection of places like cinema halls and so on, and so on—to take three directions in which medical activity has lately been in evidence—the reply is too apt to be that while so large a percentage of the population lives in an unhealthy environment the amount of good that can be done by other preventive measures is negligible. With piety, it is added, that all energies should be directed towards the improvement of the housing of the poor and from that time forward nothing is done as the reform in the housing of the poor is soon found too difficult to tackle without Government support. Mr. Hayes Fisher, however, while urging that housing is the most important branch of public health administration at the present moment, pointed out that it was not possible to divorce health policy from housing and sanitation, thereby indicating that when national health becomes the especial care of a government department; government must set the housing of the poor in order. He spoke strongly in favor of a Ministry of National Health which

should bring all the health activities of the various State Departments of the country under one department and one minister, but he pointed out that it would not be sufficient merely to amalgamate the departments that now deal with various sides of the question, but that it would be necessary to look closely to the health administration in local areas to see that the overlapping which now exists was not perpetuated under the new scheme. Here Mr. Hayes Fisher spoke as one knowing well his medical politics, for in the present condition of the law the amount of overlapping possible is very great.

The position of medical students in relation to military service has been modified many times, but Mr. Beck, Parliamentary secretary to the Ministry of National Service, has now made an exact résumé of the situation for the information of medical schools, and the parents and guardians of the students concerned. Under a "National Service Instruction," dated last March, fit men who were at that date medical students at a recognized school, and who had passed the examination in their first professional subjects, are exempted from military service in certain conditions. Those conditions are the production, if necessary, of certificates proving industry and the joining of an officers' training corps so that their military education may accompany their professional one. On completing their second examination in professional subjects, they may, however, be summoned from their studies to serve as surgeon-probationers in the navy, for while the army has no use for any but fully qualified men, who are, theoretically at least, educated to go anywhere and do anything in an independent capacity, the navy gives valuable appointments to senior medical students who act as dressers, clinical clerks, and hospital assistants to the surgeons and physician of the fleet. This is not the only government regulation as to the position of medical students towards military service, for an "Army Council Instruction" has now freed from the military service which they were rendering all whole-time medical students, who had enlisted in a combatant capacity, but who had passed their first professional examination. The two instructions were badly needed, for the supply of qualified medical men was becoming very small.

There has been a growing feeling that dogs kept in the cities and obviously only for the indulgence of the sentimentality of their owners should be kept down in number by high taxation. These animals serve no purpose either as aids to the chase, as restrictors of mischievous vermin, or as protectors of property. They are a veritable luxury and as such should certainly be taxed. It is true that the food which they consume may be in the total negligible in proportion to that required by the crowded population among which they live; still they eat something, and that something might be better employed. The suggestion that the lapdog, pure and simple, should be killed off has been met with loud protests from one class of people, namely, those who hold that all medical research of an experimental nature is conducted with malignant devilry upon dogs—dogs in this connection are always alluded to as "the friends

of man." They speak of depriving a drawing-room of its "Pekinese," as though the cessation of its yaps would be one of the severest blows to society inflicted by the war. The idea that there should be no food for the lapdog makes them nearly as angry as the news that the Ministry of Food, under the Defence of the Realm Act, has made provision for the feeding of animals kept for the purposes of experiment. For an authority has lately been given to licensees under the Acts of Parliament which authorize and regulate vivisection to obtain the foodstuffs required for the animals used for laboratory purposes, this use of such material being open to government inspection and a record of the work being carefully kept.

The utility of the machinery which has been devised for the prevention of venereal disease in our Navy and Army is almost as much in question now as its morality. The regulations made under the Defence of the Realm Act at the close of last month provide that no woman "who is suffering from venereal disease of a communicable character or form shall have sexual intercourse with any member of the Navy or Army, or solicit or invite any member of these forces to have intercourse with her." It is thought that this regulation will insure that infected women are made clean by curative treatment in hospitals, or privately, but as a matter of fact the difficulty of convicting any woman of having broken the regulation will be well-nigh insuperable. It follows that where penalty is very unlikely obedience will not be strict. A Criminal Law Amendment Bill has also been introduced (or rather reintroduced) in the House of Lords, which measure, by using the words "no person" in place of "no woman" attempts to equalize the sexes in the matter of legislation against immorality, the bill in the House of Lords, however, being directed toward the population at large and not especially toward the protection of the Navy or Army. While the regulation under the Defence of the Realm Act has for its object the cleansing and keeping clean of infected women, some sort of official sanction is also being given to the provision of facilities for safeguarding the Navy and Army by protectives and prompt medical treatment. "Outfits" have been put up in parcel form at very low prices, and have been made available in certain circumstances for the sailors and soldiers. These should be of some service, but it has been rightly pointed out that too much stress must not be put upon the value of inunction and instillation of mercurial creams. Even with their use, infection may occur unless strict cleanliness is also observed, and especially among uneducated people the temptation is to trust too much to the magic of the drug and to neglect precautions which otherwise might have been taken. The difference of opinion among medical men as to the utility of these outfits is almost as acute as that between practical citizens as to their morality.

A meeting was held to-day (May 9) of the committee of the Medical Insurance Agency, the proceedings at which sufficiently showed the success following on the principles laid down by the Agency, as well as the debt for practical service which the Agency had contracted toward their secretary, the late Mr. Guy Elliston. When the Agency first made its appearance as little more than a suggestion in

the columns of the *Lancet* it was Elliston who saw the big business propositions which lay below it, and who immediately took the necessary steps to organize the movement with the cooperation from the beginning of the editors of the *British Medical Journal* and the *Lancet*. At to-day's meeting of the Agency the income and expenditure account for the year ending December 31, 1917, was submitted, and showed a surplus for the year's working of just upon £1,000. The fundamental idea of the Agency was that through a selected committee the medical profession should approach insurance companies, and, in the position of agents, should place policies with them on life, accident risks, fire risks, and so on, and should in return secure rebates to be distributed to the medical insurers, while giving all further profits to medical charities. The success with which this program has been carried out, even with the approach of the fourth year of war, is shown by the following figures. Just upon £2,000 was earned by commissions on premiums, of which over £700 was returned to those insuring through the Agency in the form of rebates; while £1,000 was distributed in medical benevolence, £500 going to the Royal Medical Benevolent Fund and its Guild; £200 to Epsom College, the public school which has provided such admirable gratuitous education for sons of medical men for whose education no provision could otherwise be made; and 200 guineas to a "War Emergency Fund." The Agency should, when normal times arrive, prove a very genuine economy to the more thrifty sections of the medical profession as well as a considerable source of profit to deserving medical charities.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

WORK OF THE SOCIETY OF FRIENDS—BRITISH RED CROSS—BRINGING THE BELGIAN CHILDREN TO PARIS—AN ATHLETIC ARMY.

PARIS, April 22, 1918.

THE Society of Friends is well named. Their object is to be friends to all who need friends, and the scope of their friendliness ranges from playing games with refugee children to building barns in the war zone. They have now three groups of men engaged in erecting the huts sent into the war zone from workshops at Dôle and Ornans. For the Somme there is one group, for the Aisne two groups. In the Aisne, 28 huts of two rooms each have been put up, in the Somme 23, making a total of 51 up to the end of January. The list does not include huts that have arrived from Dôle and are delivered to the sites but not yet mounted, nor those for which foundations have been prepared.

At Sermaize the Friends have a medical and relief center. This includes a temporary civilian hospital of 24 beds, and surgical hospital for civilians, two doctors, eight nurses and forty beds, together with general district practise by doctors and nurses. Also at Bettancourt-la-Longue, about five miles away, 50 to 60 sick and convalescent children are cared for by visiting doctors from Sermaize, and one doctor has established headquarters at Auzéville, well toward the lines. The work consists of two kinds: one agricultural, that is, threshing and repair and loans of farm implements in the district; the other, general relief—the distribution

of clothes and furniture and the giving of employment. For this the Friends have established an embroidery industry which is most successful, for not only does it provide paying work for the people, but the results turned out are beautiful as well as practical. The designs are made by the Friends themselves and are embroidered in bright-colored wools or silks on linen and made into towels, table covers, and stripes for decoration for clothes. At Châlons-sur-Marne there is a maternity hospital. Since the war began 600 babies have been born in this hospital. The month of January was a very busy one at Châlons, and on one occasion 95 out of 96 beds and cots were occupied. There were 23 births during the month.

The Friends are, moreover, able to turn their attention much earlier than usual to their spring work in the war zone. Ploughing with both horse and tractor has started whenever the state of the ground has permitted. The repairing of the Friends' own hay and harvest machines has begun, and they have already a large number of requests from French farmers in whose villages they have already done threshing that they should undertake the repair of farm machinery. The Friends have also arranged for a distribution of artificial manures at cost price, and have a truck load on rail, most of which has already been asked for. Requests for seed wheat, oats, and betterave seed, as well as for supplies of binder twine, oil, etc., on similar conditions, are continually coming in.

All this seems to show that the Friends' methods of work have been appreciated, and also points to the fact that the cooperative spirit is growing. This latter fact is of the greatest importance. It is now becoming quite an ordinary method of procedure for the Mayor to collect together the requirements of the whole commune, and thus order economically, through the Friends or direct, large quantities of seeds, fertilizers, etc., instead of each cultivator sending in his order separately. The Quakers have taken a disused blacksmith shop at Evres and hope to be able to start a gang of four or five men there for the repairing of machines, stocking of spare parts, and distribution of supplies. They have also started a gang at Auzéville. They are arranging to have a storehouse and a machine repair shop at Auzéville.

Recruits from America are still coming to join the Quakers and still the work is too big for the number of men on the ground. As France needs food, and the submarine peril is not yet abated, and as there is an unrelaxed need of additional farm labor, the recruiting of the agricultural army by these volunteers—whose tradition is against destructive war service, but not against constructive service in the war zone, even where the risks are liveliest—is welcomed by the French authorities. From all sides come demands for help, and some of them can't be filled because there are not enough men to go around; but wherever and whenever they can the Friends stand ready to help those who need help.

The British Chamber of Commerce for the Riviera is making a special appeal to residents and visitors on the Riviera in behalf of the British Red Cross, which has the approval of the joint War Committee of the Red Cross Society and the Order of

St. John of Jerusalem in England. The work of the British Red Cross is spread over Europe, Asia, and Africa, and involves an expenditure of £8,000 daily, and this outlay is still increasing. It benefits military wounded and sick from all parts of the British Empire, and in a secondary degree the sick and wounded of the Allies. It succors the wounded on the field and transports them to base and home hospitals. It maintains a gigantic system of transport and supplies, with stores and distributing centers, hospital trains and ships, and an army of motor ambulances. It has provided four hospital trains each carrying 450 men, at a cost of upward of £60,000. Fourteen hospitals, totaling 2,000 beds, have been established in France and Flanders, including three for the Allies, and more than a score of private voluntary hospitals offered to the French and the Belgians, are run, staffed, and supplied through the joint committee. The organization and maintenance of the supply and distribution of stores of all kinds involve an expenditure of nearly £1,000,000 a year.

More than fifty Belgian children have arrived at the Nouveau Foyer Ecossais, at Neuilly, from Switzerland, where they were evacuated by the desire of the Queen of the Belgians, by Miss Fyfe. These children are now being returned to their parents, some after an absence of three years. They were received by Miss Fyfe and Mr. Coleman, who represent the Friends, who, through the intermediary of the British Y. M. C. A., have established this home in Paris, where Miss Fyfe can continue to bring children from the Belgian front and also receive little "rapatriés" from Switzerland. Fifty other little Belgians will arrive from the front during the month of March, and will remain in Neuilly until all danger at their homes is over. The Duchess de Vendôme, who saw most of these children leave Miss Fyfe's foyer at the front, has visited the little ones at Neuilly. The Belgian Government will supply governesses to carry on the education of the children, as while learning French and English they must not forget their Flemish. Mgr. Marinier, aumonier-en-chef, will appoint a priest for the religious instruction of the children. The committee owes thanks to Mr. D. L. Blount for his advice and interest in the first negotiations, and likewise to Miss Della Saunders of Boston, Mass., for her untiring help throughout.

At home, American games and outdoor sports have a following of most of the American nation. It has been only natural, therefore, that, bent on such a serious mission, involved in a work that is imbued with such great responsibilities, we should participate in the same sports "over here" to relieve the growing tension and to freshen our minds and bodies and strengthen the fighting spirit that must be maintained to win. Boxing, wrestling, football, and basketball have been carried out on an organized plan, to the enjoyment and benefit of nearly every soldier overseas, and, as spring advances, baseball and tennis will hold the stage until fall. The American soldier wants sports, loves sports, and must have them. We are an athletic nation, and the fighting spirit aroused on the athletic fields will show in the final spurt in the biggest contest ever before staged in the history of the world."

MEDICAL WEEK IN CANADA.

(From a Special Correspondent.)

HAMILTON, ONTARIO, May 28, 1918.

THE greatest medical event that has ever occurred in Canada is now taking place in Hamilton. Since the beginning of the war medical meetings in Canada have been somewhat frowned upon and held in abeyance. However, it was decided that a medical congress on a large scale should be brought to pass and that its place of meeting should be the city of Hamilton.

The congress is a combined meeting of the Canadian Medical Association, the Canadian Association for the Prevention of Tuberculosis, the Canadian Public Health Association, the Ontario Health Officers' Association, and the Ontario Medical Association, under the auspices of the executive of the Ontario Medical Association.

The two first days of the meeting were devoted to public health matters. The opening ceremony was performed in the ball room of the Royal Connaught Hotel by the Duke of Devonshire, the Governor General of Canada, at 10 o'clock on Monday morning, May 27. The opening speech was distinguished by common sense. In the course of the speech he dwelt upon the fact that sanitation and hygiene have played the most conspicuous roles in the war. His Excellency further drew attention to another very obvious point, that one of the great problems at the present time and after the war is and will be the reconstruction, rehabilitation, and reeducation of the maimed and injured soldiers.

The first paper to be read was one entitled "Hints on Rural Administration," by Lieut.-Col. John W. S. McCullough, chief health officer for the Province of Ontario. In reality, Dr. McCullough's paper was given over to a consideration or rather synopsis of the act passed recently by the legislature of Ontario, with the view of controlling venereal diseases. It may be said, in passing, that the keynote of the Public Health meeting was the question of how best to deal with venereal diseases and of how best to conserve child life. The Ontario act for the control of venereal diseases is patently a long step in the right direction and is, perhaps, the most important effort to meet the venereal situation that has been attempted by any legislature. By the provisions of this act any person under arrest may, if considered necessary by the health officer, be examined to discover if he is suffering from venereal disease. If thus infected, he may be detained and treated. Medical men in charge of places of detention are required to report cases within twenty-four hours. Medical officers of health may also require examination and treatment of persons whom they know to be infected with venereal disease. In order to prevent unjust action against a physician making examinations or reports with regard to such cases, it is provided that action of this nature can be brought only with the consent of the provisional board of health. Provision is made for right of entry in the day time by the health officer or his deputy to premises for the purpose of inquiring or examination of persons known to be so infected. Hospitals designated by the board are required to provide facilities for treatment. Under pain of heavy penalties, no other

than qualified physicians are allowed to attend or treat sufferers from venereal disease. Penalties are also provided for those who advertise remedies or cures for venereal diseases, as well as for those found guilty of infecting others. Provision is made for maintaining secrecy. The regulations will come into effect on July 1.

In the discussion that followed this address, Dr. Peter Bryce of Ottawa said that the success of the carrying out of the act would largely depend upon the facilities provided by the 88 hospitals of Ontario which treat these cases. Expert diagnosis and cure were very necessary. Dr. Jacques of Jarvis stated that these diseases would be treated largely in hospitals, as it was exceedingly necessary that there should be expert determination of cure. Also, treatment should be free because it was for the good of the race and the State that this special plague should be eradicated.

Capt. H. W. Hill of London, Ont., president of the Ontario Health Officers' Association, then delivered the presidential address. He emphasized the importance of sanitation and especially of personal hygiene, and said that from the commencement of the war up to the present time, the result had been a triumph for sanitation and personal hygiene. He pointed out that formerly the health officer had been regarded with polite indifference as a necessary or unnecessary evil by the practising confreres, almost indeed, as an outcast; now he was fast coming into his own. There were three essential fields for public health work, those of venereal disease, tuberculosis, and child welfare. The other infectious diseases were of relatively small concern. Typhoid fever had been virtually eradicated, while diphtheria, scarlet fever, and so on were being eliminated. With regard to venereal diseases Hill thought that the crux of the problem lay in illicit intercourse. The women of the streets could be found and dealt with—incarcerated, although places of incarceration must be supplied by the government. But the case of the woman who worked and gave herself to illicit intercourse frequently or occasionally was a very different matter and one which required great consideration. So long as such a state of affairs existed there was little hope of eradicating venereal disease, for it must always be borne in mind that one infected woman can spread the disease far and wide. Hill insisted in the fact that a negative Wassermann test is no proof that infection is not present in the primary stage of syphilis. In fact, in the early stage of syphilis the Wassermann test is usually negative.

A paper was read by Dr. J. J. Harper on "Good Public Health Service in Small Towns and Rural Municipalities," and last of the papers of the day's session was one by Capt. Gordon Balec dealing with the venereal disease problem. The gist of his paper was that illicit sexual intercourse lies behind the whole question. Statistics available from military districts in Canada show that many, perhaps the majority of army cases were contracted previous to enlistment. While organized prostitution exists or existed on a somewhat large scale in Canada, that since the war began, it has been chiefly by the agency of young girls who work in the day that infection has been spread. Bates said that news-

paper publicity had done much towards suppressing the evil, and that education by every means available should be resorted to in order that the greatest single menace to health and therefore efficiency should be, at least, controlled as far as was possible.

In the discussion that followed the reading of the papers by Hill and Harper interest appeared to center mainly on the question of disinfection after recovery from infectious disease. Some of the speakers were enthusiastic regarding the results from disinfection after scarlet-fever with formaldehyde and permanganate of potassium. Hill, on the contrary, went so far as to say that so far as infection from scarlet fever was concerned, if he detected any discharge from the ear or even if there was a herpes that he considered infection transmissible and refused a patient in this condition. He, moreover, averred that he had not followed disinfection for scarlet fever for some years. The theory as to the infection being air-borne is not actually defunct, but is dying fast, and with the disbelief in the means of conveyance, the value of disinfection has also fallen into disrepute. So warm did the dispute wax as with respect to the merits of disinfection after scarlet fever, that it was determined to appoint a commission in Ontario to investigate into and report on the employment of quarantine and terminal disinfection.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

May 23, 1918.

1. The Relation of the Doctor to Workmen's Compensation. Francis D. Donoghue.
2. The Application of Anaphylactic Skin Tests to General Medicine. Samuel Ayres, Jr.
3. Differential Diagnosis in Psychiatry: A Comparison of Methods in Various Disease States. Lawson G. Lowrey.
4. Structural Deformities versus Functional Efficiencies as Objects of Treatments. Herman W. Marshall.
5. The Beginning of Dispensaries. Michael M. Davis, Jr., and Andrew R. Warner.
6. The Relation of the Ductless Glands to Gynecology: Physiological and Therapeutic. Alice H. Bigelow.

3. **Differential Diagnosis in Psychiatry: A Comparison of Methods in Various Disease States.**—Lawson G. Lowrey has found that a most useful division of mental activities is that into the sensorium-intellect and emotions-will. Thus, those mental states in which the symptoms are primarily and predominantly in the sensorium-intellect field are clearly related with the toxic-organic-epileptic disease processes; whereas the disturbances primarily and predominantly in the emotion-will field are related to the schizophrenic-cyclothymic-psychoneurotic-psychopathic group of disease processes. Hence, it is necessary to differentiate with great care between primary and secondary effects in any mental state, and to determine the degree of disturbance in all fields. He defines primary symptoms as those common to all cases of a particular group; and secondary symptoms as those which occur in some, but not all, cases of any group. The primary symptoms are not always predominant and in some cases are only detected with difficulty because of the greater rôle assumed by the secondary and rare symptoms. It is in such cases that the difficulty of diagnosis is greatest. All these various points must be borne in mind—the analysis and interpretation of symptoms; the conception of states, with primary and secondary phenomena; the necessity for careful and complete analysis of the whole individual; the relationship of states to causal processes; and the scientific importance of symptomatic (as opposed to termination) diagnoses. Lowrey points out the importance of accuracy in diagnosis; it is better, for instance, to leave a case undiagnosed than to pronounce it one of dementia precox. If this disease

is to stand as a psychiatric entity it must have a recognizable symptomatology; moreover, precox is not the only disorder whose sequence is dementia. The aim must be to arrive at rapid and thorough differential diagnosis by rapidly narrowing down the diagnostic field to a few possibilities, and then finding the characteristics which permit accurate diagnosis. The differential diagnosis between groups is to be based on special signs and symptoms of each. Thus in paresis, senile dementia, arteriosclerotic and chronic alcoholic psychoses, in some of the somatic cases and in epilepsy, the primary symptoms are disturbances in the retentive field (of memory) combined with certain disturbances of attention and assimilation and often of consciousness. In paresis, the pupils, reflexes, speech, and handwriting must be considered; delusions of grandeur, euphoria, etc., are very characteristic when present. Senile dementia is characterized by loss of recent memory, with retention of remote memory, disorientation, restlessness at night, forgetfulness of immediate happenings, and conduct disorder—and so on. In the second large group, i.e. the acute alcoholic (with the important exception of acute alcoholic hallucinosis), other acute toxic psychoses of exogenous origin, severe meningitis, etc.—in general, the acute “fulminating” group—we have to do with active symptoms in the field of consciousness and perception. It is therefore important to know the immediate history and physical state of the patient; temperature, pulse, and respiration; result of lumbar puncture, blood examination and urine analysis. This constitutes a practical program for the speedy determination of the cause and the commencement of active treatment. It must be remembered that not all physical diseases are capable of producing mental disease, and that mental disease of any type may coexist with almost any type of physical disease. In the establishment of etiological factors the mental disturbance must be of the type which the somatic disease ordinarily causes, and atypical cases may be included only after the most searching and rigid analysis. It is important to realize that confusion and amnesia characterize the organic group, whereas confusion, circumscribed amnesia and hallucinations characterize the toxic group, with epilepsy sometimes in one group and sometimes in the other. The complicating factors in diagnosis lie in the fact that emotion-volition disorder occurs in psychoses belonging to any group, and the conduct may be quite similar in groups of widely varying etiology. The essential points of differentiation lie in the state of consciousness and in the memory, together with an analysis of the fitness of conduct to ideational background. The schizophrenic states are more complex, and here again the emotion and will disturbance is the predominant feature—here the emotions and will disturbances do not correspond. With a clear consciousness such cases are hallucinated, giving the impression of clouding and memory loss; they are, nevertheless, oriented and without particular memory defect. The essential point to recognize is that clouding of consciousness and intellectual disorder are not characteristic symptoms of the precox process—and we must hesitate to make such a diagnosis where symptoms are not in the emotions and will. In the psychoneurosis it is a question of disorders of emotion and will, and not intellectual disorders. In the dream states there is partial or complete dissociation of the personality. An analysis of the psychopathic cases shows that the causes lie in improper relations of emotion and will. In acute alcoholic hallucinosis the disturbance of consciousness is absent; typical cases resemble dementia precox closely and the question arises whether they may not be toxic dementia precox; here the history is of the greatest importance. Finally there is one great group of cases in which the disorder is chiefly intellectual—these are the paranoid states (omitting paranoid dementia precox, where the important thing is the precox disturbance). In such cases there is no consciousness disturbance and no disturbance of retention and recollection, but there is marked judgment disorder. Finally, the author points out that accurate differential diagnoses can be made only if the observations are detailed and thorough, and if the examiner interprets correctly and properly aligns the symptoms with causes.

New York Medical Journal.

May 25, 1918.

1. Hyperacidity of the Gastric Secretion as a Prime Factor in Attacks of Angina Pectoris. H. Iloway.
2. Standard Methods in Diagnosis and Treatment of Venereal Diseases in Public Dispensaries. Haven Emerson.
3. Vaccine Therapy in Chronic Intestinal Toxemia. G. Reese Satterlee.
4. Some Aspects of Symptomatic Treatment. Edward E. Cornwall.
5. The Relation of Fresh Air and Housing to Health. Frank F. D. Rockford.
6. The Treatment of Flat Foot. Richard Newman.
7. Choosing the Anesthetist. Isadore Josephson.
8. Gallstones. Samuel Weiss.
9. Ascending Osteomyelitis in Amputation Stumps with Particular Reference to the Thigh. A. Marchand.
10. The Rehabilitation of Disabled Soldiers in New Zealand. Douglas C. McMurtrie.
11. Some Problems of Nutrition in the Army. Charles Greene Cumston.

1. Hyperacidity of the Gastric Secretion as a Prime Factor in Attacks of Angina Pectoris.—H. Iloway reports in detail several cases of angina pectoris, in all of which hyperacidity of the gastric secretion was shown by an examination of the chemismus of the stomach made after an Ewald and Boas test breakfast with a bland meal taken the previous evening, and usually a glass of milk before retiring. The writer points out that the cases here reported may explain the anachronism of an epigastric or abdominal angina pectoris, both an impossibility. He refers to the statement made by Latham that angina pectoris is a spasm, a cramp of the heart, excited by the hyperacid gastric juice through the filaments of the vagus; a fact which should not appear strange to any one familiar with the violent spasms excited by hyperacid secretion in spasmodic closure of the pylorus. This view as to the cause of cardiac spasm makes it apparent that it may supervene in any and all the various forms of cardiac disease, which explains the many contradictions set forth by Allbutt. It makes clear the intercurrent disturbances occurring in the epigastrium and abdomen, which are not at all due to the angina and which are frequently seen in cases of gastric hyperacidity in which no angina exists. It comports fully with the etiological factors mentioned by Allbutt, Huchard, and others, and explains the baneful effect of tobacco in such cases. It also accounts for the excellent results obtained by Trousseau by treatment with massive doses of sodium bicarbonate and extract of belladonna. It may furthermore explain the deaths which supervene suddenly in persons suffering from angina pectoris after a full and liberal meal—caused by a sudden outpouring of excessively acid gastric juice which excites a violent tonic spasm of the heart, an arrest of action beyond restoration. But what is of the greatest importance is the hope thus held out of being able to relieve the pain, the *angor animi*. Instead of the administration of nitroglycerine tablets as a palliative measure, the patient will be taught how to reduce the hyperacidity of the gastric juice and to keep it within normal limits, as well as how to reduce the hyperirritability of the gastric mucous membrane and of the nerve filaments distributed throughout it, produced by the hyperacidity.

The Lancet.

April 20, 1918.

1. Arris and Gale Lecture on the Modern English Skull. Delivered on February 18, 1918, at the Royal College of Surgeons of England. F. G. Parsons.
2. Dysentery Bacilli: the Differentiation of the True Dysentery Bacilli from the Allied Species. Major F. W. Andrews.
3. The Etiology and Treatment of “Trench Foot.” (A Report of the Medical Research Committee.) Major Joshua E. Sweet, Major George W. Norris, and Lieutenant Harry B. Wilmer.
4. Reports from the Pathological Laboratories of No. — General Hospital, Alexandria. I. Bacillemia Due to Various Organisms. Captains J. Gordon Thompson and L. F. Hirst. II. The Thermo-Precipitin Reaction as an Aid to the Rapid Diagnosis of Bacillary Dysentery. Captain L. F. Hirst.
5. Acute Infective Ophthalmoplegia or Botulism. Captain Wilfred Harris.
6. Note on an Epidemic of Toxic Ophthalmoplegia Associated with Acute Asthenia and Other Nervous Manifestations. Major Arthur J. Hall.
7. Note on a Case of Infection with *Bothriocephalus Latus*. T. T. O’Farrell.
8. Peripheral Nerve Lesions after Antitetanic Serum. Captain S. C. Dyke.

2. **Dysentery Bacilli: the Differentiation of the True Dysentery Bacilli from the Allied Species.**—Major F. W. Andrewes has examined upward of one hundred strains obtained from France and from dysentery hospitals in England with a view to determining the significance of the atypical forms frequently met with in the bacteriological examination of cases of suspected dysentery. He points out that although the short study made of the dysentery group is incomplete, it has been thought advisable to bring forward the conclusions which seem to emerge at this stage, not only for the assistance but more for the criticism of other workers on the subject. Should the conclusions be confirmed by others a distinct step in advance will have been made, since it appears that a large proportion of the forms which have masqueraded as atypical bacilli can readily be distinguished by appropriate tests. Andrewes points out that the great majority of such atypical forms fall into three species or groups of species, and for these he suggests the provisional names of *B. ambiguus*, *B. alkalescens*, and *B. dispar*, or lactose fermenting forms. The first two species may be rejected as having nothing to do with dysentery; *B. alkalescens* was found to be devoid of pathogenicity and *B. ambiguus* of low pathogenicity for the rabbit, although the experiments made were too few in number to be conclusive. In regard to *B. dispar* the author believes that more work is necessary; he found that these organisms possessed considerable pathogenic power for the rabbit, although their relation to human dysentery is yet unproven. There is a general belief that the lactose fermenters can be excluded in dysentery work, and Andrewes believes this is probably so; at any rate, they cannot be returned as dysentery bacilli. A certain proportion of aberrant forms still remain to be accounted for and some of these may really be atypical members of the Flexner-Y group, but such a residue would be very small. The acid-agglutination test, being both simple and rapid, Andrewes believes to be of great practical value in routine laboratory work. He thinks it hardly too much to say that it will do what no one specific serum can do, and that the margin of error is perhaps less than when even a number of specific sera are used. He further makes the following comments. Before returning a dysentery bacillus as inagglutinable it is always desirable to pick out a colony, pass it through a few daily subcultures in broth, and then formalinise the last broth culture and keep it for a few days in the cold. Some strains, which at first agglutinate poorly, come down freely after such treatment. Again, in returning a bacillus as agglutinable it is desirable to state whether it agglutinates to the full titer of the serum or only to half or a quarter titer. In order to do this it is necessary for the worker to have tested for himself the titers of the sera which he uses by the actual method that he is accustomed to employ. A given serum will differ widely in the results it yields with varying techniques and the titer stated on the bottle may give an erroneous impression. The method employed should be mentioned in the returns. Finally it is greatly to be desired, in the case of all doubtfully pathogenic forms isolated from cases of suspected dysentery, that careful observations should be made on the agglutinating power of the patient's serum upon the organism isolated as this is an important link in the chain of evidence.

3. **The Etiology and Treatment of "Trench Foot."** (A Report to the Medical Research Committee).—Major Joshua E. Sweet, Major George W. Norris, and Lieutenant Harry B. Wilmer point out that the usual classification of "trench foot" is based entirely upon a clinical picture and that the usual conclusion is that the disease starts from the outside, the consequence being that the treatment, as a rule, is purely local. They offer evidence to show that the disease commences from the interior, and that the infections which often mark the course of the disease are naturally secondary manifestations of the reaction of devitalized tissues to infective agents; that, therefore, the treatment should be directed to the skin only in so far as these secondary infections have resulted in surgical conditions. The resemblance of the condition to that known as Raynaud's Disease suggested the possibility of vasomotor

disturbance. The authors found that there was a marked increase in the blood pressure in "trench foot," as determined by the usual clinical methods, compared with that in the arm. The readings were made with two different types of sphygmometer, with the patient recumbent and relaxed, first upon the leg and then upon the arm. The auscultatory method was employed, the systolic pressure being read at the first regular appearance of sound, and the fifth phase being chosen as the diastolic criterion. (As there was some uncertainty as to the diastolic readings in the leg, the authors attach more importance to the systolic readings, which they believe to be clinically accurate.) Fifty-three patients were examined in this way and, in addition, eight controls. In one out of the 53 cases only the arm pressure exceeded the leg pressure, but after forty-eight hours it reverted to the condition found in the other 52 cases, in all of which there was a very definite increase of the leg over the arm pressure. In the controls the pressure was equal in the arm and the leg. It was also found that the increase in pressure was in direct proportion to the severity of the case and dropped as the patient's condition improved. These authors therefore conclude that trench foot is a disease incited by the effect of cold and inaction upon a foot whose vasomotor system is physiologically impaired. They believe there is a spasmodic contraction of the arterioles of the foot, the first result of which is ischemia with numbness, tingling, and burning pain; this is followed by a disturbance of the capillary circulation, perhaps due to lack of pressure from the veins, perhaps to the loss of rhythmicity of the driving force, perhaps to mere stagnation, with swelling of the foot from edema and diapedesis of red cells. This results in devitalization of the skin and favors infectious processes, which may extend to actual gangrene. Sweet, Norris and Wilmer found that the administration of potassium iodide in 20 grain doses (or in some cases 30 grain) three times a day resulted in decided relief from pain in twenty-four hours after the first dose had been given. In many cases there was a coincident fall of pressure, an average drop of the leg pressure of 10 to 15 mm. In all the cases so treated (31) the drug was withheld for twenty-four hours, and without exception this resulted in increased pain and insomnia. These authors believe potassium iodide to be of greater benefit than any other drug in the treatment of this condition, and point out that the relief from pain is absolute and the duration of the attack markedly shortened.

The Lancet.

May 4, 1918.

1. An Address (Abstract of) on the Symptoms which Precede and are Associated with General Arteriosclerosis. (Being the Annual Oration of the Hunterian Society, delivered on February 20, 1918.) O. K. Williamson.
2. Some Important Principles which Determine the Reliability of the Wassermann Reaction. James McIntosh.
3. The Wassermann Reaction: Its Use and Abuse. Captain Hugh W. Bayly.
4. Acriflavine and Proflavine: Notes on Their Use in Infected Gunshot Wounds. Major Robert B. Carslaw and Lieutenant William Templeton.
5. Note on the Treatment by Brilliant Green of Recently Inflicted Gunshot Wounds. Captain R. Massie.
6. Epidemic Stupor in Children. Frederick E. Batten and George F. Still.
7. A Case of Acute Lymphatic Leucocytthemia Following Trauma of Bone. Captain J. Eason.
8. Ascariasis Simulating Appendicitis. Alan Kidd.
9. Notes on Cases of Mucous Colitis Treated with Charcoal. T. B. Broadway.

1. **Abstract of an Address on the Symptoms Which Precede and are Associated with General Arteriosclerosis (Being the Annual Oration of the Hunterian Society, Delivered on February 20, 1918).**—O. K. Williamson discusses in particular the cause and symptomatology of the hyperpietic form of arteriosclerosis as classified by Sir Clifford Allbutt. He points out that high arterial blood pressure is one of the earliest signs of arteriosclerosis, and is probably the cause of the process. In this connection the author refers to certain observations carried out by himself which would seem to prove that the occurrence of the arterial change is of later date than the rise of blood pressure. He gives the characteristic features of the

pulse of high arterial pressure as described by Mahomet and emphasizes the importance of persons of and beyond middle age having their blood pressure measured at intervals in order that arteriosclerosis may be prevented. He refers to the possibility, in exceptional cases, of the occurrence of diastolic before systolic pressure. Williamson describes the symptoms of hyperpiesia as heaviness, oppressive fullness in the head, or actual headache, pulsatile in character; drowsiness, insomnia, fatigue, especially in the morning; despondency, giddiness, memory failure, noises in the ears, neuralgic attacks, nervousness; local areas of coldness or local syncope of the extremities, tendency to dyspnea, etc. Other symptoms may occur which may possibly be accounted for by the conception of arterial spasm, which will be considered later. By diagnosis and judicious treatment much can be done to prevent the development of arteriosclerosis. In its early stages the general nutrition is good and there is often a tendency to fatness. In addition to the symptoms described by Mahomet, the pulse may show an extra systole which is usually of ventricular origin and may occur at every second beat, in which case it is necessary to distinguish the condition from *pulsus alternans*. The heart usually shows signs of hypertrophy. As pointed out by Mott, the nervous system may suffer from partial or complete ischemia, or there may be attacks of maniacal excitement or depression. Williamson then takes up the question of localized arterial spasm, citing cases which show that it may occur in superficial arteries. He points out that the first suggestion of arterial spasm as an explanation of cerebral seizures was made by Peabody. The subject was further studied and cases cited by Russell and Edgeworth, and finally Osler placed these cases in the three following categories: (a) Healthy individuals with high blood pressure, without signs of arterial disease. (b) Patients with well-marked arteriosclerosis, in whom the cerebral attacks have come on without warning, sometimes as the signal symptom. (A majority of Williamson's cases come in this group.) (c) In advanced sclerosis with cerebral changes, manifested by progressive mental and muscular weakness, all possible types of these transient seizures, including convulsions, may occur. The attacks are most frequent in the aged, but men in the fifth and sixth decades are also affected. The author would amplify this classification by the addition of a fourth class, to include cases without signs either of arterial disease or of high blood pressure. Russell has shown that an attack of angina pectoris may owe its incidence to a reflex action originating after a meal, for it is known that following the ingestion of food a contraction of the systemic arteries takes place. The French neurologists, especially Dejerine, Sollier, and Grasset, described a syndrome explicable by intermittent spasm of the arteries of the spinal marrow—the "*claudication intermittente de la moelle épinière*," which is almost always syphilitic. Williamson goes on to say that, once admitting the existence of arterial spasm in one locality of the body, we cannot reasonably refuse the application of the theory to explain symptoms in other parts of the body, such as, for instance, attacks of abdominal pain. The hypothesis is one of no mere academic interest, but holds out full hope of the prevention of most dire effects. He adds that in making a diagnosis the symptoms of hyperpiesia must be distinguished from those of neurasthenia and a careful personal and family history is therefore of the greatest importance. The author concludes with a hopeful comment on the present food situation—he believes that the enforced abstinence from an excess amount of protein food cannot fail to exercise a favorable influence on the incidence of one of the most insidious and crippling diseases of modern middle life.

Berliner klinische Wochenschrift.

March 11, 1918.

The Specific Treatment of Infectious Diseases, with Particular Reference to Tuberculosis.—A. Feldt offers an analysis of the notion of "specific therapeutics." In opposition to a generally accepted opinion, it cannot consist in a direct attack on the pathogenic agent.

This interpretation is difficult to defend in the case of Hg. and lues and quite out of the question in the case of the action of salicylic acid on rheumatism of the joints. "Specific therapeutics" is an essentially clinical notion, and may be defined as "the use of chemical bodies which increase the production of normal specific antibodies, bringing about a cure of the histological morbid products (inflammations, granulations) and rendering the pathogenic agents inoffensive; all this with doses which not only are not toxic for the cells, but even exert a stimulating action on them (metallic preparations, for example)." Passing next to the study of the action of gold on tuberculosis, the writer opines to the belief that these conditions are fulfilled by "Khysolgan." The gold exhibited accumulates in the diseased tissues, reaching them by way of a paravascular route. The metal sets up focal reactions, which may result in the cure of the process: In point of fact an accelerated autolysis occurs in the morbid focus along with a fibrous reaction in its neighborhood. Thus the bacilli are isolated, although not in reality destroyed. Gold acts essentially by favoring an autolysis of the diseased structures by catalysis.

A New Treatment of Typhus Fever.—K. von Zielinski, being inspired by the excellent results obtained by autoserotherapy in pleurisy and ascites, has injected the cerebrospinal fluid removed from patients seriously ill with typhus, the fluid being withdrawn from the patient himself and then injected. The dose was increased until 15 c.c. was reached. The injections were first given subcutaneously, afterward intravenously. The writer, who selected patients seriously ill with typhus, in which the prognosis was absolutely bad, declares himself well satisfied with these preliminary essays with this treatment.

Deutsche medizinische Wochenschrift.

March 14, 1918.

Intravenous Administration of Camphor.—H. Leo recalls the fact that there are many drawbacks to the usual method of introducing camphor into the system, namely, a very slow and often incomplete absorption, and the very small amount of the drug which enters the circulation. The favorable action of the medication, namely that of a cardiopulmonary stimulant and antipneumococcic, likewise favoring pulmonary irrigation, should cause one to prefer its administration in an injectable form. Leo advises intravenous injections of a saturated aqueous solution of camphor, Ringer's saline solution being used as a medium. The amount of camphor injected each time varies from 10 cg. in 75 c.c. solution to 30 cg. in 300 c.c. water, to which 1.5 cc. alcohol is added. The total amount of camphor utilized is thus reduced without interfering with its effective physiological action. The solution is prepared by simply shaking powdered camphor in Ringer's artificial serum, the resulting concentration being 0.142 per cent. The addition of alcohol or ether increases the solubility, but is not to be recommended.

The Diagnosis and Treatment of Trichinosis.—S. Schoenborn points out the importance of the eosinophilia, which is absent in typhoid or dysentery. The edema and neuromuscular phenomena are of secondary importance. The surest diagnostic method is a biopsy of the muscles. A bit of muscle is excised and the parasite or its embryo can be detected, a fact which is exceptional in the case of the feces or blood. Salvarsan has no therapeutic effect on the disease. On the other hand injections of strychnin appear to shorten the duration of the affection.

Wiener medizinische Wochenschrift.

March 30, 1918.

Pityriasis Rubra (Hebra).—G. Nohl discusses a case and insists particularly on two phenomena presented by the patient, namely, a total alopecia and reticulated melanodermy. The pigmentation is the result of changes arising in the basal layer of the epidermis. A hyperactivity of this layer also takes place, making itself evident by an excessive formation of "melanotic ferments," according to B. Bloch's conception.

Book Reviews.

MANUAL OF LABORATORY DIAGNOSIS. By STELLA M. GARDNER, M.D., and MARY C. LINCOLN, Ph.B., M.D. Formerly Assistant Professors of Laboratory Diagnosis, College of Medicine, University of Illinois. Price, \$1.25. Chicago: Medical Book Company, 1917.

PROBABLY there is no subject in the domain of medical literature that receives more attention than that of laboratory diagnosis. due no doubt to the great advance which has been made in this branch of the medical sciences in the past decade. The number of small guides or manuals such as the present one, already published, is legion and, while it is a commendable undertaking to abbreviate books on laboratory procedures as much as possible, there is always the danger of sacrificing efficiency and thoroughness for the sake of brevity. The manual before us has this fault. It treats rather superficially of the clinical laboratory examination of blood, urine, stomach contents, feces, human milk, spinal fluid, and sputum, with a fair consideration of the technique of the Wassermann reaction. Some typographical errors are in evidence and the subject matter as a whole is indifferently assembled. The most that can be said for it is that no gross or flagrant misstatements are present.

MEDICAL DIAGNOSIS FOR THE STUDENT AND PRACTITIONER. By CHARLES LYMAN GREENE, M.D., St. Paul, etc., etc., etc. With 14 Colored Plate and 548 Other Illustrations. Price, \$10.00. Philadelphia: P. Blakiston's Son & Co., 1917.

THE fourth edition of this text has been recast and extensively amplified so that its present status represents practically a new volume. From the retrospect of twenty-five years' clinical and teaching experience the author has produced in this edition a comprehensive work on modern diagnostic methods which reflects credit on his ability as a lucid, scholarly writer and on his wide grasp of the subject. In the beginning certain fundamental principles of diagnosis are discussed and considerable space devoted to case-taking, the significance of outward signs of disease, analysis of subjective and objective symptoms, and the importance of approaching the diagnostic problem with an open mind. The bulk of the book is given over to an exhaustive description of the various physical, instrumental, and clinical laboratory methods of diagnosis, which are taken up in a systematic manner. The immense amount of information contained in the volume can be gathered from the fact that it comprises 1203 pages printed on rather thin paper. Numerous illustrations are interspersed throughout, and serve to supplement the context. The employment of italicized sentences and paragraphs, as well as leading marginal designations, focuses attention on the important details. Finally, and probably what is most essential in a book of this type, there is an unusually extensive and complete index. We can recommend this edition as a thoroughly sound and up-to-date treatise on medical diagnosis.

BIRTH FRACTURES AND EPIPHYSEAL DISLOCATIONS. By EDWARD D. TRUESDELL, M.D., Assistant Attending Surgeon and Roentgenologist at the Lying-In Hospital, Associate Surgeon at the St. Mary's Free Hospital for Children, New York. Price, \$4.00. New York: Paul B. Hoeber, 1917.

THIS work covers an almost virgin field and will serve to correct the popular misconception of the ratio of dislocations of the epiphyses to fractures in the newborn, and as to the type of fracture when that does occur. Most doctors firmly believe that separation, or dislocation, of the epiphysis is a rather common injury in the newborn, and also that when fracture does occur it is frequently of the greenstick type. Truesdell, however, in studying practically all the cases of fracture and epiphyseal separation that occurred in the course of more than 33,000 deliveries, found but eight in which epiphyseal separation occurred, while of the several hundred cases referred to the x-ray department of the Lying-In Hospital because of possible birth injury, not a single case of greenstick fracture of a long bone was found. Truesdell found 39 fractures

of the humerus, "between 25 and 30" fractures of the clavicle, and 13 fractures of the femur. All of these were frank fractures, either transverse or oblique. One interesting observation in connection with the 39 fractures of the humerus was that accompanying every fracture some degree of musculospiral nerve paralysis was noted, indicated by a distinct wrist-drop. Illustrative cases are reported in detail and the book is profusely illustrated by excellent Roentgenograms, some of which show the progress of individual cases at intervals of weeks, months, or even, in some few cases years. Methods of treatment that have been found most useful are described and illustrated. The difficulties which had to be overcome in studying these cases are pointed out and one can easily see that an immense amount of time and painstaking care have been expended in the preparation of this monograph. Truesdell's book not only throws a new light upon this important subject, but should stimulate greater interest in the early recognition and proper handling of these injuries.

THE SURGICAL CLINICS OF CHICAGO. Vol. 1, No. 6; December, 1917. Octavo of 244 Pages, with 89 Illustrations. Published Bi-monthly. Price per Year, \$10.00. Philadelphia and London: W. B. Saunders Company, 1917.

THIS is the final number of the first volume of these books and contains complete indices in addition to a rather more than usually interesting series of articles. There are fourteen contributors to this number and all of the articles are well worth reading. Worthy of especial mention are articles discussing tuberculosis of the kidney, the technique of prostatectomy, and clinical lectures based upon cases of actinomycosis of the colon, cancer of the rectum, and fractures. The Surgical Clinics of Chicago, following the lines of the original Murphy's Clinics, have presented during the past year 1325 pages of text with 496 illustrations. The contributors, forty in number, have included many of Chicago's leading surgeons and a wide range of subjects have been covered. While some of the articles have been rather crude, the general average has been good and the completed volume should be of value to any progressive surgeon.

THE IMMEDIATE CARE OF THE INJURED. By ALBERT S. MORROW, A.B., M.D., Clinical Professor of Surgery in the New York Polyclinic; Attending Surgeon to the Workhouse Hospital and to the Central and Neurological Hospital; Major, Medical Department, Officers' Reserve Corps of U. S. Army. Third Edition, Thoroughly Revised. 12 mo of 356 Pages, with 242 Illustrations. Price, \$2.75. Philadelphia and London: W. B. Saunders Company, 1917.

THIS is a very interesting volume. The book is divided into three parts. Part I should give one a very good superficial knowledge of anatomy and physiology. In Part II common forms of roller bandages are described and illustrated, as are also the various handkerchief and tailed bandages, materials, and methods of preparing dressings, etc. The application of heat and cold in the form of packs, poultices, etc., the giving of enemata, methods of disinfection, and almost innumerable other useful procedures are described and often illustrated. Part III, comprising about half the book, is devoted to the consideration of accidents and emergencies. Hemorrhage, contusions and wounds, burns, fractures, dislocations, sprains, asphyxia, poisoning, the transportation of the injured, and the preparation of the house for an accident case are among the subjects discussed—all in a very practical way. There are but few cases where one might consider that the simplest and best method of emergency treatment had not been indicated. Why, for example, in describing methods of reducing a dislocated shoulder, is the thoroughly reprehensible foot-in-the-axilla method described, and the usual and far safer Kocher method omitted?

In the words of the author, "This book is not intended to supplant the physician or surgeon, but is designed solely as a guide in emergencies until the arrival of medical aid or when such aid cannot be procured." Morrow's book well fulfills this purpose and should form an excellent guide to the layman or even the professional nurse.

Society Reports.

ASSOCIATION OF AMERICAN PHYSICIANS.

Thirty-third Annual Meeting Held at Atlantic City, N. J., May 7 and 8, 1918.

DR. F. H. WILLIAMS OF BOSTON, PRESIDENT.

First Day—Tuesday, May 7.

Instructions in Treatment.—Dr. F. H. WILLIAMS of Boston delivered this, the presidential address, taking as his subject the instruction of students on points in therapy and pharmacology, known to the older practitioner, but which were outside of the student's experience. The young practitioner had many difficulties in adapting the details of pharmacology and therapeutics to practice. Students should be taught by men with long clinical practice and in that way they would learn to bridge the gap between *materia medica* and therapeutics on the one hand and the practice of medicine on the other. In the field of surgery the young surgeon was allowed to watch and to assist at operations, he learned the practical application of splints and other technical details. The same line should be followed in medicine. The field was not so dramatic as that of surgery, but more opportunities for bedside instruction should be offered. The student should be taught when to give powerful remedies and when not. The proof of the necessity of this method of teaching was seen when students were asked to prepare papers outlining treatment in a certain given case. The papers fell into three groups: (1) good; (2) incomplete; (3) with serious mistakes. The student and the young practitioner should learn how many resources medicine had at command, lack of knowledge of which was sometimes very culpable. The man who could bring sleep to the patient without resorting to hypnotics, or alleviate pain without prescribing morphine, in other words, who could accomplish results by simple means, was learning to be past master of his art. The experienced practitioner now understood that nature must do most of the work, but that she needs help, and that the wise physician could give now more than ever before, so that one could say that in the progress of two or three generations from now, it would be a still greater privilege to be a physician.

Results from the Intravenous Use of Salvarsan in Syphilis of the Nervous System.—Dr. BERNARD SACHS of New York read this paper. He said that at this critical period of the national life it was important to consider the treatment of a disease which so often maims and so rarely kills. The object of the communication was to put before the medical profession the views regarding the various methods of treatment. The paper was based on results of analyses of 400 cases at Mt. Sinai Hospital treated intravenously with the Philadelphia preparation of arsenophenamin which had proved entirely satisfactory. The views of Dr. Sachs upon the superiority of the intravenous method had been opposed by Dr. Fordyce who had stated that . . . "if the views of Dr. Sachs are final, an enormous amount of harm will result, as many victims of syphilis of the central nervous system will be deprived of their hope of recovery." Dr. Sachs said he felt convinced that much more good would be accomplished by the intravenous treatment, which could be said to be safe in the hands of the majority of physicians. All biological tests should be used as corroborative evidence and clinical evidence should not be disregarded. It could be said that the lack of serological evidence did not always disprove syphilis, nor was there a parallel between clinical symptoms and serological findings as remissions were often observed without serological change, and serological improvement was not always accompanied by clinical betterment. It was only in types with vascular lesions that the clinical findings and serological tests progressed *pari passu*. Of general paresis and tabes it could be said that the chief lesions were deep in the brain and cord, far removed from the spinal fluid, and only to be reached by the blood stream. In the meningomyelitic type of involvement it was impossible for the curative substances to remain in the fluid long enough to do any good. The doctrine of the

impermeability of the choroid plexus was refused. The pressure in the cerebral capillaries being higher than in the fluid, a metallic substance like salvarsan was rapidly absorbed into the venous system, therefore, why should the venous system not be used at once? Intraspinal medication, it was stated, was theoretically and essentially unsound. It was fatal to the syphilitic organism, but frequently also to the patient. Early and intensive treatment was necessary, as many doses as one every other day for 4 to 6 weeks, followed by a period of complete rest, were necessary. Forty or fifty injections might be required within a year. It would be impossible to introduce toxic substances so frequently into the canal. The advantages of the intravenous method were shown in the improvement of such syphilitic symptoms as headaches, palsies, epilepsies, and vascular symptoms. The type of case with spastic rigidity, rather than paralysis, showed least improvement from beginning to end. No claim could be made for the cure of tabes dorsalis or general paresis by the intraspinal method, the most that could be said was that remissions might be longer. It had been claimed that the neurologist did not see early cases, but it was precisely the neurologist or the psychiatrist who made the early diagnosis. It was therefore urged that treatment be begun as early as possible, and continued for years after the initial lesion and that the patient be kept under medical control for as long as necessary. The hope of the future would be the discovery of a substance less toxic than salvarsan with which a more intensive treatment could be undertaken.

Dr. S. J. MELTZER of New York said that there were a few points he would like to bring out—the first was in regard to permeability or impermeability, the essential thing was that there was no exact knowledge as to degrees of permeability. Benedict had found salvarsan in the spinal fluid, but no doubt not in such quantities as if injected intraspinal. Dr. Swift's work was conservative and he had never overemphasized his claim. It could be said too that Dr. Swift used not merely salvarsan, but salvarsanized serum, which was a different thing. Was there, Dr. Meltzer asked, any objection to giving intraspinal treatment at the same time provided it did no harm? Dr. Sachs had stated that Halliburton had given up the method. Dr. Meltzer said he would be more satisfied if Dr. Sachs had quoted Mott. If Dr. Sachs had seen no definite harm done there was no reason why both methods should not be used, and an agreement between the two factions brought about. With meningitis both intravenous and intraspinal injections should be used. If Dr. Sachs could not state positively that he had seen harm result in any particular case, there could be no objection to the use of both methods combined.

Dr. WILLIAM H. PARK of New York said that in regard to tetanus antitoxin, one could absolutely show that the intraspinal injection would protect and cure, while the intravenous alone would not. The two were given simultaneously.

Dr. SACHS, in reply to Dr. Meltzer, said he had distinct experience of the far more dangerous character of the intraspinal medication. If his word carried any authority he would advance that authority in support of his statement. In innumerable cases the intraspinal injection had accomplished nothing, but had caused great misery to the victim. He had seen immediate paralyses ensue and cases where rectal and vesical control had become markedly impaired. With the use of the intravenous treatment he had kept a patient over ten years in a very comfortable condition. At first he had been an advocate of the intraspinal but he had become firmly convinced of the necessity of giving salvarsan intravenously with unusual frequency and since that could be done harmlessly by the intravenous method, and also considering the dangers of the intraspinal he had come to prefer the former method of treatment; as important biological changes could be wrought by the intravenous method as by the intraspinal. The safety of the public at large demanded that this manner of medication be used to the utmost and the intraspinal left to those who had a special fondness for it.

The Relation of the Chemical Structure of Opium Alkaloids to Their Action on Smooth Muscle, and the Pharmacological and Therapeutic Properties of Some

Benzyl Esters.—Dr. D. I. MACHT of Baltimore made this presentation. For 4 or 5 years he had made an intensive study of the papaverine in connection with morphine. A marked difference was found in the two products. There was a difference in the effect upon the respiratory and the vomiting centers. The alkaloids of opium acted upon the central nervous system, upon peripheral structures, and upon smooth muscle. The effects upon the ureter of both the morphine group and the papaverine group were studied. The effect of morphine was increased tonicity, that of papaverine was relaxed tonicity and inhibition of contractions. Thus papaverine could be used for expulsion of renal calculi by relaxation of the ureteral muscle. Search was made for non-toxic products and benzyl benzoate and benzyl acetate, slightly toxic products were found, giving the effects of papaverine. Metabolic studies showed that benzyl acetate was excreted by the kidneys as hippuric acid. This was non-toxic and could be administered by the mouth. It had been tried clinically, but the disagreeable odor and digestive disturbance after its administration would contraindicate its use. Benzyl benzoate was then tried. It was found to be of use in cases of excessive peristalsis, and in diarrhea and dysentery remarkable results had been obtained. A 20 per cent. solution in alcohol was used. Other indications were in pylorospasm, intestinal colic, spastic constipation, biliary colic, ureteral calculi, vesical spasm, spasm of seminal vesicles, uterine colic, arterial spasm, high blood pressure, and lastly bronchial spasm with true asthma, in which remarkable relief was afforded. Benefit was caused by relaxation of spasm.

On the Use of Benzyl Alcohol as a Local Anesthetic.—Dr. D. I. MACHT of Baltimore read this paper which was the extension of his studies on the papaverine group of alkaloids. The benzyl esters being excreted as hippuric acid, it was thought that they would pass through the alcohol stage. Benzyl alcohol was therefore studied. The results were not what was expected, as regards its therapeutic use given internally, but an important anesthetic property was discovered; in tasting the drug, it was found that a drop on the tongue produced numbness, and experiments proved that agent produced anesthesia of the sensory nerve endings. This benzyl alcohol possessed only slight toxicity. It was found in balsam of Peru and balsam of tolu and was known as phenmethyl-o. The boiling point was found to be very high. It was soluble up to 14 per cent. in water, at room temperature. All the solutions used in the clinic were 0.5 to 4.0 per cent. An anesthetic effect upon the mucous membrane was produced by the drug. Other effects were: (1) sensory nerve paralysis; (2) corneal anesthesia; (3) blocking of nerve fibers, first sensory, then motor; (4) effect on blood pressure (the heart not being affected at all); (5) a slight sedative effect on the central nervous system. The toxicity as compared with cocaine showed that 20 c.c. injected into an animal produced no effect, whereas 20 mg. of cocaine injected would kill an animal. It was tried out in the clinic with marked success. The anesthesia was found to be fully equal to that of cocaine. A bullet was extracted without pain, ingrowing toenails were excised; the crucial tests were in rectal cases, when complete excision of hemorrhoids and excision of rectal fissure were made painlessly. In conclusion it could be stated that phenmethyl-o possessed powerful anesthetic properties and low toxicity, it could be easily sterilized and was very cheap. Dr. Macht said he was especially happy that Providence had enabled him by this discovery to contribute a mite to the alleviation of the sufferings of humanity.

Dr. S. J. MELTZER of New York said that the speaker was to be congratulated upon the findings which he had communicated in his two papers. These papers were to be looked upon from the point of view of practical application, and it was to be hoped that the work would be generally confirmed. In regard to the first paper where it was stated that the papaverine group affected smooth muscle, had Dr. Macht only studied smooth muscle or had he also experimented upon striated muscle? What were the effects upon the central nervous system? Did the papaverine group increase the inhibitory side of the nerve effect, or were the phenomena of the opposite nerves reduced? Perhaps this question was premature and in studying the anal-

gesic effects Dr. Macht would go further and find out more about the drug. He would like to know whether there was merely a local analgesia produced or whether the effect was general.

Dr. T. R. BROWN of Baltimore said that with regard to the clinical aspect, they had been using these drugs and as yet they would not commit themselves as regards the practical value, but it was noticeable that in cases of increased irritability of the gastrointestinal tract, cases associated with diarrhea and mucous colitis, the symptoms were very greatly relieved by the benzyl esters. Benzyl acetate was irritating to the stomach but benzyl benzoate had a distinct use in conditions associated with spasticity of the intestinal canal.

Dr. S. SOLIS COHEN of Philadelphia said that his interest had been excited in Dr. Macht's work. He had found benzyl benzoate of value in treatment of various forms of asthma with dyspnea and in arteriosclerosis with excessively high blood pressure. It was of great use in a particularly irritating cough, known in Philadelphia as "Hog Island Whoop." In cases where one did not care to use morphine, benzyl benzoate was a distinct palliative. Dr. Macht had made a very useful discovery.

Dr. ALFRED H. HESS of New York said that following the use of papaverine for spasm of smooth muscle, he had used it in pylorospasm and the effect of the drug on this condition could be well followed by the x-ray pictures. The normal diameter of the infant's pylorus was 15 mm. By the use of bismuth pills graduated in size, it could be shown that the spasm had relaxed and that the pill had passed the pylorus. Subcutaneous injections of benzyl benzoate had a distinct effect in relaxing the pylorus. The normal pylorus did not seem to be relaxed by the drug, and the pills would pass through whether or not papaverine was used. The remedy was of value in temporary conditions rather than in chronic ones.

Dr. MACHT in conclusion said that he believed that the papaverine group exerted its action peripherally. This was the therapeutic action of all papaveraceæ. Benzyl esters had action on the central nervous system. With very large doses one could get convulsions and respiratory paralyses. The peripheral effect on smooth muscle predominated, however, and he had not found that there was any particular effect on striated muscle. In regard to the toxicity of the benzyl esters, the herbivora apparently could stand a much larger dose and could metabolize it better than carnivora. As much as 20 c.c. per kilo weight could be given to an animal without bad effect. There might be a sedative effect in very large doses. An emulsion of benzyl benzoate had been made which could be easily taken by mouth. In regard to cases where cough was relieved, he could not say whether this was a central effect or not. In pylorospasm it acted better in infants than in adults. It was of use in spastic enuresis in adults and children due to hyperirritation of the bladder or sphincter.

Acute Pancreatitis in Typhoid Fever.—Dr. T. McCRAE of Philadelphia read this paper. The patient had a case of typhoid fever which ran an ordinary course, the temperature being normal on the 24th day. On the 26th day he complained of pain in the upper right quadrant, there was jaundice, and the leucocytes numbered 20,000. Two or three days later the pain subsided and leucocytes dropped to 10,000. Eleven days later there was a definite mass in the region of the gall-bladder, somewhat tender, and a diagnosis of cholecystitis was made. The next day the pain was very severe and bloody stools were passed, blood was present in the urine, and large amounts of blood were vomited. The leucocytes were 26,000. The symptoms subsided for a time when the pain again increased. On the 54th day of the illness operation was performed. It was found that the gall-bladder, duodenum, stomach, and bile ducts were normal. The pancreas was swollen and inflamed. The abdomen was closed and the patient made a good recovery, and in 3 weeks the mass disappeared. On the 82d day he was discharged perfectly well. Points to be observed in this case were that there was very little fever, never complete stoppage of bile, the stools showed no evidence of pancreatic disease. The question then arose—how often was acute pancreatitis mistaken for acute cholecystitis? How often was acute pancreatitis associated with typhoid

fever? The question of hemorrhages was to be considered and this case was presented in order to correct possible errors of diagnosis.

Dr. E. LIBMAN of New York said that this case possessed great interest for him. He had seen the picture in cases in which he had suspected a mild form of pancreatitis. He thought a certain form of pancreatitis occurred in acute infectious disease. It might occur in suppurative conditions after abdominal operations. He believed that diagnosis of acute pancreatitis was not so difficult as it was supposed to be. In making an autopsy on a case of acute hemorrhagic pancreatitis an infiltration on the left side was found. In these cases there was tenderness of the left lumbar region, marked even in patients not sensitive to pain. The relative sensitiveness of the patient to pain was important. It was much more apparent in some patients than others. In acute pancreatitis the pain on the left side could always be elucidated and this was found in no other condition. Another symptom was that in these patients below the ensiform cartilage there was a clear zone and below that again a tympanic note. In cases with a small stone in the ampulla of Vater pain was reflected along the left iliac fossa going to the back, but in none of these cases was there distinct lumbar tenderness on the left side.

Dr. W. TILESTON of New Haven asked if there was any attenuation of amylase in the urine, which was supposed to be a sign of acute pancreatitis.

Dr. MCCRAE, in conclusion, said that there was no tenderness in the left lumbar region in this case. A careful examination was made because when the hematuria appeared it was thought that there was a condition in the kidney producing this symptom.

The Clinical Manifestations of Tropical Sprue.—Dr. E. J. WOOD of Wilmington, N. C., presented this communication. He stated that there had been a great increase in the number of sprue cases in North Carolina, South Carolina, and Georgia. He had seen cases of tropical sprue from the Far East and from Porto Rico as well as in the Southern States: There was only one type in all cases. Sprue was often confused with pellagra, especially by certain English writers. It was no doubt true that many cases of pellagra were complicated by sprue. Sprue needed special attention at this time because it had appeared near many of the Southern cantonments. The symptoms appeared chiefly in the tongue, in the form of small painful erosions. In the diarrhea of sprue the feces were tremendously acid in reaction, yeasty, and passed during the early morning hours. They showed marked loss of fat, as much as 59 per cent. The nitrogen loss was 15 per cent. Functional deficiency of the pancreas was evident in most cases, but not in all. Anemia in sprue was an essential feature. The absence of anemia in pellagra was a distinguishing feature. In sprue the anemia appeared similar to pernicious anemia. Shrinkage of the liver was seen in both conditions. The stomach content changes were fairly similar in both cases and showed a decrease in hydrochloric acid. The beer treatment of Cantley had been found the best.

Major WILLIAM H. WELCH of Baltimore said that in his observations on the control of pellagra by diet he had found buccal lesions and gastrointestinal lesions which might be referable to sprue. He would like to know to what extent pellagra was complicated by sprue. Goldberger's work would seem to show that this was one of the most difficult and perplexing questions. Not a single case of pellagra had been found to develop where diet was properly supplemented. This question of confusion between sprue and pellagra was an interesting and important one.

Dr. E. LIBMAN of New York said that three or four years ago he had seen a case of secondary sprue. He had asked about the loss of knee jerks and absence of hydrochloric acid but had been told that no examination had been made of the stomach contents. In this case Dr. Wood said that examination had been made; was there diminution of acidity?

Dr. A. MCPHEDRAN of Toronto said that a few years ago he had seen a lady, a missionary's wife, who returned from India much affected. Her condition was very grave, with extreme anemia, but there was no material loss of weight. Diarrhea was marked. The tongue had a rather glazed smooth appearance. She

had recurrent attacks of vesicular stomatitis. No treatment produced any effect until she tried the strawberry diet, three or four pounds a day, and she improved on that and for two summers was greatly improved. Two years later she became pregnant and had a marked mitral stenosis. It was believed best to do cesarean section 3 weeks before term. The child was viable. The woman did well for a few days then developed sepsis and died.

Dr. S. SOLIS COHEN of Philadelphia said he had seen a teacher returned from Porto Rico with an undoubted case of sprue. She showed very marked nervous and mental symptoms. He would like to know what was the experience of the members as regards the association of mental symptoms, whether this was a coincidence or not. Looking up the literature on the subject he found that British writers advocated treatment by santonin. This patient received this treatment and recovery followed. Was that the general experience?

Dr. T. R. BROWN of Baltimore said that he had seen two cases from Porto Rico. The stomach contents showed complete achylia. Under treatment the stomach contents returned to normal as regards hydrochloric acid.

Dr. WOOD, in conclusion, said that Dr. Welch had mentioned the work of Goldberger; he was evidently in close touch with the situation. He did not think there had been any work in American preventive medicine more important than this differentiation between the two diseases, unless it were the work of the Rockefeller Institute on uncinariasis. The point to decide was when did sprue begin to complicate pellagra. The pellagra tongue had a different appearance, showing a much deeper red accompanied with profuse and painful salivation. In sprue the tongue was furred and dry because of the absence of salivation. The intake and output of nitrogen had been studied in the two diseases, and in pellagra this was normal. Pellagra was a seasonal disease running from May to August. In sprue the diarrhea, instead of ending, continued; the stools were light colored and more acid. Anemia was not associated with pellagra. Anemia in sprue was essential for diagnosis. In answer to Dr. Libman, there was an absolute absence of hydrochloric acid in sprue. In regard to the nervous disturbances mentioned by Dr. Cohen, these were marked in pellagra and perhaps the case mentioned was really one of pellagra and not sprue. Dr. McPhedran referred to the strawberry diet; that had not been found of any service. Santonin and emetine had been discarded as worthless. No treatment except dietetic control and rest for a prolonged period had been found of any avail. He had a patient with sprue, a New Hampshire man who had never been South. When the man came in he was supposed to have carcinoma of the stomach, but it was found that he had a case of typical sprue. The patient survived three years. He had lived in New Hampshire and Boston all his life.

Further Observations on the Bacteria of the Intestinal Tract.—Dr. W. W. FORD of Baltimore made this presentation. The Gram positive bacteria found in dejecta were found to be aerobic forms due to ingestion of milk, water, etc., and occurred in foods upon which children were nourished. A study was made to find out if these large Gram positive organisms could be anaerobic. The stomach and portions of the intestinal tract of calves were studied. Large Gram positive organisms were obtained from every part of the intestinal canal. It was the same in Princeton or Baltimore, the Gram positive spore bearing bacteria were found normal to the intestinal canal. Anaerobic cultures were always negative, the organisms were always aerobic. Differences were found in organisms grown in intestinal juices and those grown on artificial media. A search was made to see if encapsulated bacteria could be found in the dejecta and by a new method of staining by carbol fuchsin (which proved a valuable contribution to bacterial technique) it could be determined whether there were capsulated bacteria in the intestine or not. It was proved that there were no encapsulated forms present above the ileocecal valve. Below this valve there were present Gram positive organisms encapsulated, of the morphology of the gas bacillus. Aerobes were found above the valve, anaerobes below the valve. The general applicability of these facts to man was then con-

sidered. In Baltimore milk there were present spore-forming gas bacilli. In the neutralized whey were found hemolytic substances, due to bacteria. These were toxic for rabbits and guinea pigs in subcutaneous inoculation. If the whey were filtered, the filtrate was also toxic. It was found that milk cultures of the gas bacillus were always poisonous to animals. Work was now being done to determine whether this organism was vegetative in the intestinal tract. It would then be possible to determine whether this bore any relation to the question of the production of scurvy by the feeding of children with pasteurized milk.

Dr. W. H. WELCH of Baltimore said he would like to know whether toxin had been demonstrated in the milk and if so whether the carbohydrate content of the milk had been reduced. Gould had used the minimal amount of carbohydrate and had examined the toxin after 24 hours. The reason the toxin was overlooked was that if the carbohydrate were not changed the acid formed was destructive to the toxin. Eighteen hours was too early to look for the toxin. Search for the toxin could be made after the reduction of lactose. Dr. Flexner had received a letter informing him that the British had taken 100 tetanus horses and were immunizing them against the gas bacillus toxin, in order to have an antitoxin against tetanus and the gas bacillus. They could thus control tetanus and gas gangrene at the same time. It was hoped that a trivalent serum could be obtained against tetanus, gas gangrene, and trench fever. All infection could be controlled by a single dose.

Major S. FLEXNER of New York said that the factor influencing the degree of toxicity of the cultures which Dr. Ford had described was the control of the carbohydrate. There were at present unknown differences in the toxin producing powers of the various strains of the Welch bacillus, these were similar to conditions relating to the diphtheria bacillus. He believed that the New York acid diphtheria bacillus strain No. 8 was in use all over the world. It was known to produce very active toxin. This was true also of the Welch bacillus. Dr. Bull found one strain which was superior to the others in antitoxin producing power. It surpassed the English strain No. 617 in this respect. In regard to milk cultures, the toxin producing power should be determined not only in milk but in other media. There were thus two factors, the carbohydrate control and the toxic power, to the latter of which there was an almost infinite degree of gradation.

Dr. S. J. MELTZER of New York said that he was interested to hear Dr. Ford say that there was spore formation of the gas bacillus. Was any attention paid to the tetanus bacillus, whether it had spore formation?

Dr. FORD, in conclusion, said that he had tried two methods of increasing the toxicity of the milk cultures: (1) he had tried to get milk whey in which lactose was taken away, but the gas bacillus did not multiply well in milk of that character; (2) the acidity of the milk was then neutralized by the addition of powdered chalk and it was found that the filtrate from such milk cultures had more marked toxicity. Dr. Flexner had brought up an interesting point. In the study of pasteurized milk they had been forced to limit their observations to study of such organisms as might be obtained from this source. The gas bacillus obtained from soil and other sources would be more poisonous than that from milk. The variation of toxicity in strains was marked. The first culture obtained had a high toxicity which gradually diminished as the result of repeated passage. They never got such a good strain again. The toxic production by the gas bacillus in other media than milk had not been determined. It was premature as yet to attempt to answer the question as to whether pasteurized milk ever would develop poisonous properties. In the majority of cases the gas bacillus existed in the intestinal tract in spore form but observations so far did not indicate that there was any vegetation there. Probably the same thing would hold good for the tetanus bacillus.

The Tension of the Gases in the Afluent and Effluent Blood of the Lungs.—Dr. R. G. PEARCE of Cleveland, O., presented this paper. The writer stated that the method of determination of tension of gases was

the most rational and direct method for testing the functional capacity of the heart and lungs. It had been used for determining the amount of improvement in the lungs after gas attacks. The amount of the work of the lungs with that of metabolism was correlated. In passing through the lungs the blood lost a percentage of oxygen and by increase of metabolism there was also increase of oxygen and more carbon dioxide than usual. Thus the determination of the carbon dioxide tension as the blood entered and left the lungs would give a very good indication of the ability of the circulation to cope with the needs of the body's metabolism. In order to find this the percentage of the carbon dioxide in the alveolar air at a certain level of metabolism was determined. With moderate exercise it was found that there was parallelism between the oxygen metabolism of the effluent and the affluent blood. With superventilation or hyperpnea there was a marked decrease in carbon dioxide tension. The method was applicable to cases where it was necessary to determine the respiratory capacity in respect to metabolism. In soldiers who had been gassed there was a considerable impairment of the respiratory capacity.

Dr. C. F. HOOVER of Saffordville, Kan., said he had seen a man working at the Panama Canal seized with a sudden attack of air hunger, when climbing a small slope. The paroxysm came without warning. In experiments with this patient later it was found that raising the body from the floor by straightening the arms would at once cause a marked attack. The radial pulse disappeared, the other pulses remaining normal. There was a brachial rigidity but the blood pressure on the leg was not affected. In that man there was superventilation beyond the demands of the gaseous metabolism. In this case there was a history of hemoptysis several years ago. There was a slight lesion in the apex of the lung, but no enlargement of the heart. Evidently the condition was a tuberculous mediastinitis. Dr. Pearce's metabolic study showed the reason for the unusual condition of the lung ventilation and offered proof of peripheral control of ventilation through the peripheral nerve supply.

The Respiratory Significance of Moisture in the Air Spaces of the Lungs.—Dr. C. F. HOOVER also read this paper. In the study of gassed men in France it was seen that large quantities of foam issued from the nose and mouth while there were cyanosis and air hunger. There was a disparity between these two symptoms. In ordinary cases cyanosis would appear before air hunger. Introduction of oxygen, while it relieved cyanosis did not alleviate the air hunger. The men would not tolerate the oxygen mask over the face. They felt more comfortable breathing atmospheric air. The reason of this was that the respiratory spaces were all full of foam. In some bronchioles there was CO_2 and in some the oxygen was minus. Thus giving oxygen might not get rid of the CO_2 . This was similar to pneumonia where the consolidated lung was contributing unrespired blood. Unless the CO_2 was removed, giving the oxygen caused no effect. When the CO_2 pressure in the blood was removed, oxygen could be given with relief of symptoms.

Dr. S. J. MELTZER of New York said he had read an article on the use of oxygen in pneumonia; he had used a different method. He had no experience of cases in which there was fluid in the trachea or bronchi, but in regard to pneumonia and cardiac disease the method he had used for administration of oxygen had immediate effect in removing the cyanosis, and the subjective symptoms were relieved, even in cases where the patient afterward died of heart disease. The mask was not a comfortable one. It really absorbed the quantity of carbon dioxide which the patient spontaneously released. The method of choice by means of a depressor on the tongue would drive out mechanically through the nose all the excess of carbon dioxide.

Dr. A. MCPHERAN of Toronto asked if oxygen was given subcutaneously to produce the effect.

Dr. HOOVER said that when a man had consolidation of the right lower lobe in pneumonia and no other sign of involvement, and oxygen was given, the cyanosis disappearing, it was a very difficult problem to say why one had got rid of the cyanosis. Cyanosis was due to unoxidized blood in the aortic stream and that would not be touched by giving of oxygen. Regarding

the subcutaneous or intravenous use of oxygen, one would be so little apt to use this method that it could be considered negligible. The problem was why did the cyanosis disappear and not the air hunger, and this was only to be explained on the basis of unoxidized blood.

The Practical Value of Diphtheria Toxin-Antitoxin Injections in Immunization, as Determined After a Test of Three Years.—Dr. WILLIAM H. PARK of New York read this paper. Evidence, he said, was accumulating each year as to how long the immunity would last after toxin-antitoxin injections; also evidence as to the harmlessness of the procedure—two features which constituted the value of the immunization. Young infants under six months of age were protected by immunity inherited from the mothers. After this age the inherited immunity rapidly decreased and at 2 years of age children were least protected and consequently the greatest number of deaths occurred at that age. At ten years of age the mortality was one thirtieth that in the second year. In regard to the harmlessness of the injection, careful study had shown that earlier procedures were lacking in sufficient care. The meat in which the diphtheria bacillus was planted was allowed to ferment. Lately a whole broth was made, heated, and no fermentation took place. Some 10,000 cases of immunization had been done and no death had occurred. Four cases of collapse had happened in that number. Within the last six months there had been no untoward results. Twenty per cent. of children had shown a slight rise of temperature. From one to three units could be given with perfect safety. In regard to the duration of immunity it would seem as if artificial immunity in 80 per cent. of cases would be as permanent as natural immunity. It had not dropped off more than 2 per cent. in two years. If it should be lost the child could be immunized again with equal effectiveness. The immunity at birth was found in 80 per cent. of children. It dropped to 60 per cent. in the second year. Non-immune mothers had non-immune children. Immune mothers always had immune children. In regard to frequent testing for immunity it was easier now to give a toxin-antitoxin injection than to perform the Schick test every three months.

Dr. A. F. HESS of New York said that at the Hebrew Asylum the children giving a positive Schick test were immunized by toxin-antitoxin injection. There had been no cases of diphtheria in the institution in the last two years. At first all cases giving a positive Schick test were immunized, but babies were found to be immune at first and then lose their immunity; thus it would seem best to immunize all individuals during the first six months of life in order to render the institution free of diphtheria. Untoward reactions had been occasionally noted in children of 3 or 4 years, thus one child had an immediate collapse with fever, vomiting, and diarrhea. Recent procedures had been found very harmless, however, and it could be said that as complete an immunity could be obtained in the case of diphtheria as had been done by smallpox vaccination. Dr. Park felt now that all the protein reactions could be avoided and the technique made entirely harmless.

Transplantation of Tuberculous Lymph Nodes.—Dr. C. T. RYDER of Colorado read this paper, in which a new experimental method was outlined. The experiment was the transplantation of infected tissue of diseased animals into healthy tissues of normal animals. Tuberculous lymph nodes were used. Guinea pigs were infected with small doses of virulent human bacilli and when the lymph nodes became markedly enlarged they were transplanted under the abdominal skin of healthy animals. When these animals' inguinal nodes became enlarged they were transplanted into a third series of animals and so on. The skin was found to heal in two weeks, the gland remaining in place without inflammation; the first week it acted as a free foreign body and if the node sloughed out the host escaped infection. The second week adhesions took place and blood vessels from the host's tissue began to penetrate the implanted node. In three to five weeks the host's inguinal nodes enlarged and ulceration took place and within two to four weeks there was generalized tuberculosis. The tuberculin reaction remained negative. If a second node were implanted the ulcer would open, discharge, and heal, but the first ulcer never healed.

With other tissue, such as spleen and liver, the results were essentially the same. The complete experiment would, of course, be the transplantation of the entire tuberculous organ, but as yet the technique had not been mastered.

Immunity in Cancer.—Dr. F. C. WOOD of New York read this paper. He said there was no branch of medical investigation which had suffered so much from lack of accurate thinking and correct nomenclature as the cancer problem. These facts had caused a great deal of work which need not have been done had the exact conditions been appreciated. Connected with the idea of immunity in cancer were four different phenomena. Spontaneous disappearance of primary tumors might occur, sometimes following no interference, sometimes following infection, sometimes after partial removal by operation; this had been considered due to immunity. There was, however, no evidence that this was immunity. Disappearance of primary tumor often coincided with growth of metastases. The so-called organ immunity was not real, because if tumors were implanted in the spleen they would grow as well there as elsewhere. The fact that metastases did not take place in the spleen was because of vascular conditions. Disappearance of tumors in animals was very infrequent. The failure to implant a tumor in an animal and its resistance to a second implantation had been considered immunity, but in these cases a second tumor might appear and grow. These errors had arisen from transferring the nomenclature of bacteriology to the question of tumors. Cellular extracts, filtrates, etc., had been prepared and colloidal material and lecithins used to produce immunity. None of these preparations influenced the growth of an already established tumor. The tumor could not be considered separable from the host, but was identical with the host's normal structures. The idea of stimulation of the body against the tumor had been held and autoagglutinins had been produced. These were different, however, from cytolytic antibodies. Lymphocytosis had not been found to have any influence upon the growth of tumors and it had to be stated that the problem of immunizing the body against a tumor had still to be worked out.

Studies of Chronic Myocarditis.—Dr. H. A. CHRISTIAN of Boston made this presentation. In the recent studies of the heart by means of the electrocardiograph there had been a tendency to emphasize the importance of the valve lesion rather than myocardial function. Most cases of myocardial insufficiency were called mitral insufficiency. The thickened valve was not differentiated from that with the orifices enlarged. The pathologist would term such cases myocarditis as had demonstrable lesions at autopsy, whereas the physician used the word to mean myocardial insufficiency. Cabot some years ago had found that only 22 per cent. of the diagnoses of chronic myocarditis made during life were found correct at autopsy. Dr. Christian said his experience was different and he thought fewer mistakes were made in this diagnosis than in others. The pathologist and the physician, however, were talking of different things and the terms did not correlate. The autopsy would not show any sign of the interstitial type of myocarditis. Mitral insufficiency was a rare lesion when considered as autopsy material. In analyzing the cases Dr. Christian found that there was a great frequency above forty-one years. In 407 cases, 112 gave a history of rheumatism, 35 had a positive Wassermann, 110 were chronic users of alcohol, 178 had high blood pressure; one-half the cases had chronic nephritis. Overeating was difficult to estimate as a cause, but 118 persons were overweight. In conclusion, it could be said that the condition was a very common one; the change was primarily in the heart muscle. The cause could not be determined. At autopsy a large percentage showed no changes in the coronary valves and no enlargement.

Dr. E. LIBMAN of New York said that it was an important matter that the disease of the myocardium should be studied. Dr. Christian had made a very appropriate study. Dr. Libman disagreed on the question of terminology. He did not like to use the term myocarditis interchangeably with the term myocardial insufficiency. He believed that one should try to find a cause for the myocardial insufficiency. If there was a history of rheumatism there might be a true myocardial lesion, but with syphilis the disease would be arterial.

With diffuse arteriosclerosis of the coronary system there must be muscular lesions to get myocardial insufficiency. One should see if the patient was anemic. Transfusion had often removed the cause of myocardial insufficiency. Bleeding fibromata, thyroid disease, might be the underlying cause of myocardial insufficiency. In myocarditis there were definite electrographic changes shown. It would be more correct to speak of mitral insufficiency than to speak of myocardial disease. Dr. Libman said that he could speak from personal experience upon the probability of focal infection causing myocardial symptoms. He had suffered from an infection of the sphenoidal sinus accompanied by definite myocardial distress.

Dr. S. S. COHEN of Philadelphia said that he wished to remark upon the nomenclature. Da Costa used to call these cases dilated heart. Where there was actual myocarditis he called it fibroid heart. Dr. Cohen said he preferred to speak of "myopathics" and not commit himself as to whether there was definite myocarditis or not.

Dr. H. S. PLUMMER of Rochester, Minn., said that one must consider if there were damage to the heart by overloading, either by high blood pressure or hyperthyroidism. The latter was a very common cause of myocardial insufficiency. It had been recognized that one-third of the cases were due to adenomata of the thyroid. These probably originated in fetal rests. They were different from the condition of Graves' disease. The adenomatous tissue developed postnatally and was erratic in development, so that all degrees of thyroidism were obtained without regard to the thyroid demands of the tissues. This condition was constantly overlooked by the best men. These patients ran a metabolism 30 to 50 per cent. above normal, and this would drop to normal with the removal of the adenoma. The abdomen might be full of fluid and yet be perfectly normal within three weeks after the excision of the adenoma. Blood pressure in these cases was due to increased minute volume flow through the right heart.

Dr. S. J. MELTZER of New York asked what Dr. Christian thought about nicotine; did he consider that was among the causative factors? Sixteen years ago a man had come to him with a cardiac condition. He told him he had extra systoles and advised him to stop smoking and face the music. The man then went to Osler, who told him "neurasthenia," which was no doubt also true. The man died of angina pectoris and pulmonary edema. He was not willing to stop smoking and face the music.

Dr. A. STENGEL of Philadelphia said he thought myocardial insufficiency and myocarditis were two different things. A patient dying from aconite poisoning was not dying from myocardial disease, but was surely dying of myocardial insufficiency. In hyperthyroidism the patient was suffering from myocardial poisoning, but not necessarily from myocardial disease. The diagnosis of acute myocardial disease was exceedingly difficult to make. In the absence of evidence of valvular disease one was justified in saying myocardial disease, but many of these cases cleared up when some focus of infection was removed and it was proven that the myocardial symptoms were but a manifestation of the toxemia. Myocardial insufficiency should be separated from myocardial disease. The latter called for treatment directed to the circulation itself and removal of the cause of toxemia. It was almost impossible to determine at the bedside whether the patient had myocardial disease or simply myocardial weakness. The weakness was due to depression of the sensory motor mechanism rather than disease of the muscle itself.

Dr. H. A. CHRISTIAN, in closing, said that he did not care what the condition was called so long as the doctors defined their terms. There were as many objections to the terms offered on the floor as to the word myocarditis. They went from the frying pan into the fire. In the cases studied the chief lesion was cardiac. All were advanced cases. Most of the patients were dead. They were not cases of anemia or of thyroid disease; the cases did not occur in a goiter belt and there was no evidence of thyroid hyperactivity. Most of the patients had normal electrocardiograms. Nicotine could not have played an essential part as there were as many women as men among the patients. Therapy gave only temporary effect; they all reacted well to digitalis.

The Etiology and Pathology of Rocky Mountain Spotted Fever.—Dr. S. B. WOLBACH of Boston read this paper. This disease was characterized by diffuse hemorrhages and necroses of the skin, fingers, toes, and genitalia. It was transmitted by the tick (*Dermacentor anisoma*) and was prevalent in Oregon, Idaho, Wyoming, and California, and was spreading eastward to Montana. It was a disease of the peripheral blood vessels, caused by a minute parasite, in the form of small bipolar bodies. The reaction of the body was by proliferation of large multinuclear phagocytic cells. The organism was found distributed in the smooth muscle fibers. The disease could be duplicated with great accuracy in susceptible animals. Microscopical studies showed that the organism was paired, lanceolate, and surrounded by a halo. In infected animals the tissues became flooded with the organism. At present the organism had not been successfully cultivated. It had very little resistance to heat and drying. In its selection of tissues it was extremely specific.

Dr. WILLIAM H. PARK of New York asked if the doctor had been unable to get any cultivation.

Dr. S. B. WOLBACH said he had tried spirochete media and protozoa media, but comparing it with other organisms it was found to survive less in defibrinated blood and citrated blood than did spirochetes or trypanosomes.

(To be continued.)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

NEW YORK STATE BOARD OF MEDICAL EXAMINERS.

January, 1918.

(Continued from page 926.)

CHEMISTRY.

1. Discuss the digestive action of pancreatic juice.
2. On what theory is dialyzed iron used in arsenic poisoning?
3. Name the halogens in their order as to chemical affinity. What are the general characteristics of the halogens?
4. Describe a test showing the presence of strychnine in the stomach contents.
5. Discuss urea, giving its formation in the body, and a method used for its detection.
6. Discuss the significance of increased phosphates in the urine.
7. What chemistry is involved in the coagulation of the blood?
8. What is sugar of lead? How is it manufactured synthetically?
9. Give the chemical composition of lecithin. Where in the body is lecithin found?
10. Distinguish between saccharin and glucose.
11. Describe the chemical changes taking place in fats during starvation.
12. After air has been breathed several times, what chemical changes take place in it that make it unfit for breathing?

PATHOLOGY.

1. Give the blood findings in myelogenous leucemia.
2. Describe briefly the lesions resulting from chronic phosphorus poisoning.
3. Describe fatty degeneration of the heart muscle.
4. Describe acute suppurative arteritis.
5. Describe tuberculous adenoma.
6. Describe the gross anatomy of hard chancre.

BACTERIOLOGY.

7. What are the most common organisms found in septic endocarditis? How would you make a bacteriologic diagnosis of this condition during life?
8. Describe the tetanus bacillus. What kind of injury favors the development of tetanus and what prophylactic measure should be employed?
9. Given a pure culture of tubercle bacillus, on what media would you grow it? Describe one variety of tuberculin.

10. What is meant by prophylactic typhoid vaccination? What substances are used for this purpose?
11. How may tetanus antitoxin be administered with hope of success in a patient already having the symptoms of tetanus?
12. Describe in detail how you would examine spinal fluid for meningococci, morphologically and culturally.

DIAGNOSIS.

1. What is the jugular venous murmur? What is its diagnostic significance?
2. At what period after infection do the secondary skin symptoms of syphilis appear and what is their chief characteristic?
3. Describe eczema and give its diagnosis.
4. What is meant by the term "girdle pains"? When persistent of what is it significant?
5. By what sign is one able to localize the site of a lesion involving a facial nerve and causing a simple, uncomplicated facial palsy?
6. Describe the symptoms and the clinical course of suppurative phlegmon of the tonsil.
7. What are the symptoms of inflammation of the frontal sinus?
8. State the symptoms suggestive of the presence of a mediastinal tumor. Differentiate it from tuberculosis, empyema and aneurism.
9. Name five common conditions occurring between the pylorus and the ileocecal valve that are attended by hemorrhage into the cavity of the bowel.
10. Differentiate between a tumor in the right abdomen due to a distended gall bladder and that due to a hydronephrotic kidney.
11. Differentiate between a renal calculus impacted in the right ureter and chronic appendicitis.
12. In what respect does the onset of edema due to renal diseases differ from that of edema due to cardiac disease?

ANSWERS.

CHEMISTRY.

1. The *digestive action of the pancreatic juice* is due to its enzymes. *Amylopsin*, an amylolytic enzyme, hydrolyzes undigested starch or dextrin to maltose, and later on this is converted into glucose, fructose, and galactose. *Trypsin*, a proteolytic enzyme, hydrolyzes protein to amino-acids, at the same time yielding proteoses, peptones, and polypeptides. *Steapsin*, or pancreatic lipase, converts the fats into glycerol and fatty acids.
2. *Dialyzed iron* is used in *arsenic poisoning* because the ferric hydroxide changes the arsenic into ferrous arsenate which is insoluble and therefore harmless.
3. The *halogens, in order of their chemical affinity*, are: Fluorine, chlorine, bromine, and iodine.
The *general characteristics of the halogens*: They are all univalent, they form hydrides (which are colorless gases, soluble in water), they are irritant, they have bleaching and disinfectant properties, they combine directly with most metals to form binary compounds (chlorides, bromides, etc.).
4. *Tests for Strychnine*.—If a piece of potassium dichromate is drawn through a solution of strychnine in sulphuric acid it is followed by a streak of color; at first blue, quickly followed by violet, rose-pink, and yellow.
5. Urea, CON_2H_4 , is found in the urine, blood, lymph, perspiration, bile, liver, spleen, brain, and elsewhere in the body. It is a colorless, odorless, crystalline substance, basic in character, neutral in reaction, soluble in one part of water. It is isomeric with ammonium isocyanate. In the body urea is the end product of protein metabolism, and is the form in which nitrogen is eliminated.
The greater part of the urea produced in the body is formed in the liver. The liver cells form the urea from two sources: (1) The larger amount, produced by the liver cells, is derived from the amino-acids which have been absorbed from the small intestine, and which are not required by the tissues; this constitutes the *exogenous urea*. (2) The smaller amount, produced by the liver cells, is derived from the ammonium carbonate, which is the outcome of nitrogenous catabolism, and which is derived from the tissues; some is also

produced by the action of the uricolytic enzyme upon uric acid; this constitutes the *endogenous urea*.

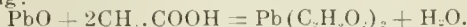
The amount of *urea* eliminated in the urine depends largely upon the amount of nitrogen contained in the food, and also upon the extent of protein metabolism going on in the body. It is increased in fevers, in diabetes, pneumonia (during resolution); it is decreased in diseases of the liver.

The presence of urea can be shown by allowing a few drops of the fluid to partially evaporate on a slide, and adding a drop of pure nitric acid; crystals of urea nitrate will be formed and can be recognized under the microscope.

6. *Increased phosphates in the urine may indicate*: Rich diet, particularly animal food or vegetable food which contains cereals rich in phosphates; increased mental activity; excessive metabolism; convalescence from acute diseases; acute mental and nervous diseases; leukemia; and phosphatic diabetes.

7. "As to the nature of the chemical changes involved in coagulation, opinions differ. It is universally admitted that the corpuscles, particularly the leucocytes and plaques, contain a zymogen, *prothrombin*, from which an enzyme, *thrombin*, is produced. It is also generally, though not universally, conceded that this enzyme causes coagulation by splitting fibrinogen into the insoluble fibrin and the soluble fibrinoglobulin; and that the continued existence of the enzyme in the circulating blood causes death by thrombosis. The presence of calcium salts is necessary to coagulation, as is shown by the prevention of such action by the removal of calcium by oxalates or other precipitants of that metal, and by the fact that oxalate plasma regains its power of coagulation on restoration of calcium salts. As the separated fibrin contains a considerable amount of calcium, it has been suggested that during coagulation the calcium-containing thrombin gives up its calcium to fibrinogen, with the formation of fibrin, while prothrombin, which has a less calcium-content than thrombin, is regenerated, and may in turn regenerate thrombin by combination with calcium salts (Peckel-haring). According to another explanation of the chemism of the process the leucocoeleuin, or nucleic acid of the nucleohiston of the leucocytes, in the presence of calcium salts, decomposes fibrinogen with formation of an albumose-like substance (fibrinoglobulin) and a hypothetical substance, called *thrombosin*, which latter, combining with calcium, forms fibrin (Lillienfeld). This latter view, so far as concerns the activity of nucleohiston in the process, is supported by the fact that solutions of fibrinogen, not spontaneously coagulable, are coagulated on addition, not only of blood-serum, but also of cells, such as yeast, spermatozoa, etc., containing nucleoproteids. These views may be reconciled, with the exception of the supposed existence of thrombosin, upon the supposition that prothrombin and nucleohiston are identical either in kind or in action."—(Witthaus' *Manual of Chemistry*.)

8. *Sugar of lead* is lead acetate. $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2$. It is formed by dissolving lead monoxide in acetic acid and heating:



9. *Lecithin* is a phosphorized fat, containing one atom of phosphorus and one atom of nitrogen. It is probably a derivative of glycerophosphoric acid. The formula has been given as $\text{C}_{44}\text{H}_{88}\text{NPO}_8 + \text{H}_2\text{O}$, but the lecithins are a group of substances with varying composition. Lecithin is found in the brain, nerves, blood, milk, bile, and seminal fluid.

10. *Saccharin* occurs in white crystals or as a white crystalline powder; it is intensely sweet, about 500 times sweeter than sugar; is sparingly soluble in water, about 1 part in 290 of water; on being heated with Fehling's solution it does not deposit cuprous oxide; it does not ferment with yeast.

Glucose occurs as a thick, syrupy liquid, with a sweet taste; it is very soluble in water; on being heated with Fehling's solution a copious red precipitate of cuprous oxide is produced; it ferments if yeast is added to a solution, alcohol and carbon dioxide being formed.

11. Ordinarily the fats are split up into fatty acids and glycerin; the fatty acids are split up into simpler and lower fatty acids, and finally reach the stage of CO_2 and H_2O . During starvation intermediate acids are produced, *e. g.* beta-hydroxybutyric acid; this latter

is oxidized into aceto-acetic acid, and from this acetone is produced the removal of CO_2 . The beta-hydroxy-butyric acid and aceto-acetic acid are found in the blood, and the aceto-acetic acid and acetone are excreted in the urine.

12. After air has been breathed several times, the following chemical changes take place in it and make it unfit for breathing: The oxygen is diminished; the carbon dioxide is increased; small quantities of marsh gas, ammonia, and hydrogen are often present; it has been asserted (and also denied) that small amounts of organic matter and fatigue-toxins are also present.

PATHOLOGY.

1. In *myelogenous leucemia*, the blood shows: An enormous leucocytosis, the presence of myelocytes, increase in mast cells, diminution in the number of red corpuscles, the presence of nucleated red corpuscles, low color index, increase of number of blood plates.

2. *Chronic phosphorus poisoning* presents the following lesions: Periostitis and necrosis of the jaw (generally the lower jaw), followed by sequestrum formation and suppuration; the neighboring tissues may be involved, as well as the bone. In severe or neglected cases both jaws may become involved. General fragility of the bones has been observed.

3. *Fatty degeneration of the heart muscle*. "This consists in the transformation of portions of the muscle fibres of the heart into fat or closely allied substances, which collect in the fibres in larger and smaller droplets, sometimes few in number, sometimes so abundant as almost entirely to replace or conceal the normal striations. This degeneration is sometimes quite universal, but is more apt to occur in patches, giving the heart muscle a mottled appearance. This mottling may usually be best seen on the papillary muscles. The degenerated areas have a pale yellowish color, and the muscle tissue is soft and flabby; but when moderate or slight in degree the gross appearance may be little changed, and the microscopical examination be necessary for its determination. This degeneration may lead to thinning of the walls, or to rupture of the heart, or to inability to fulfil its functions. It is not infrequently the cause of sudden death." (Delafield and Prudden's *Pathology*.)

4. *Acute suppurative arteritis* "occurs in the arteries traversing areas of suppurative inflammation, and results from the extension of the suppurative process. It may also occur in consequence of the lodgement of infected emboli or as a result of infection of thrombi within the vessels. When the process extends from without, the adventitia and then the media are infiltrated with round cells, and in cases of some of the larger vessels there may be visible points or collections of pus. The process may extend as deeply as the intima, and may completely perforate the wall of the vessel, leading to hemorrhage. The intima itself is not directly involved by the suppurative process from the lack of independent blood supply, but the emigrated leucocytes may infiltrate it, and degenerative changes are common in the endothelium. Where the process begins by infection within, as through softened thrombi or infectious emboli there is first necrotic or degenerative destruction of the intima, and subsequently infiltration of the media and adventitia with emigrated round cells." (Stengel's *Pathology*.)

5. "*Tubular adenoma* is very common in mucous membranes possessing tubular glands. Tubular adenomata are usually soft, slightly translucent, and somewhat vascular. The tubes are lined with cylindric cell epithelium. On section, when cut transversely, the tubes appear as circles possessing central lumina and borders of regular cylindric epithelial cells. When cut longitudinally, they often show lateral buds or even bifurcations, the surface ends of the irregular tubules open on the mucous membrane; at the other end they terminate in blind sacs extending to varying depths; the tubes may be so closely packed together as to show but little fibrous stroma; the cylindric cells lining the tubes are usually two or three times as long as normal. This variety of adenoma is prone to undergo malignant transformation, many of the cancers of the rectum and uterus arising from this tumor." (Coplin's *Pathology*.)

6. *Hard chancre*. "At the point of inoculation in a few weeks a focus of inflammation develops—the ini-

tial sclerosis. This may be in the form of a papule or a vesicle, and in either case erosion of the surface is apt to occur and a hardening of the deeper tissues leading to the so-called chancre. In this primary lesion, in addition to more or less fluid and cellular exudate, there may be obliterating endarteritis, a small spheroidal-cell infiltration of the connective tissue cells, especially near the blood-vessels, swelling of the vascular endothelium, and an occasional development of giant cells. This new tissue may become fibrous and the initial lesion heal. Usually in connection with, or following the development of, the initial lesion there is a hyperplasia of the lymph-nodes belonging to the anatomical district of the lesion. These become hard and swollen. These hyperplastic lymph-nodes, called buboes, are not apt to suppurate except as the result of concurrent infection with pyogenic bacteria, but the swelling gradually subsides." (Delafield and Prudden's *Pathology*.)

BACTERIOLOGY.

7. *The most common organisms found in septic endocarditis*, are: *Staphylococcus pyogenes*, *streptococcus pyogenes*, *streptococcus viridans*, *pneumococcus*, *gonococcus*, the bacillus of influenza, *treponema pallidum*, *bacillus typhosus*, *tubercle bacillus*, *bacillus of anthrax* and *colon bacillus*.

The *bacteriological diagnosis* is made, during life by isolation and culture of the bacteria from the blood. The most exact antiseptic and aseptic precautions are necessary; the blood is obtained in a small sterile syringe, from one of the median basilic or internal saphenous veins. Cultures are then made on glucose-meat-infusion agar or broth.

8. *The bacillus of tetanus* is a small, slender rod with rounded ends, and characterized by its peculiar spore formed at one end of the bacillus and giving it the appearance of a pin; it is purely anaërobic, and cannot be developed at all in the presence of oxygen. It is from 2 to 4 mikrons long and from $\frac{1}{4}$ to $\frac{1}{2}$ mikron in breadth; it is slightly motile, and stains with the ordinary anilin dyes and by Gram's method. It generally comes from the soil, and is found in penetrating wounds. It appears in two forms, the spore-bearing form, as described above, and the vegetative form, which is a short bacillus with rounded ends, and which may occur singly or in pairs, or may form long filaments. It grows in gelatin stab cultures in the middle of the medium and the colonies look something like a fir tree; its growth is slow, and a disagreeable odor is at the same time emitted. In bouillon, it grows near the bottom of the tube and produces gases.

Deep, punctured or lacerated wounds, in which there has been loss of tissue, or in which dirt or splinters have become imbedded; also gunshot wounds and compound fractures, are the injuries which favor the development of tetanus.

Prophylaxis consists in thorough purification of all wounds which have been exposed to infection by dirt, and all wounds of the kind just mentioned. Injections of anti-tetanic serum into the muscles of the gluteal region are of value. See question 11.

9. A pure culture of tubercle bacilli may be grown on glycerin bouillon, glycerin potato, or blood serum.

Koch's old tuberculin "is produced in the following manner: Tubercle bacilli are grown in slightly alkaline 5 per cent. glycerin-pepton bouillon for six to eight weeks. At the end of this time, growth ceases and the corrugated pellicle of tubercle bacilli, which during growth has floated on the surface, begins, here and there, to sink to the bottom. The entire culture is then heated on a water-bath at about 80°C . until reduced to one-tenth of its original volume. It is then filtered either through sterile filter paper or through porcelain filters. The resulting filtrate is a rich brown, syrupy fluid, containing the elements of the original culture medium and a 50 per cent. glycerin extract of the tubercle bacilli. While the glycerin is of sufficient concentration to preserve it indefinitely, 0.5 per cent phenol may be added as an additional precaution. Dilutions of this fluid are used for diagnostic and therapeutic purposes." (Hiss and Zinsser's *Bacteriology*.)

10. *Prophylactic typhoid vaccination* is a form of active immunization against typhoid fever by injecting emulsions of dead or attenuated typhoid bacilli.

Substances used for this purpose are: Killed cultures of the typhoid bacillus, bacterial extracts and preparations, living cultures of the typhoid bacillus, sensitized cultures of the typhoid bacillus.

11. In a patient already having the symptoms of tetanus, the antitoxin may be administered:—(1) Intravenously, 10,000 to 20,000 units of antitoxin at once, and repeat the dose if no effect is apparent or if the good effect wears off, in about 18 to 24 hours. After one or two intravenous injections the good effect may be maintained by direct intramuscular injections of from 5,000 to 10,000 units for one or two doses. (2) From 3000 to 5000 units should be given intraspinally by means of lumbar puncture. This dose should be repeated every 24 hours unless the symptoms have markedly ameliorated. A quantity of cerebrospinal fluid should be removed before the serum is injected. (3) If a surgeon is at hand, from 500 to 1000 units of antitoxin should be injected slowly intravenously into the sheaths of the nerve-trunks leading from the infected region. These injections are directed to be made as near the trunk as possible, and to distend the nerve so as partly to neutralize and partly mechanically to interrupt the passage of toxin to the cord or brain. Both the intraspinal and the intraneural injections are given under light chloroform anesthesia. (From Kolmer's *Infection, Immunity and Specific Therapy*.)

12. "The patient should lie on the side, with the back bent forward as far as possible, in order to separate the vertebræ and make the lumbar region prominent. The sitting posture may also be assumed with the back bent forward. A local anesthetic is usually all that is necessary. Very often the patient is comatose and requires none. A long, strong aspirating needle is introduced midway between the second and third or third and fourth lumbar vertebræ, either straight in from the mid-line of the back or about an inch to the side and directed a trifle inward. It should be inserted from 2 to 3 cm. in a child and from 7 to 8 cm. in the adult. As soon as the subarachnoid space is entered the fluid makes its appearance, usually drop by drop; but when large in amount and under pressure, in a stream. The fluid should be centrifugated, spreads made from the sediment, stained and examined for the various bacteria with the oil immersion. The tubercle bacillus, *Diplococcus intracellularis meningitidis*, *Micrococcus lanceolatus*, staphylococcus, streptococcus, pneumococcus, bacillus of influenza, and typhoid bacillus are the chief causes of meningitis. The spread should be stained by appropriate methods."—(Arneill's *Clinical Diagnosis*.)

The meningococcus is a diplococcus, found both within and without the cells, and looks just like a gonococcus. It decolorizes by Gram's method. The presence of such a diplococcus here is sufficient for its identification. Cultures may be made on Loeffler's blood serum, at body temperature; colonies will develop in from 24 to 48 hours. The meningococcus is very hard to cultivate even on this medium, and it will not grow on the ordinary media.

DIAGNOSIS.

1. The jugular venous murmur is a murmur sometimes heard when auscultating the veins of the neck. It is a humming sound, and may be audible over the internal jugular vein just above the clavicle. It may be due to the change in calibre of the internal jugular vein as it passes through the cervical fascia; it may be due to pressure with the stethoscope; or it may be found in patients suffering from chlorosis or anemia, or tricuspid regurgitation; cardiac hypertrophy and dilatation with aneurysm have also been considered causes of this murmur. The flowing back of some of the blood from the right ventricle to the right auricle communicates an impulse to the venous blood entering the auricle from the superior vena cava.

2. The secondary skin symptoms of syphilis usually appear two to three months after infection. They are characterized: By not itching; by being of a copper or raw ham color; by being painless; by polymorphism, macules, papules, pustules, etc., being present at the same time; by being generally symmetrical.

3. Eczema is an acute, subacute, or chronic, noncontagious inflammatory disease of the skin, characterized

primarily by erythema, vesicles, papules, or pustules, and, secondarily, by scales and crusts, and accompanied by itching and burning. The various forms of eczema constitute about 30 per cent. of all skin diseases. There are several varieties corresponding to the most predominant lesion. These may continue as such or terminate in eczema rubrum or eczema squamosum. The diagnosis of eczema is, as a rule, easy. The most distinctive features are: (1) Serous exudation; (2) the gradual merging of the patches into the surrounding healthy skin; (3) polymorphism of the lesions; (4) the symmetry of the eruption; (5) the marked itching and burning.

4. Girdle pain is a sensation as of a constricting band encircling the trunk. It is due to irritative processes in the region of the lower dorsal or upper lumbar nerves. It occurs in tabes dorsalis, chronic myelitis, injury or tumor of the spinal cord and inflammation or tumor of the meninges of the spinal cord.

5. Facial paralysis. "If the paralysis is of peripheral origin, involving the facial nerve only and not constituting a part of a hemiplegia, the eye cannot be completely closed, and the forehead cannot be wrinkled, owing to paralysis of the orbicularis palpebrarum and the occipito-frontalis. The tongue, if protruded, does not in reality deviate from the middle line, as may be determined by watching its relation to the central upper incisors, the genio-hyo-glossus not having been affected. The apparent deviation is due to the pulling of the mouth to the sound side. If the paralysis is of central origin, the upper branch of the facial is but slightly affected, the power of closing the eye and wrinkling the forehead is largely retained, and the tongue deviates toward the paralyzed side, as the genio-hyo-glossus usually loses its power and its healthy fellow is unopposed."—(Butler's *Diagnostics of Internal Medicine*.)

The reaction of degeneration appears in the peripheral form.

6. In suppurative phlegmon of the tonsil, "the onset is usually sudden, and the affection is ushered in by a rigor, high fever, and a feeling of malaise. There is persistent thirst and dryness of the throat, and the patient has the sensation of a foreign body being in the pharynx, with a constant desire to swallow. Swallowing is extremely painful, the pain shooting up to the ears, and the patient has difficulty in taking nourishment. The saliva accumulates in the mouth; the voice is thick and nasal; and the respiration impeded and noisy. If the patient can open the mouth sufficiently to afford a view of the back of the throat (which, however, is seldom the case), the inflamed parts are seen to be of a dull reddish-violet color. One tonsil is often more swollen than the other, and the corresponding anterior pillar of the fauces more prominent. The uvula is swollen and edematous, and is deviated towards the side on which there is least swelling. Suppuration occurs in from three to seven days; in adults it is usually in the peritonsillar tissue of the anterior pillar of the fauces, and extends into the soft palate. In children the pus sometimes forms in the substance of the tonsil. If left to burst, the abscess discharges itself into the mouth, and the patient experiences instant relief. The pus is always offensive, and if the abscess bursts during sleep, it may enter the air passages and cause septic pneumonia. The lymphatic glands in the neck are usually enlarged and tender, and sometimes they suppurate, giving rise to a diffuse septic cellulitis."—(Thomson and Miles' *Manual of Surgery*.)

7. Symptoms of inflammation of the frontal sinus: "Pain, unilateral or bilateral, over the frontal region, which is aggravated by assuming a stooping posture, coughing, blowing the nose, and nasal tones in speaking are characteristic symptoms. The disease may run its entire course without pain. More or less congestion of the nasal and conjunctival mucosa may be noted. The discharge from the cells is at first a thin, stringy mucus, later becoming mucopurulent. The discharge from the cells is sometimes very profuse and continues for a number of days. Upon inspection of the nasal cavity, the thick seromucus will be seen draining anteriorly and in the trough formed by the septum and bony structure dense mucus can be detected emptying into the middle meatus."—(J. J. Kyle's *Diseases of Nose, Ear and Throat*.)

8. "The symptoms of mediastinal tumor are: (1) Engorged veins on the anterior and lateral portions of the thorax, sometimes accompanied by cyanosis and edema of the skin. (2) A marked dyspnea, associated often with a harsh, brassy cough and pain. (3) Symptoms of pressure on the recurrent laryngeal nerves, causing abductor paralysis of one or both vocal cords, usually the left. (4) Dysphagia due to pressure on the esophagus. (5) Dulness over the upper portion of the sternum or adjacent portions of the thorax. (6) Rarely the x-ray shows a distinct shadow. (7) The heart and lungs may be displaced. (8) There may be a bulging of the sternum, which may or may not pulsate. If it does it has the forcible expansile pulsation of an aneurysm. (9) Palpitation of the suprasternal notch and of the deep cervical nodes may confirm the suspicion of a tumor."

"When an aneurysm has not eroded the chest wall it may be almost impossible to differentiate from a tumor. The cyanosis and venous enlargement are more marked in tumor and these symptoms are more progressive. The most valuable signs of aneurysm are the thrill to be felt and the bruit often heard over the sac, and the radiating pains to the arms and neck. The other signs of aneurysm are hoarseness from recurrent laryngeal pressure, dyspnea and dysphagia."—(Eisendrath's *Surgical Diagnosis*.)

In *pulmonary tuberculosis* there will be history of insidious onset, fever, emaciation, anemia, physical signs of consolidation; the lesion is most frequently at the apex, and sooner or later the sputum will contain tubercle bacilli. In *empyema* an exploring needle may find pus; there will be dullness over the effusion, while above the effusion the percussion note is generally higher than normal. Vocal fremitus and resonance are absent over the dull area, and the breath sounds are diminished or absent; there are high and irregular fever, leucocytosis, expectoration of offensive material, and redness in the intercostal spaces.

9. Five common conditions occurring between the pylorus and the ileocecal valve that are attended by hemorrhage into the lumen of the bowel: Duodenal ulcer, syphilitic ulcer of the intestine, tuberculous ulcer of the intestine, carcinoma of the intestine, typhoid ulceration of the intestine.

10.

HYDRONEPHROSIS.

1. A history of renal colic or of intense pain in the region of the kidney.

2. Commonest in hysterical women, after traumatism, and following repeated pregnancies.

3. Pain cramp-like, and may radiate to the pubic region. Dull, constant pain at times.

4. Abdominal tumor develops quite abruptly and disappears suddenly.

5. During the disappearance of the tumor the patient passes a large quantity of pale urine of low specific gravity.

6. The appearance of the tumor is decidedly intermittent.

7. There may or may not be disease of the prostate.

8. Jaundice rare.

DISTENDED GALL-BLADDER.

1. History of pain in the region of the liver. Pain radiates to right shoulder.

2. Occurs after middle life and after several attacks of gall-stone colic.

3. Pain may persist for several hours, and then disappear suddenly. Radiates to right shoulder.

4. Tumor may disappear suddenly, following which there is usually one or more copious bilious discharges from the bowel.

5. Urine bile-stained.

6. Tumor intermittent where it follows hepatic colic, always in right hypochondrium.

7. Prostate normal.

8. Jaundice persistent.

—(From Anders and Boston's *Medical Diagnosis*.)

11. In *chronic appendicitis* there is a history of one or more previous attacks in which no operation was performed, or perhaps the diagnosis was not made; attacks of pain occasionally occur in the right iliac

fossa; there are various digestive disturbances, such as constipation, diarrhea, flatulency; a tender mass may be detected on palpation over the painful area; the pain generally incapacitates the patient for a day or two.

Impacted stone in the right ureter causes colic, which comes on suddenly and occurs in spasms of excruciating pain, which is referred to the kidney and ureter and to the testis and penis. Collapse, cold sweats, nausea and vomiting, retraction of the testis, frequency of micturition and strangury are present. The x-ray may show the presence of the calculus.

12. *Edema due to renal disease* begins in the face and extends downwards, and is generally associated with pallor.

Edema due to cardiac disease begins in the feet and extends upwards, and is generally associated with cyanosis.

(To be concluded.)

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PEPTIC ULCER.*

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THE subject of peptic ulcer continues to hold its interest for the clinician, the surgeon, the bacteriologist, and the pathologist alike. By peptic ulcer we mean an ulcer of that portion of the gastrointestinal tract, the stomach, the duodenum, or the first portion of the jejunum, in which gastric juice is normally present. According to location, therefore, the ulcer is known as gastric, duodenal, jejunal, and marginal. Jejunal ulcer pure and simple is rare, yet it has been recorded and is therefore known as a distinct pathological entity. Personally I have never seen a simple jejunal ulcer. Marginal ulcer is a sequel of gastroenterostomy or a high enteroenterostomy and is by no means very uncommon. I have seen eight cases of marginal ulcer and operated six cases. Jejunal marginal ulcer is, I believe, almost unknown. I have operated one acute perforated jejunal marginal ulcer following a jejuno-jejunostomy; the patient recovered.

It has been estimated that from 3 to 7 per cent. of patients complaining of gastrointestinal disturbance are suffering from a gastric or duodenal lesion in the form of ulceration. From the material furnished by this relative frequency of the disorder, we have been enabled to draw a rather definite clinical picture of the typical case of peptic ulcer, the best description of which still remains that given by Moynihan in his monograph on duodenal ulcer. The etiological factors, however, that give rise to ulceration are not as yet so definitely known. As described by Bolton, based on careful histological studies, the initial lesions are localized necrosis of the gastric mucous membrane, localizing hemorrhage, and inflammation of the lymphatic follicles. The most common cause of necrosis is bacterial infection or its toxins circulating in the blood. Necrosis may arise in this way without a preceding hemorrhage or lymphatic inflammation, but hemorrhage is an actual and frequent cause of ulcer and is likewise due to bacterial toxins acting on the endothelial cells of the capillaries, thus paving the way for the local destructive action of the gastric juice. Finally, inflammation of the lymphatic follicles, particularly numerous along the lesser curvature of the stomach toward the pylorus, may give rise

to a submucous abscess which in turn, by rupture into the gastric cavity, allows the gastric juice to act on the base of the ulceration thus exposed.

Ulcers developing in one or the other of these ways would heal in a normal stomach, but when acted upon by the frequently hyperacid gastric juice they show a tendency to spread rather than to heal, and sudden perforation or hemorrhage is often the first indication of gastric ulcer. Or in the case of simple ulcer the tendency is to become callous with chronic peptic ulcer as the result. There is little doubt but that every chronic ulcer was at one time acute and began in one of the aforementioned processes, the chronicity resulting from failure of the healing process. Thus both the acute and the chronic ulcers, or, as I prefer to call them, the open, and the healing or healed ulcers, may be latent until bleeding in the former, and exacerbation of the latter gives evidence of their presence. Both types, therefore, are a menace unless they present early symptoms. While medical treatment may and in a number of instances apparently does lead to a healing process, especially of ulcer in the stomach, it is doubtful whether a true peptic ulcer, as distinguished from an erosion, ever actually heals under purely medical treatment. Although surgery cannot as yet lay claim to a hundred per cent. of cures, there is sufficient evidence on hand to show that from 75 to 90 per cent. of operated cases that have been so treated are either entirely relieved of symptoms, or so markedly benefited as to require no further medical treatment.

The fact that recurrence does take place in some instances after operation can hardly be considered as a valid argument against operation, especially in view of the fact that it is the exception rather than the rule, while the reverse is probably true with medical treatment. For is not every case that comes to operation an instance of a medical failure or failures?

From the cases with recurrence of symptoms after operation and from those developing marginal or jejunal ulcers, I have gained the impression that these undesirable sequels are more likely to follow in those cases which clinically presented very high free HCl and very high total acidity. An obvious deduction from this observation would seem to be the importance of counteracting the acidity of the gastric juice by diet and medication, in operated patients with unusually high acidity, for some time after operation. The recent work of Hamburger and Halpern (*Arch. Int. Med.*, 1916, xviii, 228) on the inactivating influence of pepsin, of phosphates, chlorides, and carbonates of sodium is suggestive.

*Read at a joint meeting of the Mount Sinai and the Jewish Hospital Clinical Societies, Philadelphia, March 26, 1918.

Excision of a chronic ulcer of the duodenum is, in my opinion, the best method of treatment. From the subjoined table it will be seen that in the 146 operated cases on which this paper is based 37 (30 duodenal, 7 gastric) were treated with excision and posterior gastroenterostomy. All recovered. But unfortunately excision is not always possible, especially when the ulcer is low down in the duodenum. In this location excision is not only difficult and sometimes impossible, but it may also be dangerous, so that oftentimes, especially for the occasional operator, a gastrojejunostomy must suffice. A great many surgeons, prominent among them Sir Berkeley Moynihan, consider the gastrointestinal anastomosis as of itself a sufficient cure for duodenal ulcer. While in full accord with this opinion, I nevertheless deem it the first duty of the surgeon to direct his efforts towards the removal of the diseased area, in other words, cut out the ulcer and follow with a gastrojejunostomy, and you will in all probability cut out the chance of recurrence. And while cutting, do not omit to do an appendectomy, if it has not already been done, and thus remove that obnoxious and most constant source of intraabdominal infection—the appendix. Inspection of the gall bladder and the pancreas is also obligatory and treatment should be directed according to existing conditions of the same. In duodenal ulcer located on the anterior and outer wall of the second portion of the gut, the pancreas is very often involved. It is a delicate organ and is easily affected by infection communicated not only by way of the blood stream, but also by way of the lymphatics from the gall bladder, the stomach, etc. Indeed, this of itself constitutes a valid argument for early operative treatment for duodenal ulcer.

Ulcer of the posterior wall of the duodenum can be satisfactorily exposed and dealt with only by approaching it through the interocolo-epiploic route, to which I shall later refer.

For gastric ulcer likewise, excision is the ideal operation. But here, too, conditions do not always admit its application. It is generally considered best suited for ulcers located at some distance from the pylorus, but it should indeed be the operation of first choice in indurated ulcers, irrespective of location, that is to say, pylorectomy or partial gastrectomy for pyloric ulcers on the lesser curvature where there is no extensive involvement of the stomach wall; circular resection where the latter is the case and excision through an anterior gastrotomy of an ulcer on the posterior wall or simple excision by way of the interocolo-epiploic approach. By this approach the posterior wall of the stomach, the posterior wall of the duodenum, and the pancreas are well exposed. A conservative selection of cases, however, is essential and excision should be attempted only in the absence of encumbering adhesions and where the patient seems able to withstand what often proves a rather tedious operation.

The series on which this paper is based include pylorectomy and posterior gastroenterostomy 27 for chronic duodenal ulcer, with one death and four for gastric ulcer, with no deaths. Subtotal gastrectomy was chosen in nine cases of gastric

ulcer and two of duodenal ulcer, all of the patients recovering.

Twenty-one chronic duodenal ulcers and a few chronic gastric ulcers were treated by posterior gastroenterostomy alone. There was one death in the duodenal cases.

The advantage of excision as against gastroenterostomy with or without plication of the ulcer is that the danger of hemorrhage from the ulcer is entirely removed. I have known hemorrhage from the ulcer after gastroenterostomy to occur and cause death.

While posterior gastroenterostomy alone for gastric ulcer accomplishes the most where the ulcer is located in the pylorus and causes obstruction; it is, even then, not so efficacious a procedure as pylorectomy.

In doing a pylorectomy the stomach and the transverse colon are delivered, the lesser peritoneal cavity opened, and the pyloric and coronary arteries ligated close to where the sections are to be made. With the index finger of the left hand in the lesser peritoneal cavity and carried to the posterior wall of the duodenum, the omental attachment to the inner wall is made prominent by the point of the finger. The latter is then forced through the omental attachment and the omentum grasped at the point of the finger with hemostatic forceps and cut away until enough of the duodenum is freed to permit the application of hemostatic clamps between which the bowel is amputated. The distal end is then closed, surrounded with a purse-string suture and invaginated. Next the omental attachment to the stomach, as far as the point where section is to be made, is grasped with hemostats and divided; two clamps are then applied and the pylorus cut away between the clamps. Both the stomach and the duodenum are cut through with a cautery knife. The opening in the stomach is then closed and the operation terminated with a posterior gastroenterostomy.

Pylorectomy is also indicated in ulcers on the anterior wall of the duodenum which are not amenable to excision. In these it is best to amputate the duodenum below the ulcer and follow with resection of the pylorus. Posterior gastroenterostomy with plication of the duodenum in this type of ulcer is apt to lead to restoration of the lumen of the bowel by absorption of the exudate, in which case the pylorus will again transmit much of the contents of the stomach, and the ulcer again be subjected to their irritation, with recurrence of symptoms as a possible result. This is another reason why excision of the simple ulcer is preferable to gastroenterostomy alone or gastroenterostomy with plication, as the plication is not usually permanent.

In the case of ulcers of the anterior and outer wall of the duodenum which are amenable neither to excision nor to pylorectomy, being too low for either, we must content ourselves with plication followed by gastroenterostomy, although it is not so reliable as excision. This was done in twelve of our chronic duodenal cases, three of which succumbed after the operation.

Careful selection of cases and judicious choice of operation for each case should insure good results. The lack of such can often be traced to

some fault in the operation chosen or in the technique, such as doing a gastroenterostomy alone when an excision is in order, or when a pylorotomy or subtotal gastrectomy should have been done. Or by not making the gastrojejunostomy in the proper axis of the stomach, or sufficiently close to the pylorus or to the end of the resected stomach; or making the proximal limb of the jejunum too taut; or lack of care in suturing the proximal limb of the jejunum so that its lumen will not be distorted; or carrying the first line of sutures too far from the line of the bowel directly opposite the mesenteric attachment and thus carrying the posterior wall of the bowel so high as to produce a spur which will interfere with the free circulation of the bowel contents directly onward and not through the gastrojejunostomy opening into the stomach, thus causing a vicious circle; or by making the opening too large or too small.

As already indicated, where the ulcer occupies the lesser curvature distal to the pylorus and infiltrates both walls of the stomach, circular resection is the proper procedure. In doing this it is not always necessary to add a gastroenterostomy to the operation. In our series of twelve circular resections we found it necessary to finish with a posterior gastroenterostomy in only one instance. The latter is indicated when induration is diffuse and the ulcer located at a distance from the pylorus. In such circumstances it is safer to terminate the operation by anastomosing the proximal jejunum to the antrum.

One of the most serious, if not the most serious, menace of chronic ulcer is, of course, perforation. This complication is said to occur in about 4 per cent. of all cases, but the proportion is probably greater if those cases only are considered that come to operation. In my experience in the Lankenau (formerly the German) Hospital it has been about 10 per cent. during the past two years. The patients all recovered, operation having been performed from two to eleven hours after the onset of the first symptoms; in one case, however, three days had elapsed between the first symptoms of perforation and operation. About 70 per cent. of perforations occur from ulcers on the anterior wall of the stomach, and about 18 per cent. on the posterior wall; the fundus and the cardia being only exceptionally the site of perforating ulcers. This is explained by the circumstance that the anterior wall of the stomach is exposed to the general peritoneal cavity, and is also subject to a greater degree of dilatation and contraction than the posterior wall, and is also more exposed to traumatic influences. The posterior wall, on the other hand, being more rigid and more protected, an ulcer developing at this site is more liable to develop perigastric adhesions from any peritoneal irritation that may occur, and, thus reinforced, it is neither so apt to perforate, nor, in the rare event of actual perforation, is it so likely to induce peritonitis.

Posterior gastroenterostomy, after the ulcerous opening has been closed, is the operation of choice in perforating peptic ulcer, but it should be done only by the experienced surgeon and not by the occasional operator. This was done in three of our perforated duodenal ulcers. In seven the ulcer

was plicated and a gastroenterostomy done, and in the eleventh case of perforated duodenal ulcer a sub-diaphragmatic abscess was incised and drained. In one case of gastric perforation the perforation was closed and drainage instituted, and in two others, after closing the perforation, the gastrointestinal anastomosis was made. There were no fatalities in any of the operated perforating ulcers. Excision of a perforated ulcer as a routine procedure I consider unnecessary. Seromuscular suture of the perforation with linen, without attempting to freshen the edge, is usually sufficient, and where the opening cannot thus be securely closed it may be done by suturing a tag of omentum over it, or the gastrohepatic omentum may be anchored down to the perforation, or the perforated area may be packed off with gauze, as is done in other parts of the abdomen. Drainage is, of course, essential.

In treating suspected marginal ulcers, a gastrostomy is advisable in order to clear up any doubt as to the presence or absence of the ulcer. Usually it is possible to excise the gastroenterostomy field and make a new end-to-end union of the proximal and distal jejunum, following it with a posterior gastroenterostomy at the site of the opening into the stomach made by cutting away the gastroenterostomy, or at another point. But it is better, I think, to close the opening in the stomach entirely, to make a new opening and to join the distal loop of the jejunum to it and the end of the proximal jejunum to the side of the distal limb. In certain cases, where the original operation was done for stomach ulcer, and the pylorus left open, and there is no longer any evidence of the disease, the opening in the stomach can be closed by cutting away the gastroenterostomy and then making an end-to-end union of the proximal and distal limbs of the bowel. I have done this with very satisfactory results.

During the two years, 1916 and 1917, and up to the present time—March 23, 1918—I have operated in the Lankenau Hospital on 145 peptic ulcers, with an immediate mortality of plus 4 per cent. (six deaths). Of these there were:

	Number	Deaths.	Mortality, per Cent.
Chronic duodenal ulcer ..	93	5	5.3
Chronic gastric ulcer	34	1	3
Marginal ulcer	4	0	
Perforated duodenal*	10	0	
Perforated gastric	2	0	
Perforated	2	0	
	145	6	4.1

*One case of perforated duodenal ulcer which arrived moribund and died without operation is not included in the above.

These ulcers were treated as in the table below.

In conclusion let me state that it must be borne in mind that from 3 to 7 per cent. of patients suffering from gastrointestinal disturbances have a gastric or a duodenal ulcer; that it is doubtful whether a true peptic ulcer, as distinguished from an erosion, ever heals under medical treatment; that surgery does not lay claim to 100 per cent. of cures, but there is sufficient evidence from followed-up cases to say that 75 to 90 per cent. of operated patients are either entirely relieved of symptoms, or so markedly benefited as to require no further medical treatment; that every one the subject of

gastric or duodenal ulcer runs one of four risks, chronic invalidism, with which neurasthenia is so frequently associated; sixty chances to one that carcinoma will develop on gastric ulcer, and that 10 to 15 per cent. of chronic ulcers of the duodenum and stomach will perforate, which, if not recognized immediately, means death, and that a small percentage will bleed to death. Let me beg of my hearers not to be afraid to "go over the top," not to be afraid to invade "no-man's land"; in other words, with courage, confidence, and faith, advise radical treatment as against temporary measures—dawdling. For the betterment of the afflicted, pacifists and slackers in medicine are as damnable, as useless, except in causing trouble, as they are in warfare.

	Number.	Died.	Mortality, per cent.
Excision, post. gastroenterostomy:			
Chronic duodenal	30		
Chronic gastric	7	37	0
Posterior gastroenterostomy alone:			
Chronic duodenal	21		1
Chronic gastric	2		
Perforated duodenal	3	26	4
Pylorotomy, posterior gastroenterostomy:			
Chronic duodenal	27		1
Chronic gastric	1	31	3 3
Plication, posterior gastroenterostomy:			
Chronic duodenal	12		3
Perforated duodenal	7	19	10 5
Gastrotomy, posterior gastroenterostomy:			
Perforated duodenal		1	0
Subtotal gastrectomy, posterior gastroenterostomy:			
Chronic duodenal	2		
Chronic gastric	9	11	0
Circular resection of stomach:			
Chronic gastric	11		9
Circular resection of stomach, posterior gastroenterostomy:			
Chronic gastric	1		0
Subtotal gastrectomy, entero-enterostomy			
Marginal	4		0
Closure perforation, drainage:			
Perforated marginal	1		0
Closure perforation, posterior gastroenterostomy:			
Perforated gastric	1		0
Closure perforation, gastroenterostomy:			
Perforated gastric	2		0
Incision and drainage subdiaphragmatic abscess:			
Perforated duodenal	1		0
	146	6	1 1

Included in the above there were: Cholecystectomy, 14.
Appendectomy, 93.

I ask you not to assume the position in ulcer that was assumed years ago in appendicitis at the cost of so many lives. Do not be satisfied to draw your conclusions from the outside, but come with the surgeon and look upon the inside, where the truth is revealed and the mystery is dispelled.

1634 WALNUT STREET.

SOME FUNCTIONS OF CONSCIOUSNESS.

BY GEORGE V. N. DEARBORN, M.D.,

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In these days when a few good psychologists and psychophysiologists are seriously proposing that science throw overboard even the term consciousness, it might prove worth while to consider briefly whether consciousness has not functions in this cosmos of ours that sanction its retention for the service it can perform in our psychological ship,—

which after all is no pirate craft, no submarine.

To my ideation, consciousness is that radiant which is left of a mind when its subconscious aspects have been subtracted. It is immediate awareness, sentient experience, direct and present. It is that wholly indescribable personal knowledge, direct acquaintance with something or other, which is known to all. It is the indefinable psychic aspect, so to say, of all living. It is the flowing actuality of that which in a previous essay I have denoted and in part connoted as cenesthesia. It is the surface of our stream of mind, in content forever changing, yet in its inherent nature as unchanging as the spiral nebulae to be seen and dreamed of in a winter's night. Forever one but forever multi-form; forever the most wholly intimate and imminent concept that the human mind ever can know. From such a standpoint as denotation of what I mean by "consciousness," it will be seen to have functions, purposes, usefulness, meaning-for-life wholly indispensable in our personal nature as we know it. Or, at any rate, such is my thesis now.

Four functions of consciousness (fusing, or fusible at least, into one, from a very broad standpoint) are readily distinguished, as my students already well realize: First, *dischronation* backwards, forwards, and to some extent within the "specious present." Second, *integration*. Third, *happiness* (or at least satisfaction) for its own sake. Fourth, *personal* (and therethrough perhaps cosmic?) *evolution*.

I. " . . . we learn
The while all change and many vanish quite,
In their recurrence with recurrent changes
A certain seeming order; where this ranges
We count things real; such is memory's might."

Thus does James Thomson crystalize for us the first of our four functions of human consciousness.

So far as is known to the present writer, the late C. S. Minot, histologist and embryologist at Harvard, was the first to employ the unusual word *dischronation* in the uses of psychology; but surely the term fills a want. Plainly, it is homologous to *dislocation*, the general function of the body as logically opposed to mind. In this case it is a displacement, in a figurative sense, in the time-series rather than in the spatial series. As such, as a *dischronator*, consciousness has use just as certainly as the material body has use among space-filling entities by its primal contractility and its resulting ability to move or *dislocate* material objects.

These terms are perfectly homologous and therefore of equal force.

In passing, it is noteworthy that in *dischronating* experiences, consciousness also *integrates* them into what practically, if not in theory, is a continuum. It thus gives us a temporal unification and consequent personal identity in a way homologous to that in which also it gives us (this is our second function) our spatial unification.

Dischronation as carried on by consciousness has as part of itself the convincing "associative memory" of the biologists, the lowest substratum of real value which the mechanist as such, already *rara avis*, allows to an epiphenomenal consciousness. They, if not we psychologists, ought to be thank-

ful for this much, for associative memory is of fundamental, indeed of wholly indispensable, importance for the right evaluation of pure mind. With only this much of use, and what it implicates, consciousness would be quite obviously knowledge that is of most worth, and its study a science by itself. Surely it is valuable for its own usefulness.

Dischrationation recalls, then, as well as memorizes, and affords the animal, whatever be his graded complexity, worm or man, a universal means by which it can vitally profit by its past experiences both pleasant and unpleasant, useful and harmful; and by its past dischrationations as much or perhaps even more than by the past immediate experiences. The common libeling of John Locke's philosophy involves usually the omission of this "profiteering" through the dischrationation of past memories and of past integrations. Without these mediate recalls, sensationism would have no persuasive facts on which to stand, much less to erect the firm structure of a philosophy on. With them, through an integrating power of dischrationation, sensationism proceeds on its career of persuasion and perhaps of universal psychologic conquest.

But even so, and with kinesthesia allowed all that belongs and is coming to it, it is impossible at present to accept Professor Warren's tang-estimation of the use of consciousness for intelligent living: "The value of consciousness thus appears to lie, not in any motor role, but in its furnishing the tang of life to each individual." Webster defines tang as "a strong or offensive taste; fig., a sharp specific flavor or tinge," etc. It may not be supposed that Professor Warren intended any such suggestion as this. But far more important in either event is the implication in other sentences of that article that consciousness must be outside of the determination of intelligent living, intrinsically as impotent as the odor, we may say, behind an automobile, because consciousness apart from neural activity can be no cause thought as a transformer of matter and of energy. But brave, yes, almost rashly bold, is the man who today would put his trust in any present definition or in any notion, even, of energy or of matter, and thus of causation!

But that, too, aside, why should it be taken for granted that consciousness is "apart" in any proper sense at all from "neural activity"? Leaving idealistic metaphysics out of it altogether for a moment with its hypophenomenalism, let us hear the very latest authoritative dictum of the physicists concerning the present status of matter and of energy:

"—the electron is made up of pure negative electricity and of nothing else, *i.e.* it contains no 'matter', as distinguished from electricity. Although it is difficult to give a direct justification of this assumption, it is nevertheless in harmony with all of the analogies of the situation, and is contradicted by none of the facts." Atoms made of electrons, electrons of electricity! The nervous eurrent, neurility, is generally judged by investigators to be some mode of chemi-electric progression on an ionic basis,—A. P. Mathews, for example, pioneer. The supposed break, then, in this our suggested consciousness-subconsciousness-neurility metabolism-protoplasm continuum must be just between consciousness and "cerebration" by way of

the subconscious aspects of mind. But fewer and fewer, seemingly, in practice notice this "break!"

But "epiphenomenon" or truer "hypophenomenon," it's all only one as soon as the thinker perceives that protoplasm alive and neurility and subconsciousness and consciousness are the phenomena of a quantum quid perhaps of which we know just one certain thing: That it is, in each individual, the 1. Some writers seem to forget that sometimes it is not a plain logical alternative, either this or that or nothing—that the "nothing" may prove to be just the saving grace that blots out all our psychologic sins. In this case, for example, it just may not be that consciousness either is causal in behavior or else a nauseating (or even lovely) epiphenomenon. For consciousness might be with the behavior-series in space and time and causality so intimately one and inseparable that to speak of it as causal were as superfluous and as misleading as to use the term living as an adjective qualifying protoplasm. Dead "protoplasm" is but the rotting, putrid sarcasm of living matter. In like sense and in like degree even, consciousness without causation in reality may be a paradox, a philosophic joke whereat our great-grandchildren will laugh in glee. "Those droll misgivings of a century ago!" they may say! Consciousness, in short, may prove to be the very *soul* of natural causality.

But the consciousness of man and of some of the knowingest brutes, at least, can look forwards as well as backwards, can anticipate no less than recall, and prophecy as well as remember. This marvel of epiphenomenalism has a cyclopean eye in its forehead as well as a wise occipital protuberance behind. Within the limits of its own personal amount of energy, initiative, and will, whether rational or "capricious" (that is, whether usual or unusual), each individual's consciousness more or less perfectly can determine what it will do; and can foresee that determination. This, quite as plainly as the other, is dischrationation, is dislocating in a figurative sense the consciousness of a later time into the present. On this process, in its phase of constructive imagination, nearly all progress, scientific, artistic, industrial, moral, depends. It plans our evolution.

In like manner, a certain amount of "selectivity" (James) is possible within the "present" experience, a selectivity in part temporal, a true dischrationation, though for the most part spatial (dislocation) or even causal.

As reaction in a possible reader's mind to the foregoing sketch of dischrationation, there is liable to be the objection that the writer is unwarranted in claiming that it is consciousness that dischrationates and thus has this process as a function. Herein, to refute such a complaint, is an opportunity, but I think not the need, for eloquent rhetoric and "heated" argument after the manner of those who debate the algebra of logic and similar antebellum wisdoms. I shall insist only, however, that it possibly may be a matter like pessimism and optimism, suffragism and its anti; a matter of personal *temperament*, that is, a way of coloring one's judgment. But I defy anyone to disprove my insistence that to one probably fairly sane mind at least this power of integrating a series in such a way as to be able to "look before and after" on the reality of events, is wholly *inconceivable* in a mechanism,

even of neurility, without that which we are terming consciousness. Mark that I do not say that it is inconceivable but only that I know that it is inconceivable by myself. Imagine if you please an elaborate electric floor-clock such as one sees in the living-rooms of wealthy clubs. Can my possible reader satisfactorily bring himself rationally to fancy such a mechanism of brass and steel having the power, to say nothing of the practice, of recalling a hesitation in one strike a week before (due to a bit of dust falling off an interior shelf); or of remembering the night when the two intoxicated men nearly knocked it over and cracked one of its delicate organ pipes?

I appeal that such processes of dischronation backwards are powers inseparable from that which we term consciousness; and to our rationality hard to be understood, properly speaking, as functions of mechanisms deprived of consciousness, that is, of in-organisms. And things that are hardly understandable or understood, pro tanto are for the seeker improbable, to him unlikely.

If dischronation backwards be so, then anticipation or prophecy is still more so, for it involves a "higher" sort of intelligence, one far beyond the mechanical performance of "material" neurones. If this be treason to the motivity of "mind"—make the most of it. But a dead neurone "performs" not at all; it merely decays.

II. Our second stated function of consciousness is *Integration*, and in the four "chief categories" of our experience: time, space, causality, and life.

Taking the empirical personality as a conscious going concern of mind and matter, unification certainly is not bestowed by any entity or being of us except consciousness. The nervous system, the hemolymph circulation, the hormones and koliones, and the musculature, to be sure satisfactorily integrate the body's parts into a working organism. But in the writer's humble judgment, the working unification of the phases of the mind into a "*working*" mind, and then of the mind with the body, is not explainable, so far as has been thought out by me, at least, without the agency of consciousness.

Professor Warren, does not hesitate to admit that it is his "*conscious experiences * * * that mean life*" to him. (I believe he would not object even to having this stated as the consciousness of his experiences instead of his conscious experience.) How "life" could have "meaning" apart from conscious experiences *integrated* into the evolutionary nexus, the social and personal "order," it is impossible for me at least to understand. Integration is the "highest," the most inclusive concept of which we know; realized, it is God himself. It underlies meaning, as consciousness underlies integration.

III. *Happiness* (or at least satisfaction) is our third function of consciousness in man and in brute. At its best, this tone is happiness, but as elsewhere I have insisted, always is it satisfaction so long as the individual remains a possible free agent toward his own life-destruction.

Here plainly enough lies the ultimate argument of philosophy for *the Necessity of Liberty*, and that the eternal quietus should be put once for all on autocracy, on militarism, on everything extant that

tends towards the dissatisfying unfreedom of personal mankind. "Give me liberty or give me death."

This function of consciousness needs even less argument than the two that precede it. It is on the same rational base as beauty, "its own excuse for being," for "beauty is truth, truth beauty; that is all we know on earth and all we need to know." Th. Harding Rand expresses it well in his sonnet "To a Deep-sea Shell":

"Fit for the palace of high Seneschal!
Inlaid with colors which the Tyrian King
Vain sought to rival on his royal scroll,
And echoing yet the ocean's trembling string:
Methinks the Master wrought this ivory hall
To please the love of beauty in His soul."

This is as good psychology and philosophy as it is poetry, and the writer has no notion of trying to improve on it in scientific prose. He insists, however, that beauty is a phase and a mode of happiness; and that precisely the same relationship holds here as there. Happiness is part of the "meaning" of life; to some hearts its chief meaning and even its only sanction.

Without consciousness, as even the most antique and mechanistic of my possible readers, it seems likely, would admit, happiness and satisfaction are nonsense-syllables and nothing more.

But after all, happiness does not depend on this argument just presented to force its claim that consciousness through it has one function at least—wholly indispensable in a motor personality in a material and *spatial* world. In the explicit statement of a point of view from the pen of Professor Warren already referred to we read as part of its summary: "The notion that consciousness, apart from neural activity, is an efficient cause of intelligent action is a survival of a prescientific conception of causation. To the modern scientist causation means transformation of matter and energy." Precisely. And every year as the relationship develops between pleasant emotion and efficiency and the larger expenditure of energy plainly motor, does it become more certain, more obvious, more commonplace that this tone of consciousness (namely, happiness, pleasantness, satisfaction) is knit inextricably and indissolubly with the highest motor success in living. The stheneuphoric index,⁶ in technical phrase in a *real* thing, not a fancy nor a bit of phantasy. It works either way. You can force the energy from the euphoric side just as surely as you can feel the euphoria follow from the sthenic side. It's a good rule, and it will work both ways. If Professor Warren prefers to leave such a relationship out of his own personal notion of causation, there are others aplenty, and more and more of them, think I, who will prefer to integrate a bit further—namely, a step at least into the newer conception of matter, of energy, and of mind. "Who then shall arbitrate," and set these three-fold bounds?

Personally, I see no way, in the light of recent conceptions, than to agree that if "it is these *conscious* experiences that mean life to me," these conscious experiences, so far as euphoric or dysphoric at least, are in that life, a part of the motor series which only provides the coarse adjustment, as it were, in our material world of space. But it is the fine-adjustment influence that gives reality, the two

moving ever in each other's work, part of the same enlightening empirical process. Arbitrary discrimination between consciousness and subconsciousness merging into neurility, in short is no longer right, but, a survival of the prescientific conception of conventional authority and habit of thought. Subconsciousness cometh into its own, and apace.

IV. Our last, fourth, function of consciousness, as noted above, is *personal evolution*, through namely, evil, and pain and unpleasantness in particular: Job's great enigma.

The ancient religious argument for struggle and victory thereafter (as opposed to denial and asceticism especially) in my opinion is perfectly sound and probable; we win our real personality only through personal effort in overcoming every besetting influence. Our thesis might do not a little with this in the way of defining a true function of consciousness, for effort, personal, direct, immediate, inhibitory effort in a contest with new conditions, is conscious, and related to evolution if anything whatever be. It is a "meaning of life," part of the essential "intelligence" of living, which Professor Warren in his recent article,^{*} ascribes to mechanism as such. But thus he deems it "incomplete" (p. 620).

Here in our fourth function certainly is one of its incompletenesses! Just as happiness (or at least satisfaction) is an incompleteness, so is pain and so are the reactions in our consciousness, whether painful or only unpleasant, of many of the manifolds of evil that beset our little day.

The argument here is much like that, *mutatis mutandis*, of the preceding function of consciousness. Unpleasantness and pain can no more be crowded out of the psychomotor nexus which is in each case ourselves, than it can be avoided or ignored in the daily routine. The words which would make it seem "apart" do not convince, for they ignore a point of view (already set forth elsewhere and outlined above) which gets to the heart of the matter. This maze is too intricate to be solved by any old-time rule of thumb, presuming as it does to dictate what energy and consciousness are and just where the supposed demarcation between them. "The epiphenomenon is no less a datum of existence than the hypophenomenon," says our defender of this "damarcation"—terms whose very use in such a relation implies that they are but aspects of a noumenon that is an integration, an empirical continuum.

In such a continuum "causation" oftentimes loses none of its efficient working-value for life; but it does lose whatever of meaning it has for logically contrasting epiphenomenon and hypophenomenon in one totality of immediate experience, for example, which both modern theory and universal practice (assumption) suggest as anxiety. In worry and fear, mind and body come together, each "causal" towards the other.

Here we once more see the estimable conservatism and regard for antique authority which objected to "the psychology without a soul"; to the James-Lange theory; to "the new psychology"; to the subconscious phase of mind; to "mind-stuff"; to the application of psychology to pedagogy, etc., etc., etc., which with our own eyes we have seen opposed seriatim and—welcomed, as gradually their friendship to reason in each case became plain.

Now we are objecting to an outworn notion of energy and to its border-lines,—not much unlike the objection which biology has so successfully made to physicist's idea that work must have always a spatial element.

The sciences need to compare notes oftener, and to help each other with their new points of view. For universal integration is the spirit of science, and for psychology in an especially large degree continuity means progress; and progress Life.

REFERENCES.

1. Dearborn, G. V. N.: "Movement, Cenesthesia, and the Mind," *Psychological Review*, XXIII, 3, May, 1916, 190-207.
2. Warren, H. C.: "The Mechanics of Intelligence," *Philosophical Review*, XXVI, 6, November, 1917, 602-621.
3. Comstock and Troland: "The Nature of Matter and Electricity," 1917, page 124.
4. Dearborn, G. V. N.: "The Influence of Joy," 27, 146 ("Mind and Health" Series, 1916).
5. "The Author's Stheneuphoric Index," *Journal of Education*, LXXXII, 4, August 12, 1915, 87-90.

A ROUTINE METHOD OF EXAMINATION AND STUDY OF THE GASTROINTESTINAL TRACT BY THE ROENTGEN RAY.*

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FIRMLY rooted in the domain of diagnostic medicine, the roentgen examination is to-day esteemed indispensable in the study of disease of the gastrointestinal tract. There is, however, an increasing confusion regarding the methods and routine of the examination, which makes it imperative that an effort be made toward the adoption of a definite, systemic routine, based on similar fundamentals, made with similar means, recorded in similar terms.

In the adoption of a particular routine there are many factors to be considered. The size, variety, and class of hospital service or private practice, equipment of the laboratory, the convenience and comfort, the technical and economic status of the patient; all these factors have a bearing on the question. Thus a routine suited to a special sanatorium devoted to gastrointestinal diseases, however effective it may be, cannot be applied to an active, mixed medical and surgical service in a general hospital, where the cases are numerically great and distracting in their variety.

Economic necessity demands that the examination be simplified, in order that it may be within the reach of all who require it, rich and poor alike, and that it may become a routine in clinical examinations and not a special procedure, to be utilized only where examinations are inconclusive.

It is essential, therefore, that the method capable of general application shall have the virtues of expediency, efficiency, and economy (of time and material), and that it shall meet the demands made upon it in both hospital and private practice.

Basis for the Examination.—The consideration of the functional capacity of an organ must concern itself with the study of its anatomy and its physiology. That part of the physiological func-

*From X-Ray Department of Bellevue Hospital.

tion of the stomach with which we are concerned is, in a general way, its motility and secretion, and just as there are physiological disturbances without anatomical deviations, so there are anatomic deviations without apparent physiological changes.

In a general way, therefore, it may be stated that organic pathological conditions manifest themselves by: (1) Deviations in the morphology; (2) disturbances in motility.

Method of Examination.—The methods of examination utilized are as follows:

1. Transillumination of fluoroscopy (roentgenoscopy): (a) General; (b) special—orthodiagraphy.

2. Photographic method—roentgenography: (a) General examination: Single plate—target plate, distance 24-30 inches; direction: dorsoventral, ventrodorsal, oblique, vertical, horizontal, right lateral; (b) Special examinations: Stereoroentgenography—two plates with deviation of tube two and one-half inches, the relation of plate to part remaining unchanged; teleroentgenography—tube plate distance 80 inches; serial exposures; polygram—two to four exposures on the same plate.

The general examinations 1 and 2 are followed in every instance, and the special examinations only where the condition demands it.

Routine.—Preparation for the examination: The patient refrains from the evening meal, taking a soapsud enema before retiring. All medication is to cease before preparation is instituted.

The examination is now made for the determination of the following points: A. What is the gastric motility? B. Is there hypersecretion? C. What is the intestinal motility? D. Has the proper meal been properly taken?

A. Motility Examination.—For convenience, the examination is begun with the motility test. A carbohydrate meal with 20 per cent. contrast salt, bismuth, or barium, is taken for breakfast, and the examination is begun six hours later. No food is taken in the interval.

In stout subjects, the contrast salt may be increased to 30 per cent. Bismuth subcarbonate and barium sulphate are most commonly used. The objection to the subnitrate is the occasional presence of nitrites with its danger of poisoning. The objection to subcarbonate is that it neutralizes the free acid in the stomach, diminishes motor activity and interferes with normal action of the pylorus. The importance of these disadvantages has undoubtedly been exaggerated. According to some observers, particularly Hertz, the most preferable salt is oxichloride, since it does not diminish the acidity of the gastric juice, is not toxic, is palatable, easily suspended and is one and one-half times as opaque as barium sulphate, and slightly more so than the subcarbonate. At this day, however, barium sulphate is the salt most commonly employed. The advantages are its low cost and the absence of disturbances of the physiological condition. It does not in any way affect the acidity of the gastric juice. It also has the additional advantage of being more rapidly expelled from the stomach than the bismuth preparations, its evacuation beginning almost immediately after administration. It is important to bear in mind that the *barium sulphite* is a dangerous poison and should not be mistaken for barium sulphate. The disadvantages of barium sulphate are that it is less opaque than bismuth and much larger quantities are necessary and that it suspends with difficulty. The dose of the barium is necessarily much larger than the bismuth, as much as eighty to one hundred and twenty grams being occasionally necessary. The movement of a barium meal through the gastrointestinal tract differs somewhat from the bismuth meal, not only in its more rapid expulsion from

the stomach but its more rapid movement through intestine.

It has been stated that bismuth exerts a special activity in the small intestine, which delays the progress of both solids and fluids and also induces reflex disturbances, which prolong the emptying time of food stuffs, therefore, for the purposes of studying the digestion and expulsion time of foods, barium is the preferable salt. Among substances which have been used is zircon oxyde, known as contrastin. This is much lighter in weight than the other substances used, interferes less with the normal taste of the meal, and is inexpensive. Cerium and thorium dioxide have also been utilized.

Gastric motility is the result of the reaction between (1) content, (2) tone, (3) peristalsis, and (4) pyloric patency.

1. The content is the two-hundred gram carbohydrate meal, a foodstuff normally more rapidly expelled from the stomach than any other (generally completely in six hours), calling forth no excessive secretion and tolerated even in the presence of the most extensive disease.

If the contrast mixture is to be used for the purpose of studying merely morphology, the medium is unimportant, provided the suspension is sufficient to clearly outline all parts of the stomach. However, in motility study, the nature of the suspension media is very important. For the various foodstuffs vary in their expulsion time, the carbohydrate being most rapidly expelled, the proteids next, and the fats remaining in the stomach for the greatest length of time. Carbohydrates and fat both begin leaving the stomach soon after they are ingested, but the carbohydrates leave rapidly, while the fat leaves slowly, so that the maximum expulsion is attained at the end of two hours, when it slowly drops.

It is because of its rapid expulsion that the carbohydrate is particularly valuable for the purpose of studying gastric and intestinal motility, since the studies may be begun almost immediately after the ingestion of the meal and surely within the first hour. Fats, however, are expelled with more regularity and in a generally slower way, so that where prolonged study of gastric morphology is desired the bismuth fat meal may be utilized. Proteids, however, pass out of the stomach very slowly, the process frequently beginning only at the end of an hour. It is important, too, to note that the amount of secretion present in the stomach after the ingestion of a proteid bismuth meal is much greater than with a fat or carbohydrate meal. Therefore, as a test for hypersecretion the proteid meal has its disadvantages. It may also be of value as a method for stimulating spastic contraction. As a motility test the carbohydrate meal has many advantages: It is palatable, easily prepared, its expulsion time is short, beginning soon after ingestion; it is the least burdensome and least irritant to a diseased mucous membrane; it does not cause too extensive flow of secretions, it does not have too great viscosity, and does not diminish gastric peristalsis.

The carbohydrate meal may consist of farina, oatmeal, cream of wheat, etc., cooked in milk or water, and with enough sugar and salt added to make it palatable. The meal should be semifluid and total about 200 gram. The meal originally described by Rieder is prepared as follows: 40 grams of bismuth subcarbonate or 80 grams of barium sulphate are thoroughly mixed with enough water to make a thick emulsion and to this a tablespoonful of milk sugar is added. The milk sugar serves a double purpose. It improves the taste and also overcomes the constipation effects of the bismuth. The emulsion is added to the cooked meal and thoroughly mixed in order to obtain an even distribution.

The oatmeal meal must have a certain density and size and is prepared as follows: Take one teacup of water with a pinch of salt and bring it to a boil and add one teacup of Quaker oats. Boil twenty-five minutes in double boiler. To this milk and sugar are added.

Motility test should not be made with bismuth suspended in buttermilk or fermented milk.

It is important to note that inference regarding motility of one meal cannot be transferred to another meal

of a different foodstuff, and that it is better to establish a certain standard with one particular meal and to judge any deviation from this particular standard.

Hertz has suggested a normal standard meal as follows: Porridge, 7 ounces; milk, 1 ounce; bismuth or barium sulphate, 2 ounces.

The bread and milk meal is as follows: White bread (cut in cubes), 2 ounces; milk, plain or malted, 8 ounces; barium sulphate or bismuth acacia, 2 ounces. Boil, stir, and pour over bread. Add sugar ad lib.

Held has suggested a meal of eggs, toast, cereal, and milk, thus containing the various foodstuffs. He believes that such a test has more delicacy than the simpler meal.

Carman uses 4 ounces of well-cooked wheat breakfast food, with milk and sugar.

For intestinal tract (motor function) known quantities of mixed diet to which is added a definite amount of bismuth with each meal is given during the first day. During the second day (when examination begins) same diet is maintained without bismuth, and the study is then continued until bismuth is evacuated.

2 and 3. The part which tone and peristalsis play in the evacuation of the stomach will be discussed later.

4. The pyloric patency in an organically normal pylorus is governed by gastric secretion through nervous influences. Among the most important of the reflexes controlling pyloric patency is Mehring's reflex, the inhibition to the closure reflex by the presence of acid in the duodenum. The secretion of the normal amount of acid fluid, also, in a measure acts through the nerve influences to regulate the motor activities.

It may, therefore, be stated dogmatically that, with normal acidity, in an organically normal stomach six hours after a carbohydrate contrast meal, as above described, the stomach contains no bismuth—the content has been expelled.

There is no denying that a normal stomach may empty itself of the above meal in some cases in three hours, but an allowance must be made for physiological variations, for various psychic and physical influences, and these are fully met by a six-hour test.

A very rapid evacuation may indicate a pathological condition. There may be an insufficiency of the pylorus, due to a primary achalia, to a diffuse scirrhus or syphilitic infiltration of gastric wall (the pyloric opening being held gaping) to duodenal ulcer or to a gastro-enterostomy opening.

There are cases in which at the end of six hours the stomach is empty, but the bismuth mass has not progressed very far; in other words, it is still distributed in the duodenum, jejunum, and the head of the ileum. If in such a case peristalsis is active, the motility test should be made at the end of three and four hours and careful search made for early lesions.

B. Secretion.—Further study will show that the air bubble or "Magenblase" is oval, long, and narrow, for there is but little secretion in the normal stomach, containing no food.

To study the secretion more accurately, two capsules, one containing bismuth and air and one only bismuth, are administered. The former floats on the surface of the fluid and the latter sinks to the greater curvature. The position of the two capsules is noted. The estimation of the vertical distance between them gives the amount of fluid present. The form of the stomach and the width of the fundus and corpus must be taken into consideration. When considerable secretion is found, the inference that free HCl is present is justifiable. A bismuth residue without the hypersecretion suggests carcinoma, because it indicates that no free HCl is present.

The capsule test has been used for many purposes. The psychic effect of the appetite may be studied by

swallowing two capsules on a fasting stomach and stimulating the appetite, and noting the separation of the two capsules by the inflow of gastric juice. The expulsion time of the liquid foods or medicines may be studied in this way.

The bismuth may also be used for the determination of the amount of free hydrochloric acid in the stomach. The capsules of Schwarz, made of goldbeaters' skin, containing 4 grams of bismuth and 25 grams of neutral pepsin, are used for this purpose. The patient is given a test meal in the morning, containing 200 grams of tea and a known amount of bread. The capsule is swallowed and the patient reclines on the left side. A fluoroscopic examination is made at the end of one and one-half hours. If the capsule has been digested the bismuth will be seen as a small patch, coating the inside of the stomach, and the inference of a hyperacidity is justifiable. If the capsule is digested in two hours a mild degree of hyperacidity is present; if in two and one-half hours, a normal acidity; in three and one-half hours, a mild subacidity. In an acidity, it is not digested in five hours.

C. Intestinal Motility.—The head of the bismuth column is at or near or slightly beyond the hepatic flexure, the tail is in the terminal coils of the ileum.

D. The entire bismuth shadow sums up what experience has shown is that of a meal of two hundred grams. Thus the four questions asked above are answered.

Disturbed motility may manifest itself either as hypo- or hypermotility.

Hypomotility.—The stomach contains a residue. This is now studied as to its (a) size, (b) location, and (c) shape.

(a) *Size.*—1. Minimal residue, which does not exceed a shadow of 1 inch by 1 inch. This is not important as a sign of pathology, because such a small amount of bismuth may remain in the stomach till the ninth hour and may be explained on the basis of a muscular insufficiency or ptosis with atony. The distribution of the bismuth in the intestine and the consideration of the other factors mentioned as concerned in motility will indicate its true significance.

2. Small residue, which may vary from two inches square to about one-quarter of the content of the stomach. Such a residue is not usually expelled until the twelfth hour and is rarely found without pathological changes in the gastric mucosa.

3. The medium residue may be as large as one-half of the content and its final expulsion time may be more than eighteen hours. It is usually due to pyloric or lesser curvature ulcer or to new growth.

4. A large residue, which may consist of the entire meal, the final expulsion time being more than twenty-four hours, sometimes several days.

If hypersecretion be present, there will be noted above the shadow of the bismuth residue the lighter shadow of the gastric secretion and the air bubble or "Magenblase" may now be a hemisphere with a considerable diameter, in which fluid waves may be demonstrated.

(b) *Location.*—It may be located either to the right or the left or on both sides of the median line, above or below the umbilicus. The nearer normal the gastric tone the better the residue is embraced by the gastric walls and the more likely it is to lie near the pyloric end and to the left. Conversely the more to the right the residue lies, the more atonic and dilated the stomach. The greater the hypertony the further above the umbilicus it lies; the more the atony the further below.

A residue lying on both sides of the median line, with the bulbus to the right of the median line, indicates uncompensated pyloric stenosis, usually due to long-standing pyloric obstruction. And the more chronic the ulcer, the further the residue extends beyond the median line.

An isolated fragment of bismuth in the area which should be occupied by the stomach (usually to the left of the median line) demands careful analysis, since it may be retained in the crevice of an ulcer. If to the right, it may indicate duodenal ulceration.

The residue associated with a lesser curvature ulcer lies to the left of the median line; the pylorus vertically placed and more or less parallel to the spine, and the shadow of the bulbus duodeni, also to the left. This is due to the retraction of the lesser curvature resulting from the ulceration.

A residue with smooth outline, lying with its vertical axis to the left of the median line suggests careful scrutiny of the lesser curvature for ulcer.

A residue in the duodenum or jejunum should be looked for. This is most common in the bulbus, which it may fill wholly or partially, or as an isolated fragment may be located in a niche, spring from the bulbus.

(c) *Shape*.—The shape of the residue varies. It may be (1) an irregular fragment, such as may be located in a niche; (2) an oval shadow, partaking the shape of the portion of the stomach contour, which embraces it, and either pyloric or fundal; (3) a crescentic mass sagging in the very lowest portion of an atonic stomach (old pyloric ulcer); or (4) a rounded mass having a ragged contour toward the pylorus and smooth toward the corpus (carcinoma of the pylorus).

Though a large residue has considerable significance without the consideration of any other factor, still it is important to think of it not by itself, but in relation to tone and peristalsis, pyloric morphology, etc. An increased vis a tergo applied to the passenger (meal) may push it through a narrowed passage (pylorus).

The small residue is found in compensated pyloric stenosis and duodenal disease. Adhesions do not produce a residue unless the adhesions be due to an ulceration.

Such a residue as is given in either of the last two groups is absolutely pathological of pyloric obstruction, due either to organic stenosis or spasm.

Atony and ptosis rarely produce a residue. If present, it is usually minimal and is with ease differentiated from a residue due to organic changes by the consideration of the other factors concerned in the motor functions of the stomach, the tone and peristalsis, both of which are diminished in atony and increased in early stages of ulcers. In the later stages of ulcer, however, the atony and dilatation of uncompensated pyloric stenosis is to be differentiated from the partly functional atony by noting that in the organic atony the residue lies in the median line and the pylorus is usually displaced considerably to the right, while in the latter the residue, if present, is smaller, lies to the left of the median line and the pylorus is usually in the median line below the level of the umbilicus. Then, too, the examination in the left lateral position or with the pelvis raised will cause expulsion of the residue through the pylorus. It cannot be denied, however, that with more attention to the proper preparation of the meal and the various details attending its administration the residue in pure atony will not often be found.

Even a minimal residue in a stomach exhibiting excessive tone and excessive peristalsis has a characteristic significance—an organic lesion—while the same residue in a subtonic or ptosed stomach, with feeble peristalsis and high acidity, may be explainable on the

basis of functional causes or muscular insufficiency. Again, a scirrhus infiltration of the pylorus may exist and yet, because of pyloric incompetency, the stomach may be empty in three hours. To find a residue of one-eighth of the gastric content, with normal peristalsis, tone, a morphologically normal stomach need not indicate an ulceration or obstructive lesion; but such a residue with evidence of hypertony and excessive peristalsis, though in a morphologically normal stomach, means a pyloric spasm or obstruction. Thus hyperistalsis and hypertony with high acidity and suggestive clinical evidence would, even if the emptying time is normal, demand a reexamination before the lapse of six hours. By itself, therefore, though giving the key to the examination, the residue, except as indicating gross pyloric stenosis, has no pathognomonic significance.

On the other hand, the stomach may be empty, but the position of the bismuth mass in the intestine, duodenum, jejunum, or ileum may indicate a hypomotility and lead to the inference that there is a gastric hypomotility. The actual emptying time must then be determined by repeated tests.

Hypermotility.—The cause of this must be studied in relation to tone, peristalsis and pyloric patency.

The rapid evacuation may be due to excessive tone and peristalsis in a stomach with a normal pylorus—on the other hand, with an incompetent pylorus—the rapid evacuation may take place in a stomach whose tone and peristalsis are normal. The causes of the excessive tone may lie in the intrinsic form and structure of the stomach, or, as is most commonly the case, it is due to reflex causes, arising from the ileo-caecal, duodenal, gall bladder, hepato-pancreatic region. The excessive peristalsis is most commonly reflexly induced when the pylorus is not stenosed. The pyloric incompetency is either due to intrinsic infiltration—scirrhus-syphilis or is reflex from the duodenum, liver or pancreas.

B. *Sedimentation Test*.—It becomes necessary for us to proceed with the examination and to study tone and peristalsis and then the morphology of the tract. This necessitates the administration of a contrast mixture. It is best, however, for thoroughness and accuracy to begin the examination with a non-suspended mixture of contrast salt in water. This is commonly called the "Sedimentation test." The mixture consists of one ounce of barium or bismuth, stirred with four ounces of water. The salt sediments rapidly through the water to the greater curvature and pylorus, from which point, by fluoroscopic palpation, it may be spread over every part of the stomach wall. Thus, lesions on the anterior or posterior walls are made out, which, with the stomach completely filled, would escape detection. By this procedure we study:

1. The method of filling the stomach. This should be studied by individual swallows of contrast mixture. The bolus drops from the oesophagus, flows along the lesser curvature, halting in the pars media. When the tone is increased the bolus may halt for a longer time. Only after palpation or deep breathing does it glide along the lesser curvature to the pylorus and then the greater curvature. On the other hand, if atony exists, it may drop from the oesophagus to the surface of the retained fluid in the stomach and then rapidly sediment directly to the large residue below. Thus the deviation in the course of the stream or in the method of filling gives many important clues.

2. Mucous membrane irregularities. The irregularities in the lumen produced by the ulcer-bearing

area, the niche, the diverticulum or tumor formation may be outlined by the mixture—the granules of bismuth being deposited within these crevices. The above morphological data may also be determined by the usual suspended contrast mixture, but because the stomach is thus completely filled with contrast mixtures, small penetrating or perforating ulcers on the posterior wall may be overlooked.

The search for the ulcer-bearing area must be made in every case in the vertical posture in every oblique position and then in the horizontal posture. When this is done linear projections which have been erroneously dubbed slit ulcers will not appear as slits but as typical niches with air bubbles. The ulcer-bearing area does not always show as a rounded bud; it may be flat, irregular or pouched; but the end result is something added to the bismuth shadow of the stomach in contrast to a tumor formation which subtracts something. This niche most commonly springs from the lesser curvature, less commonly from the posterior wall, least commonly from the greater curvature. Its size and shape varies with the shape and size of the ulcer and the direction of its protusion. Considering its roentgen appearance as a bud, it may be spoken of as being sessile or pedunculated, and the isthmus connecting it to the stomach may be long and narrow. The summit of the bud may contain an air bubble. It may be visible before the administration of the sediment mixture, by virtue of a retained fragment of bismuth from the motility test or because of its air content.

3. Stomach Tone. The tone being that property of the gastric muscle by which it maintains the contents in tubular form, a normally tonic stomach will almost be as full (fluid level) with five ounces as with fifteen.

The position of the upper level of the gastric content in its relation to the position of the lowest point of the greater curvature may be used as an index to tone after a meal of definite quantity. Extreme gastropsis may be present with normal tone and extreme atony with little ptosis.

Hypertony exists in the early history of most cases of gastric ulcer and persists late in duodenal ulcer.

Tonus is the basis on which peristalsis manifests itself. Before peristalsis appears, tonus exists. As regards time, they bear an almost simultaneous relationship to each other. This is what some observers are groping at when they talk of systole and diastole, besides the peristalsis.

Peristalsis is considerably dependent on the presence of tone. The atonic stomach shows a much impaired, diminished and disordered peristalsis. Through the agency of nerve impulses, general asthenia and the emotional state produce their effects on the alimentary tract by impairing movement, through abolishing tonic contraction, and therefore rhythmic peristalsis. The tone of the stomach is increased in hunger and it is claimed that the sensation of hunger results from the tonic contractions in an empty stomach.

Hypertony may show itself also as a type of spasm. The spasm may be of the entire stomach (total gastropasm), or local segments of the gastric wall may be tetanically contracted. When total gastropasm takes place, the capacity is naturally diminished, the resistance to the distention of the

lumen is increased. An air bubble may no longer be visible in the vertical posture.

The local spasm may exist in one examination or several and be absent in others. The result of this spasm or spastic indrawing is to divide the stomach into two sacs, giving the so-called hour-glass stomach.

The spastic incisura may be visible in the oblique examination and not in the sagittal and because of the falling of the shadow of the upper sac over the lower it may not be apparent in the horizontal position, when it can be seen in the vertical. When located opposite the niche of an ulcer the contraction gives the stomach a characteristic ulcer-hour glass appearance. Because of fibrous-tissue production, perigastritis and scarring, the spasmodic hour-glass type may be transformed into a true organic hour-glass stomach, in which the spasm, though it still exists, plays but a small part.

4. Antral Activity. The action of the antrum may be observed because the water is not retained in the stomach and the peristaltic activity begins almost immediately; thus the hyperactivity of the early ulceration or the lessened waves of the atonic antrum, resulting from old ulcerations, may be noted. As the contrast salt sediments to the pylorus, however, only the peristalsis of this part is visible. The details regarding peristalsis are, therefore, more carefully studied when the stomach has been completely filled with a suspension mixture.

5. Pyloric and duodenal patency. As a rule, even the spastic pylorus is patent to water and whether the delay at the pylorus is due to spasm or obstruction may be determined by the use of antispasmodics. One-half to $\frac{3}{4}$ of a grain of papaverine is administered one hour before the meal. If pure spasm be the cause, the residue will be much diminished or absent. If obstruction is present the retention will be greater. The abnormal evacuation of achalia gastrica or when the pylorus is gaping from infiltration of scirrhus carcinoma, is in marked contrast to the slow evacuation where spasm or obstruction exists.

In order, therefore, to test the pyloric patency, it is necessary to cut out the closure reflex resulting from the acidity. This may be done in the following way: The patient receives the ordinary bismuth meal, and after this has been evacuated 220 grams of water are administered, with two bismuth capsules, one containing air, which floats on the surface of the liquid, and one which sinks to the greater curvature. The space between the two capsules, which corresponds to the depth of the liquid, is noted. This distance may be studied on the screen every twenty minutes, until the capsules are on the same level, when the inference may be drawn that the stomach has become empty. The average time consumed is about sixty to seventy minutes in normal cases. If both carbohydrate and water detention are present an organic stenosis exists.

6. Pyloric morphology. Either by pressure on the pylorus or blocking at the pars horizontalis and pars superior, the pylorus may be studied or the bulb of the duodenum may be filled and overfilled for the study of form, peristalsis, antiperistalsis and mobility. The morphological deviation of the pylorus, resulting from pyloric ulcer, may be various. As a rule, it becomes pointed but occasionally exhibits no defect, only a lessened density of shadow over the very pyloric end. A ring-like defect, at the expense of the pylorus and antrum, must be differentiated from a defect due to a new growth. The

old deep ulcers of the pylorus usually have many adhesions and considerable fibrous tissue, which may be responsible for this appearance. The morphology of the duodenum will be studied later.

In many cases a diagnosis is possible at this stage of the examination. The existence of many of the lesions of the stomach and duodenum in the pylorobulbar region and lesser curvature makes this examination with the sedimentation test an important and sometimes the only one necessary. It is, however, insisted upon that the examination in all cases be completed.

C. General Morphology Examination.—Though we are now in a better position to appreciate the significance of the motility test, it is, however, only when the examination is finally completed and the morphology thoroughly studied that all the various findings in the examination attain their full significance. Therefore, in all cases, except where a contraindication exists, we proceed to complete the gastric examination by administering a large quantity, twelve to sixteen ounces of a thoroughly suspended contrast mixture, barium sulphate in buttermilk, and to the main morphological study of the stomach, duodenum, and small intestine.

More or less permanent suspension may be made with the aid of substances, as acacia, terra alba (Fuller's earth), or by means of such complex mixtures as that of Gouravisch: Potato flour, 75; milk, 1,000; almond syrup, 250; barium sulphate, 400. This is treated with 2 liters of boiling water and, while being stirred, brought to a boiling point. The liquid is boiled one-half an hour until 400 c.c. are evaporated, and then cooled and a teaspoon of a solution of formalin 1-1000 added. This has the consistency of cream and keeps well.

The morphological studies may be made according to the following scheme:

STOMACH.—Type: (1) Hypersthenic, (2) Sthenic, (3) Hyposthenic, (4) Asthenic. The nomenclature of the four main types of status (Mills) is applied to the stomachs, which these individuals should normally possess.

Each of the type, when it conforms to the habitus of the individual is orthotonic, when it does not, it may show (a) Excessive tone—hypertonicity. (b) Diminished tone—hypotonicity. (c) Absent tone—atonicity. Thus, the orthotonicity of the sthenic stomach may, as a result of long-standing pyloric stenosis, be changed to atonicity. The suffix tonic-ity in this scheme now has a clear meaning.

The Schlesinger nomenclature has caused much confusion.

Axis: Vertical, oblique, horizontal.

Size: Normal, small, large.

Position: Fornix—relation to diaphragm; greater curvature. Lesser curvature—Relation to interspinous line and median line. Pars pylorica—Axis, length, position, antrum.

The position of the stomach depends on the status of the individual; tonicity of the stomach and abdominal wall musculature, position of adjoining organs and state of filling of intestines. The division of the stomach into fornix, corpus, pylorica (the antrum being considered the most distal part of the pylorus, is the simplest, clearest and sanest division. These data should be given in every report to the clinician, since they permit him to plot the position of the stomach on the abdominal wall.

The measurements are made in the vertical posture, the hepatic flexure. From the further study of the

Tone: Normal—orthotonic. Variations—hypertonic, hypotonic, atonic.

Outline: Incisura, niche, defect: Location. Number (single, multiple); size: (Narrow, wide); form: (Deep, shallow, irregular); permanence.

These deviations must be differentiated from the normal variations in outline: (1) Splenic or costal depression, (2) incisura angularis, (3) sphincteric hiatus, which should be studied as to its size, position and form; (4) rugae folds, usually brought out by pressure; (5) depressions due to colon.

The contractures with or without the niche formation give the bi- or tri-ocular stomachs (hour-glass deformities). The resulting isthmus may be long or short, wide or narrow, centrally or laterally placed. All these data should be noted and recorded.

Peristalsis: The waves are studied under six headings: (1) Origin, (2) Altitude, (3) Length, (4) Frequency, (5) Direction, (6) Symmetry.

Hyperperistalsis means not only that the frequency of the waves per minute is increased, but that the wave has its origin nearer the cardia and that its altitude exceeds its length; in other words, its depth is increased. When the altitude exceeds the length the wave is deep and small. The shallow wave has a great length but small altitude. The wave may be of a different type on the curvatures. The study of the direction of the wave may disclose antiperistalsis—a phenomenon of great significance in the stomach.

SMALL INTESTINE.—*Duodenum* (bulbus).

Type: Triangular, Spherical, Irregular.

Position: Relation to pylorus.

Size: Normal, Small, Large, Indeterminate.

Outline: Incisura, Defect, Niche. Location, Number (Single or multiple); Size (Narrow or wide); Form (Deep, shallow, smooth, irregular).

Evacuation: Complete, incomplete, rapid, slow.

The niche of the ulcer and the spastic contracture are responsible for the majority of the deformities in outline of the duodenum. The bud of the ulcer may, of course, be located on any wall, but it most commonly is situated on the inner border. The spastic contracture may be on the same or on the opposite side to the ulcer or be present on both sides. The deformity is most common on the internal border of the triangle.

Duodenum (villous).

Type: V-shaped, U-shaped.

Position: Descendens, Horizontalis, Ascendens, Duodenojejunal angle. It may be displaced right, left, up or down, depending on disease of adjacent organs.

Size: Small, medium, large.

Outline: Defect, niche, diverticula.

Peristalsis: Segmental, mass movement, pendulum.

Jejunum.

Size.

Patency.

Peristalsis.

ILEOCECAL REGION.

Cecum.

Type.

Position—relative to interspinous line.

Size.

Outline.

Peristalsis.

Mobility.—The bismuth mass begins to appear at the cecum in three and one-half to four hours after a carbohydrate meal. At the end of six hours the cecum is filled, the tail of the mass lying in the terminal ileum, the head of the column being near the hepatic flexure. From the further study of the

colon a re-examination at ten or twelve, twenty-four, thirty-six, forty-eight, sixty, seventy-two hours may be necessary, depending on circumstances.

Ileum.

Position—relation to cecum.

Size: The size of the individual coils cannot be measured, excepting the terminal part, which is about a finger's breadth.

Patency: Six hours after bismuth carbohydrate meal several coils are visible in the right pelvis, the terminal portion rising perpendicularly to the cecum. At the end of ten hours the ileum should be empty, the head of the column is near the splenic flexure, the tail at the cecum.

Mobility.—It is at this time that the appendix is most frequently visualized. Its size, shape, position, state of filling, and mobility may be studied and sensitiveness to pressure determined. At the end of twenty-four hours the study of the colon may be undertaken.

ABDOMINAL COLON: *Ascending, Transverse, Descending.*—Form (transverse): No loop; loop to right; loop to left; bilateral loop; abnormal looping.

Position: Distal, proximal.

Size.

Outline—Defects: Permanent, temporary.

Tone: The haustra are due to the tonicity of the longitudinal muscular bands. When the tonicity is lost the colon shows as a smooth, cylindrical shadow. The haustra disappears when the are passively stretched from distention of contrast enema.

Haustra: Origin, extent—Large, small, regular, irregular.

Peristalsis.

(a) Segmental—These movements are due to contractions of the circular muscular fibers. They have no directive power.

(b) Haustral—This is a true peristaltic movement consisting of a wave of contraction preceded by a dilatation. The movement is slow and the progression limited.

(c) Mass—These occur but two or three times daily and result in massive displacements of the contents for a considerable distance. Over a portion of the colon the haustra disappear. Then a sharp constriction appears and the mass moves forward with lightning-like rapidity, leaving a thin trail of bismuth behind in the contracted gut. As the movement ceases the haustra reappear.

(d) Pendulum—This is due to varying degree of contraction of the unstriped muscle of the mesocolon, whereby the colon varies its position in the abdominal cavity. There are many other factors concerned in this inconstant position of the colon.

(e) Antiperistalsis—This is most common in the ascending and in the right half of the transverse.

PELVIC COLON.

Sigmoid.—Type: Dextropelvic loop, median loop, levopelvic loop, no loop.

Size. Mobility.

Rectum.—The rectopelvic portion of the colon is best studied in the dorsal position.

D. *Mobility* is studied by (1) Variation due to posture. (2) Variation due to position. (3) Variation due to retraction of the abdominal muscles. (4) Variation due to palpation.

The entire examination should be made fluoroscopically, the morphological studies should be made radiographically, in order to provide a permanent record, and to minimize the possibility of error.

The fluoroscopic examination in the morphology study should be carried out both in the horizontal and vertical postures, the patient also being examined in the lateral and oblique positions. In this way morphological deviations will not be overlooked, and the mobility of the stomach may be estimated.

The data having been noted should be reported to the clinician either in the negative or positive phase. After the data have been stated, the pathological findings should be isolated and the inference from these findings drawn.

So reported, the examination becomes valuable in that it permits the forming of a concept as to actual conditions and the correlation to them of the clinical findings.

Thus a report in a certain case may be given as follows:

The stomach is of the sthenic type, and normal in size.

Its axis is oblique.

The lowest point of the greater curvature is at the interspinous line, two inches to the right of the median line.

The lowest point of the lesser curvature is four inches above the interspinous line, and two inches to the right of the median line.

The pars pylorica is to the right of the median line, long, its axis to the corpus being oblique.

There is no defect in the gastric outline.

There is hypertonicity.

The peristaltic wave is increased, the waves being of small amplitude, numerous and symmetrically disposed, and have their origin at the cardia.

The antrum shows deep contraction.

There is rapid evacuation of the pyloric contents.

The bulbus duodeni is generally triangular in shape, lies to the inner side of the antrum, and shows a marked deformity in the outline, the defect being due to a smooth incisure on the right lateral wall of the bulbus and a niche formation on the left lateral wall. The bulbus does not change its position, either by posture or by retraction of the abdominal wall. There is sensitiveness to pressure over it.

Examination six hours after a carbohydrate meal shows a medium-sized residue in the pyloric end of the stomach, and a small residue in the bulbus.

The head of the bismuth column is in the lower part of the descending colon, the tail is in the last six inches of the ileum.

The colon is morphologically normal.

The pathological findings in this case are: (1) Hyperperistalsis. (2) Hypertony. (3) Pyloric incompetency. (4) Duodenal deformity. (5) Pyloric and duodenal residue. (6) Immobility of the bulbus. (7) Displacement of the pylorus to the right. (8) Hypermotility (intestinal).

These findings indicate the presence of a penetrating ulcer of the duodenum.

A further report is then given after the 24-hour examination.

In the foregoing exposition all the available knowledge of the gastrointestinal tract as furnished

by the x-ray examination has been utilized. From time to time, as the investigations have disclosed new data and observations, the scheme and the significance of the data have been amplified, verified, or corrected, but as a whole it has remained practically unchanged since 1912.

Synopsis.—1. In the examination of the gastrointestinal tract, the morphology and motility must both be studied.

2. The motility is to be studied by a carbohydrate meal in definite proportions.

3. The examination is to be begun with the motility test.

4. The location of the bismuth meal after six hours gives important indirect and direct information.

5. The morphological examination should be begun with a sedimenting mixture.

6. The mixture for the final morphological test should be a contrast mixture in suspension.

7. The morphological examination must be complete, thorough, covering the entire tract, made with a fluoroscope as well as with a plate, and based on a definite scheme of analysis.

8. The report of the examination must state: (a) The data obtained; (b) the pathological findings isolated; (c) the diagnosis based on these pathological findings.

11 EAST SIXTY-EIGHTH STREET.

SOME EDUCATIONAL PROBLEMS OF RACE HYGIENE.

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BY race hygiene we understand consideration of those conditions which favor the normal breeding and the physical and mental development of the race. The question of race hygiene involves the most important and serious problems of social hygiene, comprising practically all problems associated with the question of education, heredity, marriage, and progeny, both existing and prospective.

From the medical standpoint our society falls into three different groups. The first group is composed of normal individuals, able to resist the evils of the world, well equipped mentally and physically to adapt themselves to, and struggle with, existing conditions. The second group consists of neurotics and other peculiar characters, with weakened mental and physical resistance. Some of these may break down occasionally, or become insane when their environment is not good, and when their constitutional ability—mental and physical—becomes inadequate to the burdens of life. The third and, to the physician, the most important group is made up of the large number of feeble-minded, including also imbeciles and criminals.

Those familiar with the question of insanity and feeble-mindedness in this and other civilized countries, are well aware of the fact that the number of mentally unfit in asylums, hospitals, and at large

has been increasing during the past several decades at a more rapid rate than the growth of the general population. The number of insane in asylums in 1880 was 86.6 inmates per 100,000 of the general population, while in 1910 the number had risen to 232 per the same number of the general population.

The census shows that there were 234,055 insane patients under treatment in institutions in the United States on Jan. 1, 1917, and it is generally estimated that the total number of feeble-minded in this country exceeds that of the insane. According to estimates of the Federal Census Bureau, the population of the United States increased from 91,972,266 on April 15, 1910, to 102,826,309 on Jan. 1, 1917, an increase of 11.8 per cent. The insane in institutions, according to the Federal Census of Jan. 1, 1910, and the census of the National Committee for Mental Hygiene of Jan. 1, 1917, increased from 187,791 to 234,055, an increase of 24.64 per cent.

In the asylums of New York state there are 35,000 insane. In Chicago alone in the year 1915 were arraigned before the criminal courts 125,000 delinquents, all mentally abnormal. The number of insane and criminal defectives outside institutions is several times larger, because, as a rule, only those insane or feeble-minded who represent an obvious mechanical menace to society, or who become a considerable burden to their families are placed in institutions. Therefore, taking into consideration the above figures, and assuming only an equal number outside institutions, we find that one person out of every 170 is insane in New York State, and one out of every 14 is defective in Chicago.

Assuming that New York has as many feeble-minded in proportion as Chicago, and that Chicago has proportionally as many insane as New York, we conclude that the average percentage of insanity and feeble-mindedness is over one per cent (one out of every 92 is insane or feeble-minded). The question of insanity and feeble-mindedness is thus a very serious one, and preventive measures along these lines are one of the most important problems of the present generation. Although we do not know all the factors producing such a rapid deterioration of the race, we do know a few which justify the discussion. With these it is imperative that the public be made familiar.

An individual is the result both of the tendencies which he acquired through the germ plasm (sex cells of his ancestors) and the effects produced upon him by his environment. For instance, alcoholism, as such, cannot be directly inherited, but the mental or the weakened moral stamina is transmitted to the child, and should he remain in his father's environment, or in an alcoholic environment, he also will become alcoholic.

Intense struggles for existence, resulting from the present forms of industrialism and competition, play a very important part in weakening the race, and the result of this weakening shows itself in prostitution and criminality. It is well known that prostitutes and criminals are recruited from an element whose moral resistance is considerably reduced. Nevertheless to remain unaffected in the present speed of life, sometimes requires a com-

plete human being with perfect intellectual features. Our age of growing industrialism and competition is thus revealing itself in immigration, war and destitution.

That the economic factor plays a serious part in promoting degeneration of the race, is evident from the report recently published by the Children's Bureau of the U. S. Department of Labor, a report based on the study of mental defectives in New-castle County, Delaware.

This report reveals a close connection between poverty and mental defects. Of 212 cases of mental defects studied, only four or five were in well-to-do families, and the majority were found in an environment making normal standards of living impossible. It would be wrong, however, to assume that poverty is, in all these cases, the cause of feeble-mindedness. A great many individuals are poor because they are defective, because they have never learned a trade, or because they never developed the ability for adaptation and self-support.

The sort of immigration existing at present is not a desirable one for the simple reason that it occurs under abnormal conditions. An individual who is compelled to find a new fatherland for his free development, and to seek a basis for existence in a new country, goes through a real "brain fever." He is torn away from his own soil and traditions, and finds himself helpless as a child, without a language, without a trade, under conditions to which he cannot adapt himself. The strain is so intense that a large number of men and women go through serious physical and mental changes; the women (for example) cease to menstruate, become depressed, and suffer a weakening of constitutional resistance. In time immigrants may recover from the shock and adapt themselves, but the children of such individuals are likely to inherit the broken resistance of their parents' constitutions, and to fill up the ranks of the second group of our society: the class of neurotics and the insane.

Another factor promoting deterioration is syphilis, which is disseminated chiefly by prostitution and inheritance. Syphilis has become a universal menace, and undoubtedly weakens the race. According to the reports of the Surgeon General of the U. S. A., twenty per cent of the white recruits are affected with syphilis; yet the percentage of syphilitics among army men is much lower than among men of a similar class in civil life.

Alcoholism also plays an important part in promoting crime, destitution, and moral and physical deterioration. While alcoholism in many cases is the result merely of environment or of bad habits, in a greater number of cases it is a manifestation of mental and physical sickness. Both syphilis and alcoholism are factors in promoting deterioration of the progeny, thus creating defective types.

Heredity, in certain conditions, becomes an important factor in promoting degeneration of the race. It is not sufficient to say that a certain condition can be inherited; it is important to study the conditions under which the disease can be transmitted to the progeny.

The elements of heredity are carried in the chromosomes of the sex cells, both male and female, but only those features can be transmitted to the germ-plasm (sex cells) which have what are called

determiners. These determiners are hypothetical material transmitters of each separate characteristic of the individual, or the so-called unit-character. In order to be passed on to the progeny, features or characteristics must therefore have a determiner. If a disease has no determiner it is not transmitted. Determiners may themselves be of two sorts, either recessive or dominant. For example, parents themselves free from the disease but having the neuropathic taint of their ancestors will produce several healthy descendants, and may or may not give rise to one who is diseased. But the several apparently healthy descendants are apt to carry the disease in a determiner of a recessive character.

In considering advisable mating, this fact becomes very important. In establishing laws similar to those existing in certain States—the laws of negative eugenics (laws preventing progeny)—it is necessary to draw conclusions not only from the qualities of the individual alone, but also from his determiners. Thus an individual may be diseased, but as long as he does not carry any objectionable determiners in his germ plasm, he will be capable of procreating healthy children. On the other hand, the person under consideration may appear to be normal, and yet, because he carries the disease in recessive form, may procreate diseased children.

What science has accomplished up to the present time regarding the laws of heredity, has proven to be correct in cases of certain neuropathic conditions, idiocy, and feeble-mindedness. These laws, according to the Mendelian theory and the latest observations of Rosanoff, Orr, and others, are as follows:

1. Both parents affected, all children will be affected.
2. One normal parent with neuropathic taint from one grandparent, the other parent neuropathic; half of the children are normal, but capable of transmitting the neuropathic make-up to their progeny (*i. e.*, they are carrying the determiner in recessive form).
3. One parent normal from pure ancestry, the other parent neuropathic; all children normal but capable of transmitting the neuropathic make-up.
4. Both parents normal but with neuropathic taint from one grandparent; one-fourth of the children will be normal, and not capable of transmitting the neuropathic make-up to their progeny. Half of the children will be normal, but capable of transmitting the neuropathic make-up, and the remaining fourth will be neuropathic.

It is estimated that about 30 per cent of the general population, without being actually neuropathic, carry the neuropathic taint from their ancestors, and are capable, under certain conditions, of transmitting the neuropathic make-up to their progeny. In connection with the foregoing, there exists the so-called sex-limited inheritance, which means that the determiner is dominant in males, and recessive in females. In hemophilia (bleeder disease) for instance, males are affected, but the disease is transmitted exclusively through the females, who themselves do not suffer from it. Progressive muscular atrophy, likewise, has a recessive character, affecting males only, although females are capable of transmitting the disease.

The strength of heredity was illustrated unusually clearly by cases reported in the October, 1916, issue of the *American Journal of Insanity*. Half a dozen individuals immigrated to this country in the seventeenth century bringing with them Huntington's chorea. The result of the propagation of these individuals is 900 choreics of the same type, all absolutely unfit for society. It ought to be made clear that, chiefly because of the confusion regarding the limitation of each, great disagreement exists regarding the relative effects of heredity and environment. Many influences commonly considered heredity, are in reality purely environmental. For instance, a toxic state in one or both parents affects the ovum, the spermatozoon, or both, giving rise to a defective impregnated ovum. For instance, if the conception took place during a state of intoxication, the development of the ovum is affected, and a defective child is the result. This is the case of an environmental influence of pre-natal character. Similar examples of post-natal factors are those which interfere with the growth of the normal child, such as poor nutrition, or nutritional disorders during the first year, and other similar conditions.

However, while the factors (undesirable immigration, syphilis, alcoholism, and heredity) mentioned above, are the most important in producing deterioration of the race, faulty education and environment also play a large part. To better the race, we shall have to go through a process of re-education and rebirth through social and individual reforms. This will require all the intelligence of the race, and all its capacity for conscious sacrifice. Social reforms are imperative, but unfortunately they are very remote. Such conditions will have to be established that war is impossible, and that immigration will not be the result of competition, poverty, or religious persecution. The struggle of life will then be less intense. The problem of to-day is the effort to produce strong, resistive and uncompromising individuals. While it is impossible to revolutionize the individual at once, the work for an ideal race could be begun immediately. Education, having in view the principles here advocated, should begin from childhood. Parents and the school should co-operate in producing these conditions, and promoting these principles in the community.

Let us attempt now to make a direct application of what has been said to the schoolroom itself. Entering any typical class, we can easily find representatives of the three groups spoken of before. We see expressionless, thick-lipped children with large heads, who manifest indifference, lack of appreciation and silliness. They are the defective group.

The children of another (the second or nervous group) are very different. They are delicate, well made in body, with finely shaped heads, delicately cut features, and fine skin. They are apt to complain of headaches, broken sleep, and malaise. Not that they have any definite disease; on the contrary they are rarely confined to bed. But they are not strong, and any exertion, walking, for instance, can make them very tired. Their body weight is subnormal, but their minds are above normal, and they are very clever. These are the

children who are given to mannerisms; they contract the eyebrows and protrude the tongue when engaged in writing or performing a difficult task.

They show their mental activity in their movements, and in the play of their facial muscles combined with their vivid expression.

These children are overemotional from their very earliest years, and are very susceptible to neuro-pathic disturbances. Advantage is very frequently taken of this overemotionalism in bringing them up, and sentimental mothers overdevelop their children's sentimentality. The nervous children are usually timid, overscrupulous and restless. Their capacity for affection is developed to such an extent, that in later life they fear reproach, and stand criticism badly. Yet if the sentimental side of their lives is upset in any fashion, they immediately sink into a state of depression. If their education had been directed towards teaching them to feel less, and to use a more discriminating judgment, such unfortunate consequences could have been avoided.

Such children should be taught that every feeling or emotion is dangerous when carried to excess, and that absolute reciprocity in affairs of sentiment cannot always be expected. When children are quite young, they should become accustomed to making prompt decisions, and to systematizing their work. If they are directed along certain lines suitable to them, with wise understanding, the almost fatal catastrophe of their lives can be easily avoided.

Also to be found in the schoolroom are children representing our third group—the normal children. They stand with heads erect and arms at their sides, with a direct gaze, calm expression, and fixed attention. We observe no mannerisms among them.

Proper education of the child will play a serious part in preventing deterioration of the race. This education should be based upon preserving the child's energy, recognizing his character, and developing the *psychical* mechanism necessary for creating an uncompromising individual, who will possess high moral and resistive powers. The old saying: *Mens sana in corpore sano* (a sound mind in a sound body) should be applied inversely also. Where there is a sound mind there is a sound body, because physical equilibrium depends a great deal on the strength of the mental faculties.

The child's character and inclinations are shown at the age of four or five. At this period of life he is liable to set free his personality in a surprising and marvelous way. The school will have to promote the development of the child's intellectual features, hampering him as little in his personal inclinations, if they are not defective. The study of the nature of the child should be the basis for teaching. The child should have freedom of action in order to fully express his inner life in outer activity, and an opportunity to act as much as possible in the realm of his personal experiences; *i. e.*, he should be given an opportunity of educating himself. His brains should not be overloaded with things which he cannot understand, or which cannot be conveyed to him by his sense organs. At the age of seven or eight the character of the child should be established in such a way

that its further development would bring him into the period of puberty as a normal individual. Faulty education does not promote the development of character. Infantile intellectual features of it are transmitted into the period of physical maturity. Considering all this we see the need for establishing a mechanism of "suppression."

Up to the age of four or five a child does not distinguish good from evil—any more than he realizes the existence of the sexes. At that age, also, or even when a little older, he is usually able to compromise by using his imagination, when he cannot obtain what he wishes.

A child, for example, desires to have what he sees, and when this is impossible or difficult, he begins to imagine that some object which he does have is what he has been striving for. If he wants a horse, he takes a broom, starts to ride upon it, and imagines that it is his horse. This compromising tendency occurs without any pain or serious mental processes—the imagination playing the part of an adjustor.

From the time that a child begins to distinguish good from evil, he demands likewise more reality, and does not satisfy himself with his imagination as much as he did before. Consequently it becomes necessary to establish another *psychical mechanism*, which must help him to obey the principles of normality. Modesty, which is the guardian of innocence, has to be built up at this time, and established in full force.

All this is especially important with regard to sexual tendencies, which are likely to assume a wrong tendency in early childhood. The establishment of a mechanism whereby *modesty* in its ethical and esthetical aspects, will be the *regulator of the suppression of bad tendencies*, is what we should aim for from the age of five or six, for, at the age of ten or twelve, we need its full force. This mechanism, when established, is utilized until the age of puberty and later, and is necessary for every normal individual. *And normal is that individual who can suppress everything that is wrong, i. e. against social and individual ethics. Those individuals who cannot suppress or control their sexual or antisocial impulses at all fill up the ranks of the criminals. The neurasthenic compromises himself all the time by an unsuccessful or partial suppression.* The normal individual must be successful. We need a race without compromises, able to control their instincts, when these are anti-racial.

While the child, up to ten or twelve years, suppresses his evil impulses unconsciously through modesty, the youth and the adult suppresses them more consciously. The established mechanism becomes in the end a reflex process, and aids the individual throughout the rest of his life in controlling undesirable tendencies.

Everyone is familiar with the fear of punishment in a child. It is frequently cultivated in raising children. In fact it is, in certain cases, a very important adjuvant in child training, and, in many cases, is not as wrong as some good-hearted mothers are likely to think.

This fear is also a reflex process, and is acquired through training; it stimulates an inhibition of things which are wrong. Modesty is a broad psy-

chological basis for establishing this fear reflex, and should be the only basis for every ethical and moral suggestion. Some authors call this reflex "acquired fear" and point out that it is rapidly cultivated in highly sensitive children; it is cultivated in the normal child with greater difficulty, and it is still more difficult, if at all possible, to cultivate in a feeble-minded or defective child. The educator must remember, however, that undesirable inhibitions are also likely to be established, and that this necessitates the utmost care in the training of the nervous and sensitive child, because the sensitive child loses an established habit with more difficulty than it forms it.

The training of the child unquestionably involves its education in sex hygiene, which deals with problems that normal human life cannot possibly avoid, and which each individual must be prepared to solve for himself. Even at the age of five or six, the child asks questions pertaining to sex. The principle which educators have to bear in mind in answering these queries, is to avoid a silly reply.

Children are very observant and an unsatisfactory answer will only cause them to be more inquisitive. Undoubtedly it is a difficult thing to advise any parent just what to say and how to say it. It is easier to suggest how to conduct sex education at the age of twelve or thirteen. At this age it is best to give the biological aspects of propagation, and at the age of sixteen the boy or girl can be made familiar with the hygiene of sexual life.

The four books written by Dr. Winfield Scott Hall of Chicago, and issued by the Board of Health and Public Instruction of the American Medical Association, are adapted for sex education for intelligent children between the ages of twelve and seventeen. The child will also need supplementary explanations from intelligent parents.

Sex education in schools is a new thing, and little experimented with, either in America or in Europe. Adequately informed parents are the best persons to teach the elements of parenthood and sex relations to their children.

This work must be carried on without injuring modesty, and should, on the other hand, promote genuine innocence, purity, and the sanctity of family life, as well as lead to health and physical morality.

The idea of a clean mind in a sound body may be inculcated by teaching that the productive functions are present for a higher purpose than mere sexual gratification, and that they should be restrained by reason and self-control, and exercised only in the legitimate way prescribed by marriage. "It is a cardinal sin against youth to deny it the knowledge which would safeguard it against ignorant exposure to dangerous infections." But it is important to conduct the education without arousing the mind to dwell upon the subject unduly, which causes needless alarm, depression, or overstimulation. The risk in some cases is worth taking. "Better a year earlier than an hour later."

Such knowledge will function completely in many lives, and will work appreciably in many others.

What are the practical measures which would lead to the purification of the human race? It is clear that the question of feeble-mindedness involves the most serious problem. Society suffers

most from this class. It is enough to remember that the unrestrained productivity of the defective and delinquent classes is appalling—abnormally large families among them are the rule. The economic burden from these dependent classes may become unbearable, and the social contamination from this source is a very real menace. Our knowledge is not yet sufficiently full and definite to warrant considerable procreative restraint of certain physical and moral types, which are inherently inferior. Nevertheless, it may be assumed that, if individuals of criminal and feeble-minded types could be made to remain childless, nothing would be irretrievably lost to the race. Ultimately the feeble-minded will have to be segregated or sterilized, and the criminal class segregated. It is interesting to note, in this connection, that the offender who is normal in mind and body reacts to punishment in such a way that the theory of the "deferent effect" seems to be valid. Not so the defective, the victim of imperfect mental equipment, the slave of addiction, etc., do not react normally to punishment. Those of the last category are therefore more in need of a psychopathic ward than of a criminal institution. The prophylactic measures against feeble-mindedness should begin in the school, where the character of the child ought to be studied with an eye to criminal and defective conduct. Defective judgment, abnormal temper, bad habits, and the character of the environment should also be watched.

Placing in a proper environment will correct a great many habits, and arrest the development of criminal tendencies. The underlying physical condition should, of course, not be disregarded. The utilization of this defective element for society is not an impossible problem. Measures against alcoholism, prostitution, and venereal diseases will also constitute part of the preventive measures against feeble-mindedness.

To cope with this problem will require not only individual co-operation, but also great radical changes in our form of life and government. Prostitution at present is the concomitant of capitalism and militarism, and "is stimulated by the starvation wages of the working girl."

Prostitution is the manifestation of weakened moral stamina, forced by two factors: economic pressure and sexual instincts. As marriage is prohibitive for the poor girl, she is forced by her weakened moral stamina into prostitution. On the other hand, "the young man of the middle and higher classes, who has a future before him, usually does not approach a girl of his own class until he has reached the required position, and is looking for a constant regulator of social relations—prostitution—a regulator which breaks and destroys the bloom of the young girls of the poorer classes." He promotes prostitution more than the male representative of the poorer classes, who cannot afford this luxury, and who usually marries early.

In order to assist the propaganda and to promote the measures of race hygiene principles, we shall have to establish mental clinics for diagnosis and medical treatment of these defectives, and mental hygiene classes for those who need and desire training and instruction. The propaganda will attempt to spread knowledge that will appeal to the

altruistic instinct, and thus move those seriously genetically deficient to voluntary celibacy. It ought to seek to cultivate the productive instinct. The old saying: *Fortes fortibus generantur* (strong are borne by strong) should be the logical conclusion drawn from the application of biological knowledge to social evolution.

The work in the clinics and classes should consist in studying the dynamic phases of human life, and should include an effort to get into the personality of the individual; it should not be based upon preconceived religiously accepted dogma. We shall then have to determine the adaptive tendencies of the individual, and his ability for education and re-education; we shall seek the readjustment of reaction, and the immunizing of morbidly sensitive conflicts through a better understanding or through suggestion. We shall also aim at environmental betterment, the adjustment of each individual to his psyche, and inversely to make the individual master of his soul.

Recent investigations have shown that certain mental trends or emotional complexes, which control the normal individual and largely influence our mental life, and which, during the ordinary activities of the day, are more or less lost sight of, lead to conflicting emotions and dilemmas even in normal individuals. Such perversions of normal processes are due to bad mental hygiene, and are easily acquired by the neurotic and hysteric. Consequently the large percentage of neurotics and hysterics with weak mental resistance and bad habits, should not be considered outcasts from society, and their conduct and lives should not be paralyzed either with regard to their own existence, or in their relation to their fellowmen.

We are all born with certain potentialities, positive and negative, social and antisocial. Whether these features become actualities depends upon the environment, and, just as many a talent has never been awakened, has never come to light for lack of proper stimuli, so many incipient vices may be overcome or diverted by proper training. We create a habit, and, by creating a good habit, the vice or evil habit can be overcome. Hence these neuropathic individuals and bad characters, may become, under proper stimuli and environment, more useful beings than people born without any neuropathic taint, but living under vicious or improper surroundings.

Every community ought to keep race hygiene records, or so-called anthropological records, where the individual would be able to find the sanitary history of his ancestry, and the necessary information regarding the advisability of his or her mating and propagating.

There are many more problems which will have to be met in the process of re-educating and purifying the race.

It is the finest and most imperative problem humanity has to accomplish. The task is a difficult, but not an impossible one, for there are no laws which can enforce the changes as long as the individual is not conscious of the necessity for them, and does not willingly co-operate. Before we can complete it, our mode of life and government will have to undergo great revolutionary changes; and immigration and our international relations will

have to undergo an alteration of form, and to assume a more ideal character. The movement toward the solution of these problems ought to become the religion of the present generation, and should be started as the *Race Hygiene Movement*.

THE VISCERAL LESIONS OF PURPURA HEMORRHAGICA AND ACUTE ARTICULAR RHEUMATISM.

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It is evident that in diseases the pathogenesis of which is vague, accurate clinical observation inevitably proves of aid, furnishing additional links in the chain of pathological reasoning. Surgeons with their opportunity for the study of living pathology are often able to furnish contributions to the elucidation of diseases, actually or supposedly in the realm of medicine. Occasionally the surgeon is led to a discovery of clinical or pathological interest through errors in diagnosis, a fact partly extenuating an operation needlessly performed.

The view that there is an intimate etiological and pathological relationship between purpura hemorrhagica and acute articular rheumatism is strongly sustained in the striking similarity in their clinical manifestations in certain types. This commingling of symptoms is the argument many clinicians use to demonstrate the relationship. This method of clinical analysis, while somewhat arbitrary, is extremely common in medicine, as it tends to simplify classification. When two diseases exist, similar in clinical manifestations, a somewhat hybrid picture is produced when the symptoms overlap. It is particularly in this twilight zone of pathology that interest is aroused. Attention is then focused on a lesion, or a group of symptoms which act as the connecting point between two apparently dissimilar symptom complexes. This relationship is well illustrated in acute articular rheumatism and the various forms of purpura.

The inflammatory reaction of the joints is common to both diseases. Though the arthritic symptoms may be transient or persistent, they occur nevertheless with sufficient frequency and definiteness to establish clearly a common causal relation. Much credit is due to Osler for calling attention to and emphasizing the importance of this clinical combination. His observations, the first to focus the attention of clinicians on this important and interesting topic, are embodied in a series of papers in which he successively developed his theme so as to include ultimately within the compass of these clinical associations such congeners of purpura as erythema multiforme, erythema nodosum, purpura simplex, peliosis rheumatica, etc.

One phase of this subject, of active interest and practical importance to the surgeon, is the occurrence of acute abdominal symptoms commonly called gastrointestinal crises. Osler laid considerable stress upon the value in the differential diagnosis. Since the publication of his original contributions, the literature has increased extensively,

until at present there are many case reports illustrating the diagnostic pitfalls.

In purpura hemorrhagica a gastrointestinal crisis may dominate the clinical picture. Under these circumstances, with abdominal pain as the paramount symptom, it is not astonishing that erroneous diagnoses are made. A common error is to diagnose acute appendicitis. This is particularly liable to happen during the initial stage of the disease, before the full development of the cutaneous eruption. Naturally, it is the location and severity of the abdominal symptoms which cause the error.

Though this diagnostic accident is not infrequent, many surgeons having published and recorded illustrative cases, there exists but relatively scanty and incomplete description of the visceral and peritoneal lesions found at the operation. It is somewhat strange that the lesions have not been accurately recorded, for any contribution, no matter how minute, must eventually be of value in a disease so vaguely understood.

The following case came under my care. The history is as follows:

M. G., girl, aged 13 years; admitted March 21, 1917; discharged April 18, 1917. Family history negative. Previous history, measles; does not recall any other serious illness. Appetite fair, bowels regular; no urinary trouble; weight about the same. Present illness began seven days ago. The patient began to complain of pain in the right lumbar region. She did not feel well; became tired on slight exertion. During this time the headache to which she is accustomed had become more severe. The pain gradually localized itself in the right lower quadrant, and the day before admission she vomited. Two days before admission she had to go to bed; shortly after this the knees, wrists and ankles began to swell, edematous. There was considerable stiffness, but no pain. General appearance, a poorly nourished and developed anemic-looking girl of 13 years. She is dull, listless, slightly stuporous. Slight photophobia. Pupils equal and regular, react to light and accommodation. Teeth in poor condition, tongue coated deeply, throat somewhat injected. No visible or palpable enlargements in the neck. Thin walled chest with fair resonance; no adventitious sounds elicited. Apex of heart in normal position; rhythm regular. There is a soft blowing systolic murmur at the apex. The second aortic is markedly accentuated. No marked rigidity or distention of abdomen; some generalized tenderness, particularly evidenced in the right lower quadrant. Tenderness over McBurney's point; palpation gives the sensation of an oval-shaped body in the right iliac fossa; percussion negative. Opinion was divided as to the diagnosis. Acute rheumatism, appendicitis, and typhoid fever were mentioned. Operation was decided upon in view of the extreme McBurney tenderness. Liver, spleen, and kidney not palpable. There are a few red spots resembling rose spots on abdomen. Genitals not examined. Extremities poorly developed. Both knees and both elbows are slightly swollen, stiff, but painless. There are a few macular red spots with small blebs about the involved joints and about both ankles; left leg somewhat spastic. Knee jerks present. Lymph nodes not enlarged. Temperature, 100°; pulse, 108; respiration, 20. Urinalysis: Clear, amber, acid, 1030, albumin trace, sugar negative, marked indican, acetone negative; numerous red blood cells, few white blood cells, occasional finely granular cast, large amount of squamous epithelium urates.

Operation on March 22, 1917. Ether narcosis. Palpation under ether gave a distinct gurgling sensation. Right rectus incision. Transverse colon dark (lead) color; cecum delivered; appendix dark color. No signs of acute suppurative inflammation. Terminal ileum distended, dark red, thickened. Few hemorrhagic areas on surface. Ileum 3 ft. above was normal. Meckel's diverticulum seen, showing same features seen on in-

flamed ileum; mesenteric glands enlarged and swollen, brownish red in color (looks like lesion of typhoid fever). Several ounces of clear fluid in pelvis welled up through incision. Closed without drainage.

Patient recovered from the operation without any untoward symptoms. Five days following the operation the right wrist joint became swollen. The spasticity disappeared from the legs and was followed by the appearance of numerous well-defined purpuric spots over each ankle. They were well marked, particularly on the inner side. They were purple in color, did not disappear on pressure, and extended 3 in. above the ankle. Temperature is running low. Blood culture is negative on March 27, 1917. Widal negative for 24, 48, and 72 hours. Sodium bicarbonate gr. x, and sodium salicylate, gr. x, were given three times a day. The ankles were painted with oil of wintergreen. Discharged cured on April 18.

From a careful perusal of the description of the symptoms it is evident that the correct diagnosis was purpura hemorrhagica. The misleading abdominal symptoms, in the light of the ultimate diagnosis, were those of a severe gastrointestinal crisis. Their abrupt onset and rapidly increasing intensity dominated the clinical picture and induced the abdominal exploration. It was only when the eruption appeared that the correct diagnosis was made.

Though the history of this patient is of interest in differential diagnosis, I believe that it presents a matter of cardinal importance concerning the visceral pathology of purpura hemorrhagica. I refer, specifically, to the alteration in the mesenteric lymph nodes. The pathological changes were unmistakable. In view of the fact that careful investigation failed to discern any other lesion, the assumption is warranted that the inflammation of the mesenteric lymph nodes was the cause of the abdominal pain, tenderness, and rigidity. That these nodes should be involved is readily understood, if one considers purpura hemorrhagica as an infection closely allied to rheumatic fever.

Without attempting to be dogmatic or arbitrary, I have seized upon this specific finding in the mesenteric lymph nodes as a connecting link between purpura hemorrhagica and acute articular rheumatism. By no means should one infer that it always occurs or that reasoning is perfect. What I wish to point out is that a gastrointestinal crisis may take place in both purpura hemorrhagica and acute articular rheumatism, and that the operative findings are identical.

The occurrence of abdominal pain in acute articular rheumatism is not mentioned in the usual detailing of the symptomatology. That pain may occur and project itself as the dominant symptom during the onset of the disease is proved by my personal experience and from a perusal of the literature.

In an historical survey of the subject of appendicitis one finds frequent reference and discussion regarding rheumatic appendicitis. Many writers have contended with dogmatic assurance that rheumatism is the most common cause of appendicitis. These statements are valueless because they are merely expressions of opinion unsupported by operation or post-mortem examination. From a reading of this phase of the literature of appendicitis, it appears that at one time every conceivable condition was adduced as the cause of appendicitis.

Moreover, the term rheumatism then possessed

vagueness and indefiniteness and lacked clinical precision. At present the effort is made, and correctly so, to limit its use to the specific infection associated with polyarthritides. Therefore, the older literature of so-called rheumatic appendicitis is worthless for the purpose of analysis.

The following case is reported to demonstrate the occurrence of gastrointestinal crises in rheumatism.

F. S., schoolboy, aged 14 years, admitted Aug. 6, 1913, discharged Aug. 24, 1913.

Family history, father died from heart failure one year ago; mother alive and well; brother in good health. Previous history, is of regular habits; had mumps; rheumatism two years ago; bowels regular until present illness; regular mixed diet. Present illness began four days before admission with severe frontal headache and vague pain in the abdomen. Three days ago complained of pain in head and abdomen; the pain at present is in the right iliac region, headache since illness began; felt feverish since the day before admission; no chill, sweat, or nosebleed; bowels constipated; no nausea or vomiting. General appearance, well developed male of 14 years; fairly well nourished; anxious expression. Pupils equal; circular; react to light and accommodation. Mucous membrane healthy in appearance. Tongue is coated white, no fissures or tremor. Distinct disagreeable musty odor to breath; teeth in very poor condition, decayed on margins of gums; tonsils normal in size; entire pharynx somewhat injected. There is a marked cardiac impulse in the fifth interspace on the mamillary line; marked impulse on palpation; on percussion, the heart is enlarged slightly downward to the left; auscultation gives a very loud blowing murmur systolic in time, heard best at sixth rib, one inch to the left of the nipple line; it is transmitted to the axillary region upward and to the right. Arteries, walls soft, marked carotid impulse. Pulse regular, full, and bounding; lungs, no adventitious sounds. Abdomen scaphoid in shape; no visible or palpable mass; no irregularity; no rigidity; not sensitive on palpation. Spleen palpable, extending two fingers below ribs. Skin warm, moist, no eruptions. Complaints of tenderness on right knee and left ankle when palpated. Muscles negative. Lymph nodes palpable on anterior cervical chain. Reflexes normal. Sexual organs apparently normal. Temperature 104°, pulse 100, respiration 28. Urine examination, clear; color, auburn; specific gravity, 1.012; reaction, acid; indican, moderate fat; no clots; casts, occasional granular (fine); crystals; urates. Blood examination, leucocytes, 14,000; polymorphonuclears, 80 per cent.; lymphocytes, 18 per cent.; mononuclears, 2 per cent. Widal examination, 1-20 for thirty-five minutes, negative. Prepared for emergency abdominal operation; diagnosis; acute appendicitis.

Operation, Aug. 6, 1913. Ether narcosis. The abdomen was opened through an intramuscular incision. The appendix was negative. The mesenteric lymph nodes were generally swollen, soft, red in color. Appendectomy. The abdomen was closed with drainage.

Aug. 7, 1913. Patient complains of pain in entire head; did not sleep well, "pillows too hard"; pain in knees and left ankle, no visible abnormalities seen on same; temperature 102°, pulse 82, respiration 26; Widal taken. Complaints of small enlargement on left side of tongue and pain in right anterior cervical region on palpation.

Aug. 10, 1913. The patient complained of severe pain in the knee joints, which became swollen, hot, red, and tender. Transferred to the Medical Ward. The diagnosis of acute articular rheumatism was evident. Salicylates were generously administered with complete subsidence of the joint symptoms. Primary union. Patient discharged in good condition.

The cardinal fact in the recital of the history is the occurrence of the acute abdominal symptoms. Their prominence and sharpness accentuated the clinical record and furnished the indication for operation. To one accustomed to think of acute articular rheumatism in the terms of the stereo-

typed description, the occurrence of abdominal symptoms not only appears with a startling freshness, but the idea of an abdominal operation seems bizarre. A finer analysis, however, rapidly dispels the confusion. With the well established association of purpura and rheumatism kept clearly in mind, the analogy between the abdominal symptoms is rapidly seen and accepted. The similarity is exceedingly close. Reasoning from analogy, it would seem logical to assume that the patient suffered from a gastrointestinal crisis, absolutely comparable to that seen in purpura. This view is not only strongly strengthened, but, in fact, receives practical confirmation from the pathological findings in the mesenteric lymph nodes. In each instance these were unquestionably the cause of the symptoms. Moreover, they were identical macroscopically. In fact, the changes in the nodes were sufficiently conspicuous and characteristic to constitute to my mind strong evidence as to the unity of the diseases.

The mesenteric lymph nodes play, occasionally, an important part in the causation and production of acute abdominal symptoms. There is a definite group of cases in which the symptoms of acute appendicitis are effectively mimicked. I have operated on a few of these patients. The appendix is usually normal; the mesenteric lymph nodes are distinctively enlarged, whitish in color, non-adherent, and the peritoneum is normal in color and texture. In the absence of microscopical evidence of inflammation or degeneration of the appendix, it is difficult to ascribe a cause. It is probable that the toxemia of intestinal stasis is a factor. As these patients usually recover without the slightest detriment to their physical condition, one is tempted to view the condition as purely physiological in origin. On the other hand, there is a form of tuberculosis of the lymph nodes, in the mesentery of the terminal ileum, that has exacerbations with fever, pain, tenderness over McBurney's point, rigidity, and leucocytosis. The symptoms of acute appendicitis are effectively simulated. I have operated in, perhaps, eight cases of this nature; in all the appendix was normal, save in one, where it was definitely tuberculous. The diagnosis is not only established from the characteristic appearance of the nodes, but the history often aids in furnishing confirmatory details as the history of an operation for tuberculous nodes elsewhere in the body.

The enlargement of the mesenteric lymph nodes in typhoid fever is entirely different from the two types of enlargement reported above—the innocent and the tuberculous. The nodes of typhoid fever are soft, swollen, and torrid red in color. The diagnosis is comparatively simple as proved by the subsequent evolution and course of typhoid fever. I have operated three times for abdominal pain supposed to be produced by acute appendicitis, only to find an innocent appendix associated with considerable swelling of the mesenteric lymph nodes. These three patients following operation showed the symptoms of typhoid fever verified by the positive Widal and blood culture. In other words, one is led to assume that the symptoms in these three cases, as well as the symptoms in the above-mentioned cases of tuberculous nodes, were produced through the swelling of the nodes.

The point which I wish to emphasize is the striking similarity, yes, the direct identity of the lesion in the mesenteric lymph nodes in purpura and rheumatism. The sameness of etiology or cause can be maintained with a considerable degree of reasonableness in view of the well established and generally admitted association of purpura hemorrhagica and rheumatism. In sum, there is a specific infection which not only produces arthritis and purpuric eruptions, but involves the mesenteric lymph nodes of the intestines.

An essential point to remember is that when the mesenteric lymph nodes are affected, abdominal pain may be the chief symptom. The surgeon should be acquainted with the clinical manifestations of articular rheumatism and purpura hemorrhagica; unless many of these cases are studied in detail and the symptoms analyzed, numerous mistakes will be made, in view of the striking similarity of the symptoms to acute appendicitis. Keeping the above point in mind, the surgeon should in the future, in obscure or doubtful cases of appendicitis, examine the skin with great care for purpuric spots, or inquire closely into the occurrence of arthritis or the existence of rheumatism, endocarditis, chorea, and tonsillitis.

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Medicolegal Notes.

Damages for Unauthorized Autopsy.—The Minnesota Supreme Court holds that it is no defense to an action to recover damages caused by an autopsy performed on the body of the plaintiff's daughter without the consent of the next of kin, that the defendant, as the attending physician, was unable to ascertain the cause of death and performed the autopsy for that purpose so as to be able to give a certificate as required by law stating the cause of death.—*Woods v. Graham*, Minnesota Supreme Court, 167 N.W. 113.

Evidence as to Fracture of Skull.—In an action for personal injuries received in a railway accident the plaintiff testified that he received a severe blow on the back of his head which fractured his skull. His head was exhibited to the jury, showing a marked depression in the skull at the point where he located the injury. In connection with this he offered the testimony of experts, who stated that the skull had been fractured. To rebut that evidence the defendant produced testimony of an expert who had examined the plaintiff and who stated that the skull was not fractured. This expert also testified that the depression upon the plaintiff's skull was one sometimes found in the heads of normal people. As tending to corroborate that statement the defendant offered in evidence the x-ray pictures of two men whose heads showed similar depressions. This evidence was not admitted. This ruling was affirmed on appeal on the ground that a congenital malformation in the skull of one person is no evidence that an abnormal condition somewhat similar in the skull of another is not due to some postnatal cause. The very fact that such a condition is unusual indicates that it is an abnormal one. The relevancy of such testimony must be determined by the trial judge, and his rulings will not be disturbed except when it is made to appear that the complaining party has been deprived of a substantial benefit in the exclusion of the preferred testimony.—*Texas & P. R. Co. v. Williams*, Texas Court of Civil Appeals, 200 S. W. 1149.

Recovery for Mental Suffering.—The North Carolina Supreme Court holds that as all pain is mental and centers in the brain, it follows that as an element of damage for personal injury the injured party may recover for actual suffering of mind and body when they are the immediate and necessary consequences of the negligent injury.—*Hargis v. Knoxville Power Co.* (N. Car.) 94 S. E. 702.

Military Medicine.

THE ORGANIZATION OF THE MEDICAL PROFESSION FOR WAR.

PRESIDENTIAL ADDRESS.*

ARTHUR DEAN BEVAN, M.D.,

CHICAGO.

I FEEL greatly honored by the election to the position of President of the American Medical Association. I recognize not only the honor but also the responsibility of assuming the leadership of the organized medical profession of the country at this time. The war has made unusual and exacting demands on us. The government and the people are looking to us to furnish in this great emergency not only the necessary number of medical men for the Army and Navy, but also the highest degree of medical service and efficiency. This is proving to be a war not simply between well-organized armies but between efficiently organized nations. It is now clear that in order to win the war we must organize the entire nation in such a way that every man and every woman must become a useful part of a great and powerful national military machine. No part of such a great national organization is more important than the medical profession, and on this, the opening evening of this great war meeting of American physicians, it is my purpose to address you on the organization of the medical profession for war.

Organization of the Association.—There are in the United States more than 145,000 men and women licensed in the various States to practise medicine. Of these more than 81,000 are members of the American Medical Association, and more than 45,000 are Fellows. The American Medical Association is organized along the most democratic and representative lines. No profession in this or in any other country is more thoroughly and efficiently organized than the American Medical Association. The unit of the organization is the county medical society. It is the avowed purpose of the county society to receive into its membership all reputable practitioners who are legally qualified to practise medicine. The county medical society is a democratic organization. It is not, nor is it intended to be, a select and exclusive medical society. Its functions are educational and social. It exists for the purpose of using the united efforts of the physicians of that county for the benefit of the people and for the education of its members. Any county society that is not democratic and representative is not fulfilling its proper function. By virtue of membership in the county society the physician becomes a member of his State medical society and of the national society—the American Medical Association.

During the first half century of its existence the American Medical Association was a rather loosely organized body. It was founded for the special purpose of elevating the standards of medical education and practice. Its ideals were high, and it accomplished a great deal of good. Not, however, until its reorganization in 1901 on broad democratic and

representative lines did it become in fact the organized medical profession of the country. The American Medical Association is not sectarian, but is broad enough to include in its membership all licensed physicians who honorably practise scientific medicine.

Activities of the Association.—Since its reorganization the American Medical Association has had a record of splendid achievement. It has succeeded in elevating the standards of medical education in this country, which had been uneven and unsatisfactory, to a position where they are as high as those in any other country. It has improved the character of medical instruction until we can now state without fear of contradiction that the medical student can obtain as thorough and complete an education here in America as anywhere in the world.

Moreover, the American Medical Association has accomplished much through its Council on Medical Education in cooperation with the *Journal*. Through these departments it has been of great service in creating a register of licensed practitioners. A register of medical students is now kept so that the association possesses a full record of the medical career of each licensed practitioner and medical student.

The American Medical Association and its constituent State medical associations have succeeded in securing improvements in the medical practice acts of most of our States protecting the people against ignorant and inefficient practitioners and securing better public health service.

The American Medical Association has through its Council on Pharmacy and Chemistry done outstanding pioneer work against the unscientific and unnecessary use of drugs and against the prescribing of secret formulas and "quack" medicines. It has done more than any other medical organization to place drug therapy on a sound and scientific basis.

The *Journal of the American Medical Association* has become the largest and most influential medical periodical in the world. It has a circulation of more than 65,000 copies, and in the best sense it is the instrument that keeps the profession in touch with the affairs of the association, with scientific medicine, and through well-prepared abstracts with the current medical literature of the world.

It is now more important than ever that these admirable activities of the association should be continued and amplified, and that steps should be taken to meet the new problems that will confront the association after the war. These will undoubtedly include the stimulation of medical research, the development of an adequate American medical literature, the creation of post-graduate medical facilities not only for our own medical men, but also for the medical men from other countries, who will find here in our great democracy a welcome and opportunities in medical instruction and medical research second to none. But these things can and must wait on the one great problem that confronts us now, *the winning of the war*.

Demands Made by the War.—The problem that confronts the country in this war, as far as the development of the medical departments of the United States Army, Navy and Public Health Service are concerned, can briefly be stated in this way:

*Delivered before the American Medical Association at the Sixty-ninth Annual Session, Chicago, June 11, 1918; courtesy of the *Journal of the American Medical Association*.

If we raise an army of 3,000,000 men, 10 per cent. of this number will be in the medical department; that is, 300,000 officers and men, and of these at least 25,000 must be qualified physicians and surgeons. If we raise an army of 5,000,000 men, the medical department will contain 500,000 officers and men, and it will be necessary to have between 35,000 and 40,000 qualified medical men. At present there are more than 200,000 men authorized in the Medical Department of the Army. Of these, somewhere from 20,000 to 25,000 will be medical officers, and the balance enlisted men and nurses. If we create a navy of 500,000 we shall need 3,500 medical men. If we create a navy of a million, which is probable, we shall need 7,000 medical men. The need of the Public Health Service, although more modest, will be considerable, and must be met. No one can prophesy the extent or duration of the war, but we can say with certainty that it is the purpose of the American people to create and maintain the largest and most efficient navy in the world and to organize and train and equip an army large enough to win the war.

Who Represents the Medical Profession?—The efficient organization of the medical profession of this country for war is being splendidly accomplished by the cooperation between the medical departments of the Army and Navy and the organized profession, the American Medical Association. It has been unfortunate that a medical advisory committee which is not in any way representative or democratic, and which has no proper function in the efficient organization of the medical profession for war, should have been called into existence. A small coterie of specialists, of gynecologists, and surgeons, no matter how eminent or how successful they may have been as promoters and exploiters of special medical societies, can in no way in this great emergency and in this great democracy represent the medical profession.

Response of the Profession.—At the outbreak of the war the American Medical Association offered to the United States Government its entire organization and machinery to assist in the enormous expansion that became necessary. Through the officers of the county societies, the State societies, and particularly through the columns of the *Journal*, the needs of the Government were placed before the organized profession of the country, and they responded splendidly to the call. So far 25,000 have gone into the medical departments of the Army and Navy. No other profession or calling has responded more promptly to the needs of the country than the medical profession. The great bulk of the medical men who have gone into the Government services were members of the American Medical Association.

The demands made on the medical profession by the war are so great that it is evident that in order to secure the necessary number of medical men for the Government, and at the same time prevent hardships in some communities and institutions, it is necessary to organize the entire profession of the country in a systematic way. It therefore became necessary for the American Medical Association, acting with the Surgeon-General's Office, to take a census of the available medical men in the United States, in each State, in each county, in each

medical school, and in each hospital, and to attempt to secure from each one of these different units at least 20 per cent. of the medical men. This plan will enable the Government to secure the necessary number of medical officers for an army of 5,000,000 men or more, and a navy of 1,000,000, without any great hardship to any community or to any institution. It is evident that a plan of this kind is absolutely essential, and it is the purpose of the American Medical Association, through its county and State societies and its national organization, to create such a systematic classification and secure the adoption of this plan. Such a plan means a voluntary draft of the medical profession by the profession itself. The medical profession will supply the men needed by the Government. No conscription, no compulsion, will be required.

The Honor Roll.—The survey has been completed, and was published in the *Journal*, June 1. It gives the honor roll of the men who have already gone into the service from each county and State society. It gives the number of men under 45 and under 55 years of age in each county, and the percentage of men who have volunteered. Up to this date about 15 per cent. of the total number of men have volunteered. The Surgeon-General of the Army has called for 5,000 more medical officers, and the Surgeon-General of the Navy needs about 2,000. It becomes necessary for us to raise the total number of medical officers this year to about 30,000, which means nearly 22 per cent. of the medical men of the country.

As President of the association, I desire to call the serious consideration of each county medical society to the fact that in order to do its duty it should furnish at least 20 per cent. of its members for military service. This situation should be met fully and promptly by each county medical society. In order to prevent hardships to communities due to lack of medical service, and in order to prevent the crippling of medical schools and hospitals, no community and no institution, unless it is clearly over-supplied, should be allowed to furnish more than 50 per cent. of its medical men. As far as possible, the quota from each county should be filled by men under 45 years of age. If this is not possible, men up to 55 will be taken. As fast as each county fills its quota of 20 per cent.—and this should be done by each county within the next few months—the secretary of the county medical society should notify the secretary of the State medical association and the secretary of the American Medical Association of that fact.

The Supply of Medical Men.—Profiting by the experience of the great nations that entered the war in 1914, the medical profession of the country, and the Government, have very wisely taken steps to prevent the disruption of our medical schools, and I am glad to say that our National Government adopted the suggestion made by the Surgeon-General to allow medical students to be commissioned in the enlisted Medical Reserve Corps and have them detailed to complete their medical education and to serve a year in a hospital as internes before they are called into active service. This was to apply to the men who have already studied medicine in the medical school proper for one year. In order to insure the further supply of medical students to

meet the demands of a great and prolonged war, the effort is being made to have this apply also to the men who are taking their premedical work in universities. It is necessary to have these men continue their medical studies in order to insure the continued supply and the necessary number of medical men.

The United States is the only great reservoir of medical men in the world. The medical professions of Great Britain and France, of Italy and Belgium, and this is probably more true of enemy countries, have been well-nigh exhausted by this war. They delayed making plans for a continued supply, their medical schools became disrupted, and they are already suffering for medical men in their armies and in their civil life. Major Horace B. Arnold, chairman of the Council on Medical Education, who is on active duty in the Surgeon-General's Office, looking after the problem on medical education for General Gorgas, has this matter now under consideration, and it is to be hoped that he will succeed in securing rulings that will enable our premedical students to continue their medical courses. If the need for medical men becomes very great we can adopt a continuous session, and graduate men in three years. The senior students in the medical schools should have special courses in military surgery. I would recommend that, if possible, one or two competent medical officers be assigned to each medical school for this purpose.

Expansion of the Medical Department.—The enormous problem that was presented to the Surgeon-General's Office by the war may be realized in a striking way by the statement that the development of an adequate medical department for 3,000,000 men means that less than 2 per cent. of such a department is represented by the men in the service at the time of the outbreak of the war—that more than 98 per cent. of the men must be taken from civil life, and must be given the necessary military training to fit them for active duty in the field. This enormous problem is being adequately and splendidly met. A small medical department which existed before the war has formed the leaven necessary to change a great body of physicians coming from civil life into efficient military surgeons and efficient hospital and ambulance units. Special training camps for medical men were formed at Fort Riley, Fort Benjamin Harrison and Fort Oglethorpe. Gradually the work done by these different camps is being concentrated at Fort Oglethorpe, where an enormous military medical university of 40,000 officers and men is being created. Here the enlisted men will receive their necessary training in small and large units, and the medical officers will receive their necessary military instruction and instruction in such medical work as will peculiarly fit them for their military duties.

General Gorgas.—Standing out prominently in the development of the great Medical Department of the Army is a great figure, the figure of Surgeon-General Gorgas, who in a very quiet way has demonstrated again the fact that he is one of the greatest organizers in sanitation and in military medicine and surgery. It is most fortunate that in this emergency work of the medical department it was found in such strong and capable hands. General Gorgas is one of the great assets of this country to-

day. The splendid work that he is doing he should continue to do throughout the war, and the organized profession of this country could do no greater service to the government than to make clear to the Washington authorities that they are unanimous in their support of Surgeon-General Gorgas, and regard him as the best man in the country for the head of the Medical Department of the Army.

General Gorgas has succeeded in surrounding himself with the strongest, most efficient men, and has shown great wisdom and judgment in placing specially qualified men at the heads of the many departments under his control. The men he has chosen from the regular corps as the heads of divisions are strong and efficient: it is only necessary to mention such men as Welch, Vaughan, Billings, Mayo, de Schweinitz and scores of others, who in civil life are the recognized leaders in their special field of work, recognized not only in this country but throughout the world.

We are equally fortunate in finding the Medical Department of the Navy in the efficient hands of Admiral Braisted, who has succeeded in meeting the great expansion made necessary by the war in the most satisfactory way.

The medical profession is also proud of the splendid service that has been rendered by the Public Health Service under the able leadership of Surgeon-General Blue.

Health During Mobilization.—The mobilization of this country for war is an enormous task. To create an army of from three to five million men or more, where before we had less than 100,000, and create a navy of from 500,000 to 1,000,000 is an undertaking that had never before been worked out by any country. It was necessary that this enormous mobilization should be done as rapidly as possible, and from the rapidity and the enormous size of the mobilization it was inevitable that the medical organization could not accomplish the impossible and secure at once ideal results. Yet when we compare the mobilization of the United States for war with other countries we find cause for congratulation. Up to the time of our mobilization the army of Japan had held the record for the lowest mortality of any country during mobilization, and the best care of its soldiers from a medical standpoint. In the Japanese mobilization there was a mortality of 20 per thousand. In our mobilization there has been a little less than 10 per thousand. In other words, the showing of our mobilization from the standpoint of mortality was twice as good as the record held by any country up to that time. There have been epidemics of contagious diseases, such as measles, mumps and meningitis, and the total number of cases occurring among 2,000,000 men has been somewhat startling; but when these facts are analyzed and it is found that the mortality in our army is less than the mortality in civil life of the same number of men of the same age, picked by insurance companies, we can realize what splendid results have been accomplished.

The people of this country, the mothers and fathers and wives, whose sons and husbands are in the Army and Navy, are entitled to know, and it will be a great comfort to them to know, that the health of these men is better looked out for than when they were in civil life, that the dangers that

they run from disease are less than when they were in civil life, and that when they are sick or wounded they will receive as good care, as high a class of medical and surgical service, as could possibly be obtained in civil life. This is true because our best men have gone into the medical service, and the government is providing the medical departments with every facility necessary to give our soldiers the best medical care.

The Venereal Problem.—Strikingly successful has been the handling of the venereal problem. A careful examination of the evidence shows that venereal disease is only about half as frequent in men after they enter the Army as in similar groups of individuals in civil life. Certainly no army has ever been mobilized which has been as clean morally and free from venereal disease as the present American Army. Associated with this fact and responsible in large part for the splendid showing made is the elimination in large part of drink from the Army. Certainly no army has ever been mobilized that has been as free from drinking as the American Army. It was fortunate that our mobilization occurred at a time when the amount of drinking in this country was rapidly diminishing, and at a time when most of our states were going on a prohibition basis. Special efforts have been made by the government in the way of laws that have been enacted for this purpose to prevent drinking in Army posts and in territory immediately contiguous to them. This leads me to a consideration of the problem of drinking and prohibition as a purely medical problem.

Necessity of Eliminating Drink.—As we analyze the facts in a scientific and medical way there can be no doubt of the injurious effects of alcoholic drinks on both the physical and the mental well-being of our population. There can be no doubt that the greatest single factor that we can control in the interests of the public health of the nation would be the elimination of alcoholic drink.

In the slow evolution of civilization, many great wrongs persisted for centuries because people had become so accustomed to them that they were accepted as matters of course. They became so entrenched that it required either centuries of education or a revolution to extirpate or right them. Great epidemics and plagues were accepted as inevitable and as visitations of God. Government by autocratic power and divine right without the consent of the governed has been tolerated. Slavery with its horrors was defended. The unequal rights of women went unquestioned. Among these great wrongs too long tolerated, none has done more injury to mankind than drink. Events now are moving rapidly in the convulsions of a world war. Women have demanded and will obtain, as they deserve the world over, their equal rights. The course of events is writing the death warrant of autocracy and rule by divine right; and science and education should eliminate not only the plagues and epidemics but also the curse of drink from the world.

I want to plead for the united action of the organized medical profession of this country to secure protection by law against the injury that drink is doing to our people, not as a political measure, but as the most important public health measure that could be secured. In this crisis when we and our allies are fighting not only for ourselves but also for human-

ity and civilization, we must organize the entire nation in the most efficient possible way, and this cannot be done without eliminating drink. Each member of the medical profession as an individual, each county medical society, each state medical society should take an active part in the propaganda against drink, and secure national prohibition, not years from now but now when it is so badly needed and will accomplish so much good, not only for our boys in khaki and in blue, but for the nation in arms. And when it has once been done away with, it could no more be resurrected after the war than could slavery.

The Nurses.—One of the serious problems now confronting us is the securing of the necessary number of women nurses for our Army and Navy hospitals. We shall need from 25,000 to 40,000 women nurses. These cannot be secured from the trained and registered nurses of the country and leave a sufficient number of nurses to care for our civilian population. It requires three years of training in times of peace to educate a nurse. But we must remember that in peace times it requires a four years' training at West Point and Annapolis to make an officer of the Army or Navy. In the emergency of this war we are developing splendid officers from well educated, capable men taken from civil life, by intensive short three months' courses in our officers' training camps. The same plan should be adopted in securing the necessary nurses.

There are thousands of well educated, capable young women in this country who are not only willing but are anxious to offer their services to the country. Nurses' training camps and training schools can be developed in our Army and Navy cantonments where, with an intensive three months' training, these young women can be developed into most useful war nurses, and meet the needs of the Government. The Surgeon-General of the Army has already taken steps to encourage these nurses' training schools.

Reconstruction and Reeducation.—Another great problem confronting us is the reconstruction and reeducation of our wounded coming back from the war. Our allies after four years of war, bringing with it hundreds of thousands of cripples, have demonstrated what great good can be accomplished by reconstruction and reeducation. The injured man is reeducated to do some useful work. He is not allowed to drift as a useless wreck, a burden to himself and the community. He is recalled to life by a process of training and reeducation that enables him to earn his livelihood, to occupy his mind and to make life—even with a handicapped body—worth living. Surgeon-General Gorgas has been fortunate in securing as the head of this important reconstruction work our own Dr., now Colonel, Frank Billings, who will have the earnest support of thousands of men and women throughout the country in making this work successful.

Drugs and Chemicals.—An organized effort should be made by the medical profession of the country to secure the creation and maintenance of industries for the production in this country of the necessary drugs and chemicals, surgical instruments and appliances, making this country inde-

pendent in productions of this kind from other countries of the world. The securing of such legislation by the national government as will protect by proper tariff these industries in the process of development is essential. With the 145,000 medical men in this country, with the population and wealth of this country, we are the largest market in the world for drugs, instruments and medical appliances. By proper legislation, industries could be developed so that these products could be made here as cheaply as anywhere in the world, in such quantities as not only to supply our own market but also to enable us to enter other markets and maintain commercially our position in the western hemisphere, especially in this country and in South America.

Health of the Civil Population.—One matter which the profession should not lose sight of in endeavoring to meet the great demand made by war is the health of our civil population. The importance of maintaining and increasing and making more effective a national Public Health Service with wide authority, of developing in each county and each State strong public health departments, cannot be questioned. We should demand such State and national organizations for public health and preventive medicine that will secure for our people in a much better way than at present the great possibilities of modern preventive medicine. The war makes this matter not less but more important.

One Hundred Per Cent. Loyalty.—In organizing the medical profession of this country for war there is one fundamental and basic condition that must be secured: We as a profession must go into this war not only efficient, but we must go into it 100 per cent. loyal, 100 per cent. American. We are at war with a barbarous and brutal autocracy. The American people did not want to enter the war. It was only after the Imperial German Government had murdered our people and destroyed our property and treated our repeated protests with contempt that we prepared to defend ourselves against Germany, as an individual must against a murderer, a highwayman, a thief. We are at war with Germany and Austria. The Germans and Austrians who have chosen to make this country their home must choose between the land of their birth and America, the land in which their children are born. The choice with most of them has not been difficult. They have chosen their new home, the birthplace of their children, and these men and women we accept gladly as loyal Americans. But there are a few who are disloyal and would give aid and comfort to the enemy, and these must be sought out and interned where they can do no harm. It is the duty of every medical man and each county medical society to assist the government in securing the arrest and internment of every disloyal member of the medical profession.

There are in this country some German medical societies, and attention of the government authorities should be called to these. They should be disbanded at once. We should not permit, now, or in the future, in this country any organizations that further German propaganda. The world has had its lesson with this monstrous thing.

The International Fellowship of Science.—The American medical profession as a whole is more familiar with Germany and the German and Austrian people than is any other class of our countrymen. Thousands of our medical men have studied abroad in the clinics and laboratories of Great Britain and France, of Germany and Austria, of Switzerland and Italy. No other class of people in the world has felt more fully the international brotherhood of science than have American medical men. They have regarded scientific knowledge and scientific discoveries as the property not of one nation but of the world. They have accepted the great discoveries, such as Jenner's of vaccination, the American discovery of anesthesia, the work of Pasteur the great Frenchman, the work of Lister the great Englishman, the work of Koch the great German, the German discovery of the roentgen ray, the French discovery of radium, the American discovery of the manner of transmission and means of preventing the spread of yellow fever and typhus. They have accepted these and rejoiced that these great discoveries belonged not to one nation or one people, but were contributions to the great international science of medicine. What effect has the war had on this international fellowship of science?

Our Attitude Toward the German Medical Profession.—I believe we owe it as a duty to ourselves and to the German medical profession to state clearly the feelings and position of the American medical profession toward them. We can never again hold out to them the right hand of the fellowship of science until the German people drive from power and punish as they deserve the brutal and barbarous autocratic government which is responsible for this war, and have created in Germany a government of the people, by the people, and for the people. No matter what doubt or confusion there may have been at the outbreak of the war as to the guilt of the German government, the responsibility is to-day fixed and definite. The refusal to attempt a peaceful settlement before hostilities began, the outrage of Belgium, the invasion of France, the breaking of all international law, the sinking of the *Lusitania*, the evidence and revelations of the long prepared and worldwide plot of Germany to dominate Europe and the world by force of arms, the evidence furnished by the German ambassador to England, Prince Lichnowsky, the deliberate attempt of the German government while we were still at peace with Germany to embroil us in war with Mexico and Japan, the murder of Edith Cavell, the use of poisonous gases, the bombing of unfortified towns and cities, the acquiescence in the massacre of the Armenians by their Turkish allies, have all written with the indelible pencil of truth the history of German guilt.

No matter what sophistries the German people may advance as excuses for these things and for their precipitating war on Belgium, France, England, and Russia, we know that these cannot apply to America. We know that there is not a shadow of excuse for their making war on the American people. It required repeated outrages to convince the American people that the German government

was a thing without honor, that we were face to face with a highly organized and efficient autocracy which recognizes no law but the law of the jungle, an autocracy and a people who would rob their neighbors of their fair fields and their factories, their iron mines and their oil wells, an autocracy and a people who combine the frightfulness and moralities of the Hun with science and efficiency of the twentieth century, an autocracy and a people that have been seized with the insane egotism that they are God's chosen instruments to civilize and "kultur" the world, not by education and science, but with the mailed fist and the sword.

To medical men who are accustomed to study diseased bodies and minds, this state of mind of the German government and the German people seems like the insanity of a whole nation. We medical men are familiar with a horrible disease, which begins with an initial lesion acquired in a debauch and which ends often in insanity with delusions of grandeur and magnificence. It would seem as though the German nation was suffering from such a disease, from such a form of insanity. It acquired its initial lesion in the rape and outrage of Denmark, of Austria, and of France in the decade between 1860 and 1870. The virus of conquest and domination has coursed through its veins for more than fifty years, and has produced now a diseased national mind with the delusions of egotism and grandeur that are responsible for this world's war.

When the German people waken from the nightmare of the war, they must realize the enormity of the crime they have committed under the spell of the medieval autocratic government that controlled them. They will realize that although they might retain with profit to themselves a province stolen from Denmark or Poland, France or Belgium, they can never dominate with force of arms with profit to themselves for any length of time great nations like Russia and France, England, Italy, Japan, and America. We are in this war, as our great President has said, "to make the world safe for democracy;" and whether it takes one year or ten years, we shall continue the war until the brutal and barbarous autocracy of Germany is destroyed. If the German people could have but a brief period of freedom from their war madness, let them ask themselves if the few miles of Belgium and France and the occupied provinces of stricken Russia can compensate them for making nine-tenths of the world their bitter enemy. And they should be made to know that this is not the enmity of a day, the enmity that will disappear with a peace that they hope to compel by force of arms, but that it is an enmity that will last, that will mean for Germany a complete severance of relations, social, commercial, and in every way from ourselves and our allies until Germany has purged itself of guilt, and asks humbly for a place among the nations in which the people rule. The medical profession of America sends this message to the medical profession of Germany.

Our Single Purpose as a Nation.—To the medical professions of Belgium and France, of England and Italy, of Russia and Greece, of Portugal, Roumania, China and Japan, of Brazil and the Central

American Republics, to our colleagues in Canada and Australia and New Zealand and South Africa, and to the other nations who in response to German outrages have joined in war against her, we send a message to hold fast and be of good cheer. We have been a peace loving people, we loathe war, we have done everything a nation could in honor do to avoid war, but our people have been murdered by the German government and the German people, and we protested and they murdered more, and we protested and they murdered more, and we have been forced to defend ourselves and our rights. We have not been a military nation. We have been unprepared for a great war. But we have absolute confidence in the ultimate success of our democratic form of government. We believe that it is not only the best form of government in peace, but that it can be made the most efficient and best organized form of government in a great war. Let us tell our medical colleagues in the nations who are now our allies that America with its more than hundred million free men and women is organizing itself into a great military machine, that all our people, that all our resources, that everything we have is being converted as fast as brains and energy and money can convert them into a weapon with which to win this war, which is now our war. Let us tell them to hold fast and be of good cheer, for America is coming.

America asks nothing for herself. She comes with a clear conscience, a sane national mind, a stout heart, and a strong arm. She comes with the single purpose of a united people, a hundred million strong, to punish the murderers of her people and to win this war for civilization and humanity.

Let us send from this meeting of the organized medical profession of America to our great leader in Washington a message, the message that wells up from every farm and factory, from every town and hamlet, the message that echoes and reechoes through our country, from the mountains through the valleys to the sea, the message that is sent by every man and woman of America when our government calls for their services in this war:

We hear the call of our country. We answer, we are here.

Hysterical Mutism and Deafness in Soldiers and Their Treatment.—Dr. Colin McDowal, writing in the *Journal of Mental Science* for January, 1918, says that the forms of treatment of mutism are endless in variety. McDowal's own treatment may be briefly described as follows: The patient is asked to take a long breath. He is then told to hold his breath; he fails, but very frequently insists that he succeeded. He is then given a cigarette, which he is asked to inhale, when the patient at once discovers that he is incapable of holding his breath. He learns possibly for the first time that his respiratory apparatus is at fault. Exercises to promote correct breathing are then undertaken. The most important point is to obtain a good volume of breath without hesitation on expiration. He is asked to blow out a match at increasing distances; then to breathe freely, trying to say "Ah!" at the same time; then to sigh

the sound "ow" and later the sound "ou." Three long breaths and three sighs together with the correct mouth formation produce the sentence "How are you?" Once deep breathing is established a sudden squeeze of the abdominal wall will produce phonation. The immediate effect will be a display of emotion. Tears are frequently the precursor of speech. As soon as a man can whisper faintly but sufficiently for others to hear McDowal brings in another patient or a nurse to show the patient that he can now be understood. The following day the same process is repeated, and, as a rule, the man will talk freely after the third day. The method of suddenly squeezing the abdominal wall has already been described in a French journal.

Deafness is also dealt with on simple, common sense lines. The patient is seated in a chair and holds a small mirror in his hand. McDowal stands behind a man and instructs him to look at McDowal's eyes reflected in the mirror. After a suitable interval, a sudden noise is made without any movement on McDowal's part. The patient will blink and the mirror will render him conscious that he has moved his eyelids. He is also conscious that the movement is a proof that he can hear. The whole performance is simplicity itself and it appeals to the man's common sense and he is convinced against his inclination in some cases. In both these simple methods the principal agents are common sense and re-education. Lip reading and the use of the deaf and dumb alphabet should never be allowed.

The After Care of the Disabled Soldier.—A. W. Mayo Robson, writing in the *Hospital*, March 9, 1918, on the after-care of the disabled soldier, says that the question bristled with difficulties. There are many cases of men who had been discharged from the army with conditions which are largely remediable by operation, which procedure, however, they decline. To give an example, the man who worked an elevator which he happened to use was noticed to have wrist drop. When told it could be cured by operation he said he did not propose to have it done, he was receiving a pension of 28 shillings a week, on which he could go along comfortably. These men should be made to understand that by getting cured they would not lose their pension and by undergoing the necessary treatment the total productive power of the nation would be much increased. For the tuberculous cases a considerable number of sanatoria would need to be erected and there would have to be special centers for neurasthenic cases and shell shock patients. These did not do well in command depots, they should be right away from the sound of and associations of war. Also in connection with the patients in the many orthopedic hospitals, workshops, and training centers were needed, as well as hospitals or asylums for incurable cases. Robson insisted on the need for properly qualified people to be placed in charge of these institutions; those having special knowledge of the treatments and the apparatus; and they should exercise increasing watchfulness. With very large numbers of war victims a very important function was that of reeducating them to a stage at which they could resume active work.

The orthopedic hospitals would have to be continued after the war to treat and restore stiff joints, fractures with shortening and nerve cases causing deformities. In cases in which stiffness was inevitable it was most important that the ankylosis should take place with the limb in its most useful position; gunshot injuries through the joints, followed by suppuration, generally were succeeded by ankylosis. In the case of the shoulder, for instance, the arm should be kept abducted at an angle of 50 degrees, with the elbow slightly in front of the body and away from it, so that when it was at right angles and the forearm was supinated, the palm of the hand was towards the face. This enabled the hand to be of service when the arm was removed as a whole from the scapula. With regard to the elbow joint, the position must be always influenced by the patient's calling. In most cases the best functional results were obtained when the angle between the humerus and the forearm was a little greater than a right angle. The forearm should be supinated so that the palm is directed slightly upwards.

If both elbows were ankylosed one should be at an angle of 110° and the other at 70°, so that the movements of one arm could supplement those of the other. All injuries of the wrist should be treated with the wrist dorsi flexed and with the fingers spread well out. In hip joint cases ankylosis if inevitable should be secured in the position of slight abduction, and the thigh extended and slightly rotated outward. Knee cases should be fully extended, care being taken to avoid hyperextension. In injuries of the ankle the foot should be kept at a right angle. Many cases were seen in which the toes had been allowed to drop. A valgoid position was specially to be avoided. One should never try to get a stiff joint moved rapidly and on no account should an anesthetic be given for the purpose of moving a stiff joint; this might ultimately lead to permanent damage of the joint. These joints required very careful handling. Massage should be carried out for a few days and if no reaction followed the arm could be moved a little from the splint, raised, and then replaced, being content with doing only a little each day. If no reaction followed the procedure might be carried out each day and the patient encouraged to lift it actively from the splint. When this could be done easily the splint could be bent a little each day, thus enabling further movements to be performed. The underlying principle was one of alternate slight movement and rest. Only reaction must be taken as an indication that further rest was needed. Where injuries involved tissues in the neighborhood of joints, resulting in suppuration, deep scarring, etc., stiff joints often resulted, and here also no attempt at breaking down should be made, even under an anesthetic. With regard to injuries occurring at a distance from joints, with inflammatory changes in muscles, no joint, which was not the seat of arthritis should ever be allowed to stiffen permanently. When a joint could be moved with disturbing the fragments of a fracture that should be practised one gentle movement in each direction every other day sufficed. In reference to stiff fingers all splints for dorsi flexion of the wrist, especially where frac-

tures or inflammatory changes occurred in the metacarpals and phalanges, should hold the fingers in the position they assume when grasping a ball, care being taken not to exceed the ordinary metacarpo-phalangeal range, as a stiffening in that posture was impracticable. Massage and passive movement should be very greatly practised, splints should not be applied to the fingers, except where they were the actual seat of fracture or active inflammatory changes. In all forearm fractures the hand should be kept supinated; it was often difficult to secure supination, splints should be removed from the upper extremity at the earliest practicable moment, and in the case of the lower limbs sufficient rest should be given before the patient walks, as the softening of the bones caused by the accident might result in bowing.

Increase in the Medical Department of the Army.—Surgeon General Gorgas, in an address delivered before the Faculty of New York University and Bellevue Hospital Medical College, on June 5, told of the needs of the Medical Department of the Army and of the great expansion of that branch of the service during the past year. He stated that fourteen months ago we had not more than 600 doctors in the war zone. Our present personnel for the Medical Department commissioned officers is in the neighborhood of 20,000 men. We have sent 1,500 to the British Army. The number of nurses has increased in proportion; there were 300 nurses on the other side about a year ago and there are now about 1,200. With the constantly increasing number of troops more and more doctors are needed in France. In speaking of the casualty list that came through General Gorgas expressed himself as both surprised and distressed that the losses were so great. While we have not lost two dozen commissioned officers of the fighting forces, among the medical officers the casualties have been in the neighborhood of eighty. The bombing of hospitals by the German ruffian airman accounts for many of these losses.

Returning Sick and Wounded.—During the week ended May 31, 184 sick and wounded soldiers of the American Expeditionary Forces were landed in this country and distributed to various army hospitals. A statement issued by the Navy Department indicates that there were between 300 and 400 sick and wounded soldiers being brought home by the President Lincoln when she was sunk by a German submarine. All of these men were saved.

Bombs Kill Many in Hospitals.—A cablegram from the British Army Headquarters in France, under date of June 2, reports that night raiding has done great damage in the hospital area and that there has been a large loss of life. Among the list of killed are medical officers, patients, nurses, and attendants. Some of the wards were entirely demolished. In one hospital the casualties were confined to the attendants. In another the operating theater, fortunately empty at the time, was wrecked and the officers' mess was destroyed. Between May 15 and June 1, the Germans bombed British hospitals in France seven times, the casualties numbering 991, distributed

as follows: Killed—Officers, 11; other ranks, 318; nursing sisters, 5; women's auxiliary corps, 8; civilians, 6. Wounded—Officers, 18; other ranks, 534; nursing sisters, 11; women's auxiliary corps, 7; civilians, 73.

Hospital Ship Sinks.—The hospital ship *Konigin Regentes*, having on board the British delegates to the Anglo-German war prisoners' conference at the Hague, struck a mine off the English coast on June 5. The passengers were saved by the hospital ship *Sindoro*.

Vanderbilt Estate for Convalescent Hospital.—Mr. and Mrs. W. K. Vanderbilt, Sr., have offered their estate, "Idle Hour," at Oakdale, L. I., to the American Red Cross to be used as a convalescent hospital for soldiers. It is estimated that the estate will accommodate 1,500 soldiers. The Red Cross have inspected the property but have not reached a decision as to whether or not they will accept the offer.

Guard Against Shortage of Surgical Supplies.—The War Industries Board has created a commodity section on medicines and surgical supplies, with Lieutenant-Colonel F. F. Simpson as its chief. The new section will deal largely with surgical supplies, instruments and dressings, with serums, and with other medical and hospital supplies. It will be coordinated with the Chemical Division and will deal with chemicals, as these enter into medical compounds and preparations. Thus far no actual or prospective shortages have come to the notice of the board in only a few instances as far as medicines are concerned, but in dealing with these the new section will round out the work of the Chemical Division and guard against any possible shortage in these lines.

Report on Work for Blind Soldiers.—In a recent report made to the Committee for Men Blinded in Battle, Miss Winifred Holt, the committee representative in France, states that three branches of the Lighthouse for the Blind are now assisting about 150 blind soldiers daily, and giving about 2,800 lessons monthly. In all, the three French Lighthouses have come in touch with about 3,500 blind or partially blind whom they have assisted directly or indirectly. During the year 1917 about 2,000 woolen wraps were made by the blind knitters in the Lighthouses and sold for the benefit of the work. As the recent drives on the western front are greatly increasing the demands that will be made on this work they make a strong appeal for funds.

Social Hygiene Program for War Camps.—Dr. George E. Vincent, president of the Rockefeller Foundation, announces that \$35,000 has been appropriated to make possible an adequate demonstration of the application of a program of social hygiene in a typical war camp community. The announcement states that, while plans have been worked out in all the communities, no carefully developed program has been worked up. In the proposed plan the medical departments of the Army and Navy, State and Federal Health Services, the Red Cross, the Training Camps Commission, the Y. M. C. A., and similar organizations, are to cooperate with the American Social Hygiene Committee in the demonstration, and more than \$135,000 is available for the work.

MEDICAL RECORD.

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ANAPHYLAXIS AND IMMUNITY.

LIKE many other questions, that of anaphylaxis at present has become a most intricate problem, because of the many experimental and theoretical solutions put forward in recent years. Anaphylaxis is a stable state in the dog, rabbit, and hen, unstable in the guinea-pig. If, after having given one or several necessary preparatory injections in order to confer the anaphylactic state on any of these animals, one waits weeks or months before undertaking the test of anaphylaxis, positive results will ensue. If, on the other hand, a preparatory injection is given to a guinea-pig and a fortnight later an injection which gives rise to a reaction, the anaphylactic state disappears and cannot be made to return in this particular animal. Anaphylaxis is specific in both the dog and the guinea-pig, but not so in the rabbit. A dog or guinea-pig prepared by the injection of horse serum will develop a paroxysm of anaphylaxis only when horse serum is injected, and no accident will result from injecting egg albumin or any other inoffensive liquid in an unprepared animal.

If, on the other hand, a rabbit has been prepared with horse serum, accidents of anaphylactic reaction may be produced by injecting some fluid other than horse serum, such as a solution of pepsin or egg albumin.

The symptomatology of anaphylactic reaction very greatly differs in the dog and in the rabbit. The latter presents local cutaneous and subcutaneous accidents not manifest in the dog. The rabbit presents changes in the respiratory rhythm not met with in the dog; the rabbit presents a sero-anaphylactic cachexia from which the dog is free. The guinea-pig, like the dog, shows neither the cutaneous reactions nor the cachexia. The hen, like the rabbit, presents local reactions, but not of the same sort, and, like both the dog and guinea-pig, it does not become cachectic after an intravenous injection of a fluid which is toxic in the circumstances. Finally, the dog and guinea-pig offer a passive anaphylaxis, not usually present in the rabbit.

From all these data it would appear logical to assume that the symptomatology of the anaphylactic reaction will be of a particular nature in dif-

ferent animal species and that, consequently, it is risky to generalize too hastily and to apply it to man, without direct verification of the results obtained in animals.

The procedures employed to anaphylactize animals and those used for immunizing them against toxins being quite similar, if not absolutely identical, some writers have supposed that these were two successive manifestations of one and the same organic change, the anaphylaxis preceding the immunity. To back this notion the following data have been brought forward, particularly by Wolf. By injecting intravenously a dog with cobra's venom in a non-lethal dose, a drop in the blood pressure and incoagulability of the blood result. By repeating the same injection in dogs that had previously been given several subcutaneous injections of non-lethal doses of the venom, it was noted that the intravenous injection provoked the same accidents as in an unprepared animal, but the fall in the blood-pressure was exaggerated in degree and duration—a manifestation of anaphylaxis.

If, now, the number of preparatory injections had been considerably increased, and then an intravenous injection given, it was noted that it was inoffensive, for doses which previously resulted in accidents, as if the animal had been for a time anaphylactized for the cobra's venom, and was now immunized against this venom. Immunity had followed anaphylaxis.

Equivalent data may be observed in the case of sero-anaphylaxis. Horse serum is inoffensive when injected intravenously in an unprepared dog. A dog which has been previously given one or several subcutaneous injections of horse serum will be intoxicated by horse serum later on, and if given intravenously the blood-pressure will fall and the blood will become incoagulable.

If a dog is injected subcutaneously with horse serum once weekly for twenty to thirty weeks, an intravenous injection of the same serum will not produce any accident, so that following seric anaphylaxis a seric immunity has likewise taken place. Similar phenomena are observed in the guinea-pig.

It is as yet too soon to form a definite opinion of these data, and further experimental work is necessary, but it would seem quite logical to suppose that the two states of anaphylaxis and immunity are independent and correspond to two equally stable organic changes.

SELF-PURIFICATION OF STREAMS.

EXCEPT in a few instances, the pollution of the waterways by inorganic matter from industrial plants has been banned by the courts of the several States, but it is the nature of a stream to suffer some degree of pollution, for no community can well live on the shores of a stream without polluting it. From the sanitary standpoint the question is the amount of permissible pollution in a stream before it becomes inimical to the animal life within it, or to the community drinking it, or before it becomes a

positive nuisance to those who must reside on its shores. From the narrower sanitary viewpoint the question of permissible stream pollution depends upon the amount and the kind of pathogenic organisms thrown into it, usually within the organic matter that forms the means of pollution. In communities that have to drink of this water the question of stream pollution with human excreta is a vital one, unless either the excreta are properly treated before entry into the stream or the water is treated before consumption. In a city situated as is New York the self-pollution of its water supply has no bearing, but the tidal waters can become so polluted with organic matters as to make the cultivation of sea foods dangerous, to make bathing in the waters objectionable, and the like. A small amount of stream pollution is rendered harmless by dilution, by sedimentation, and by the low resistance of the pathogenic organisms. It is perhaps for these reasons that typhoid infections in epidemic proportions are the result of only the grossest kind of pollution. Most of the organic matter in streams is taken care of by oxidation, just as it would be in the air. The reduction of such organic matter in streams is essentially biochemical. The oxidizable matter is brought in contact with the oxygen dissolved in the water and with the oxidizing bacteria, and the question of stream pollution depends mainly upon the amount of available oxygen present in the stream for this purpose. As the available oxygen of the water is consumed in this oxidization process, oxygen from the air re-enters the water in proportion as it is used up. The greater the initial amount of oxygen dissolved in a water the greater is the capacity of that particular water for free oxygen, taken from the air.

But the rate of re-aeration of water from the supply in the air depends not only upon its capacity but also and particularly upon the amount of agitation to which the stream is subjected. Indeed, as regards the self-purification of polluted streams it is the rate of agitation-aeration that is the important element. But the rate of re-aeration of a stream, independent of agitation, depends upon the vertical distribution of the oxygen concentration in that water (Phelps, Public Health Reports, No. 214). The saturation by absorption of oxygen from the atmosphere is naturally highest at the surface, in quiet waters, and ranges to the initial concentration at the lowest point. But sooner or later the diffusion of the oxygen becomes equal, and the oxygen concentration comes to a condition of equilibrium at all points. When the average oxygen concentration for this water is established, further diffusion of oxygen is slow or ceases altogether. But agitation of the water causes greater absorption and re-establishes diffusion, until an equilibrium is established at a higher oxygen concentration. In deep tide waters, such as in New York harbor, there is little actual agitation, and the only new oxygen is brought in from the ocean with each new tide. The amount of re-aeration in these waters is small and consequently the amount of pollution they can stand is slight. The initial

content of oxygen of these waters is large, but there is not sufficient re-aeration to replenish it. In rivers of much shallower constitution, on the other hand, the initial oxygen concentration is small, but because of the flux the amount of re-aeration is large; and the amount of pollution they can take care of is accordingly rather high. The estimation of the amount of initial oxygen concentration, re-aeration, etc., of a stream subject to pollution can be determined by laboratory methods. From the known constant velocity of reaction are determined changes in the amount and concentration of the reacting substance—the organic matter in the polluted stream. The aim of these determinations is to find the limit of capacity for self-purification of any stream under investigation.

FOOD AND HARD WORK.

UP to the present time, in this country, lack of food has not been obviously perceptible. True it is that prices have advanced which, presumably, is *prima facie* evidence of a diminishing supply, but again may not be, and as a matter of fact is not, the whole cause of the abnormal prices. At any rate, conditions as regards food are very far removed from those which prevail in Europe and it can be stated without hesitation that we have scarcely felt the pinch of war, and in comparison with Europe our troubles have been merely annoyances. However, this is not to say that the era of plenty in America will continue indefinitely. This country must not only feed its own inhabitants, but must greatly aid in feeding its allies. Therefore, it is well to be prepared for anything that may happen, one of which happenings is likely to be a scarcity of food or, at any rate, not that abundance to which Americans have become accustomed. Food readjustment in Great Britain has been no easy task. The Briton has been a somewhat large meat eater, and reduction of his meat ration has gone considerably against the grain. The same thing occurred in Germany, with, up to a certain limit, it is said, good results. In Great Britain the present diet has brought about a loss of weight in many people and has given rise to some apprehension.

Dr. Robert Hutchison discussed the medical aspects of food recently at a meeting of the West London Medico-Chirurgical Society. According to Hutchison such loss of weight was not progressive and could be reasonably explained from the standpoint of fundamental metabolism. He gave it as his opinion that a loss of 10 per cent. of normal body-weight was not harmful and might be beneficial. However, he pointed out that under such conditions unnecessary exercise should be avoided. The advice is excellent but in Great Britain nearly all who approach the able bodied standard have to work hard, which means taking a great deal of exercise and in consequence they must eat sufficient food to make up for waste and to supply the energy necessary to enable them to undergo the stress and strain of hard and prolonged labor. The protein of meat must be replaced by the protein of vege-

tables, potatoes, beans and so on. There are some diseases in which this change of protein-containing food is distinctly beneficial. As for fat, there are some who think that fat is not absolutely essential for the healthy adult, but can be replaced by carbohydrates. This is a matter which is still *sub judice* and in any event children should have fat. Again with regard to milk, there are those who hold that after infancy milk is not an essential food. Dr. Harry Campbell, for example, maintains that an adult needs no milk and that the best use to which milk can be put is to convert it into cheese, one of the most wholesome and nutritious of foods.

It goes without saying that persons engaged in strenuous toil, men or women, need and must have, if their output is to be large and their work efficient, a sufficiency of nourishing food. The greater the wear and tear of the muscles involved by hard work the greater the need for an abundance of nutritious food. It means then that the calculation of a scale of rations must be based upon the character of the work, and therefore the needs of the individual. Supplementary rations have been granted in Great Britain to those engaged in heavy industrial or agricultural work. Medical men, however, who are as a class notoriously hard workers and who generally speaking take a great deal of exercise are not included as participants in the supplementary rations. Women will share the same extra allowance of food as the men provided that their work is as strenuous. America can doubtless learn some useful lessons in connection with the food problem from Europe and perhaps especially from Great Britain.

SURGEON GENERAL GORGAS AT THE AGE OF RETIREMENT.

SURGEON GENERAL GORGAS will be sixty-four years old in October next and will therefore have reached the statutory age of retirement. Ordinarily an officer is retired automatically at this age, but fortunately the President has the power to abrogate this rule and retain any man in active service if he thinks it for the good of the country to do so. A number of petitions and individual requests have been presented to the President, asking that the country be not deprived of General Gorgas's services during the continuance of the war, and it would be deplorable if the will of the medical profession thus expressed were ignored.

There are, of course, many other men in the medical corps of the army who could fill the Surgeon General's place acceptably in time of peace. But this is war time, and others, able as they may be, have not had General Gorgas's opportunity to prove their capability. The opportunity came to him in Havana and he demonstrated his ability to meet it; it came to him again in Panama, and again he showed what he could do in the combat with disease; finally it came to him fourteen months ago, and the enormous expansion of the medical department, its increase in numbers and the tre-

mendous widening of its activities, is his response to the new demand. The medical profession of the country has, of course, helped him by its offer of services, and by its readiness to advise when asked—and he has freely asked advice in many cases where a smaller man would have felt himself fully able to act on his own responsibility—but the guiding mind has been the Surgeon General's and the state of preparedness in which the medical department of the army now finds itself bears further witness to his genius for organization.

President Wilson knows all this and there can be not the shadow of a doubt that General Gorgas will be kept at the helm, but all the same it may be well to assure the President that the expert judgment of the medical profession will acclaim the announcement that Gorgas must stay. It would be a graceful thing, too, if Congress would at the same time show its appreciation of what the Surgeon General has already done by strengthening his hands and passing the Owen-Dyer bill to increase the efficiency of the Army Medical Corps.

OCCUPATION AND MORTALITY.

THERE is a distinct and, in fact, an intimate relationship between occupation, illness, and mortality. Some trades are much more dangerous to health than others, and it is both valuable and interesting to compute as far as is possible mortality rates or to make comparisons of the mortality of the different occupations. In an article in reprint No. 400 from the Public Health Reports, Drs. Shirley Wilmotte Wynne and William H. Guilfooy conclude as follows: Their study would seem to point to the fact that mortality of the respiratory diseases is highest in those occupations which are carried on in crowded and poorly ventilated offices or shops, particularly the mortality of clerks, bookkeepers, office assistants, compositors, and printers. The low mortality of garment workers from pulmonary tuberculosis and pneumonia may be explained by a racial immunity to these diseases, and, moreover, in New York, a large number of persons engaged in the manufacture of clothing pursue their occupation in their own homes. There would seem to be ground for the belief that there is a relation between cancer and occupation, seeing that the mortality of this disease is uniformly lower in the strenuous occupations and higher in the sedentary ones, thus adding one more argument in support of the rapidly growing belief that cancer is a constitutional disease and no more local than is typhoid fever or tuberculosis. Investigations appear to show that there is an unduly high mortality from heart and Bright's disease among cigar-makers and tobacco workers, and also among garment workers which cannot be entirely explained by the advanced age of the workers in these occupations. Alcohol seems, as would be expected, to be an important hazard among saloonkeepers and bartenders and teamsters. Lobar pneumonia appears to be a hazard in two classes of occupation: first, those in which the workers are grouped together in shops and offices; secondly, in those occupations where the workers are alternately exposed

to high and low temperatures. In every occupation a small percentage of the workers commit suicide, but only among cigarmakers and saloonkeepers does the percentage rise above 4. In every occupation the percentages of death due to this cause are highest among those in the earlier ages. Accidents form a very serious hazard in those occupations where the liability to accidental violence is greatest. According to the authors, the administrative measures suggested by this study are, first, a crusade against pulmonary tuberculosis and the respiratory diseases among clerks, compositors, and similar groups, and a more extensive study of the causes of the high mortality from pulmonary tuberculosis among teamsters and drivers; secondly, a widespread effort to control the incidence of heart disease among garment workers and cigarmakers; third, a campaign against the use of alcohol. Apparently the occupational poisonings, as, for example, chronic lead poisoning, arsenic poisoning, etc., are an almost negligible factor in causing mortality among the workers of New York. The study of the relationship between occupation, sickness, and mortality has brought out some valuable data, and there is little doubt if investigations were conducted on a more systematized basis and on a wider scale that the results would be still more valuable.

News of the Week.

Free Antityphoid Inoculation for All.—Secretary McAdoo has directed that the United States Public Health Service give antityphoid inoculations without charge to all who apply to any of its hospitals or field offices. Many of these offices are in zones surrounding the military cantonments of this country. Emphasis is placed on the fact that the prevention of typhoid fever in these zones is one of the greatest steps in preventing the interchange of the disease between the military and civil populations. In Little Rock, Ark., more than 15,000 have been inoculated against typhoid fever by the Public Health Service. Applications may be made in person to any United States Marine Hospital, to any field office of the Public Health Service, or to the United States Hygienic Laboratory, Washington, D. C. Information as to the nearest place where an inoculation can be furnished will be given on application to the Public Health Service, Washington, D. C. The Public Health Service is making every effort, especially in the vicinity of the camps, to improve the means of disposing of human excreta, through both education and demonstrations. The States and localities are cooperating in the work and in a number of instances have appropriated money to be spent by the Public Health Service for demonstrations in rural sanitation in localities where an equal amount has been spent by the State or local authorities. For this purpose the States and localities have appropriated \$70,000 during the present fiscal year.

Smith College to Train Workers for Shell Shock Cases.—The National Committee for Mental Hygiene announces the establishment of an emergency war course at Smith College, Northampton, Mass., for the purpose of preparing workers to assist in the reclaiming of soldiers suffering from

nervous and mental diseases, including war neuroses and so-called shell shock. The course will cover eight months and will be open to college graduates and other young women who have an equivalent technical training. The academic instruction will be given at Smith College from July 8 to August 31, to be followed by six months' practice work to be given at various centers where there are opportunities for social work with psychiatric cases under the direction of trained social workers. The course will be conducted by Smith College and by the Boston Psychopathic Hospital under the auspices of the National Committee for Mental Hygiene, through a sub-committee composed of Dr. E. E. Southard of Boston, chairman; Dr. William L. Russell and Dr. L. Pierce Clark of New York, Dr. Walter E. Fernald of Waverley, Mass., and William A. Neilson, Ph.D., president of Smith College. Miss Mary C. Jarrett, chief of Social Service at the Boston Psychopathic Hospital, will be the director of the course.

Shortage of Labor and the Hospitals.—A meeting of the Hospital Conference of the City of New York will be held at the New York Hospital, 8 West Sixteenth Street, on Monday, June 17, for the purpose of discussing the labor crisis and for the consideration of the advisability of appealing to the Federal authorities to institute measures of relief. The labor shortage, according to report, is now so serious that many hospitals are being obliged to curtail their work, and some are looking forward to the possibility of being compelled to suspend work entirely.

Presbyterian Hospital Would Cancel Agreement with Columbia University.—The Board of Managers of the Presbyterian Hospital have asked the trustees of Columbia University to join with them in cancelling the agreement which was made in April, 1911, having as its aim the establishment of a great medical center which should combine the College of Physicians and Surgeons of Columbia University with the Presbyterian Hospital in a new institution to be erected on Gun Hill Road in the Bronx. This request has been referred to the Committees on Education and Finance of the Board of Trustees of Columbia University for consideration. It is said that the plan of co-operation between the hospital and the university has worked admirably. The difficulties that have arisen relate solely to matters that have reference to plans for future development. It has so happened that while the hospital has funds with which to proceed with the plans laid out the University has no such funds and repeated efforts to obtain the necessary amount have been unsuccessful. It is also stated that the total cost of carrying out the plans of amalgamation has been found to be considerably higher than the original estimate.

Women Doctors Want Control of Medical College.—A committee of women physicians and surgeons who are members of the medical board of the New York Medical College and Hospital for Women have requested the Board of Regents to revoke the charter of that institution and to issue a new charter which will place the control of the organization permanently in the hands of women workers. This request is based on the charge that

certain men physicians as trustees of the New York Medical College and Hospital for Women have so far exceeded the authority vested in them under the charter of the institution as to render the charter inoperative, the claim being that the provision that the institution's functions shall be educational was contravened by a resolution adopted by the Board of Trustees abolishing the college and clinic of the institution and dismissing its teaching faculty. The trustees contend that their reason for abolishing the collegiate side and continuing the institution as a hospital was because the college was being conducted at a loss.

Plan Fight on Hookworm.—At the request of the Government the Rockefeller Institute intends to send an expedition to Jamaica to institute work looking to the eradication of hookworm. Dr. Howard, in charge of the work of the Rockefeller Commission to the West Indies, is expected here in the near future to discuss plans for the work which will be undertaken in cooperation with the Government.

Gets Wheat by Doctor's Prescription.—Twelve pounds of wheat flour was recently issued by the food administration of Dallas, Texas, on the prescription of a physician, who requested the flour for a patient suffering from pernicious anemia. For the past two months Texas has voluntarily foregone the use of wheat flour.

Dr. Charles Gilmore Kerley has resigned as Professor of Pediatrics at the New York Medical School and Hospital. His resignation took effect on June 1.

Dr. Livingston Ferrand, president of the University of Colorado, and **Dr. George E. Vincent**, president of the Rockefeller Foundation, have returned from France, where they have been engaged in antituberculosis work.

Medical Society Elections.—The FRANKLIN DISTRICT MEDICAL SOCIETY, at its annual meeting at Greenfield, Mass., on May 15, elected the following officers: *President*, Dr. Charles Moline of Sunderland; *Vice-President*, Dr. A. Mather of Colrain; *Secretary and Treasurer*, Dr. F. A. Millett of Greenfield.

THE WEST TENNESSEE MEDICAL AND SURGICAL ASSOCIATION, at its meeting in Nashville, on May 25, elected the following officers: *President*, Dr. John Yarbrough of Covington; *Vice-Presidents*, Dr. John D. Brewer of Newbern and Dr. Herman Hawkins of Jackson; *Secretary-Treasurer*, for life, Dr. George McSwain of Paris.

THE MANCHESTER (N. H.) MEDICAL SOCIETY, at its annual meeting, on May 24, elected the following officers: *President*, Dr. George S. Foster; *Vice-President*, Dr. Clarence O. Colburn; *Secretary*, Dr. John E. Holmes.

THE CONNECTICUT HOMEOPATHIC MEDICAL SOCIETY, at its sixty-eighth annual meeting, held in Norwich, elected the following officers: *President* (re-elected), Dr. M. D. Westervelt of New Haven; *Vice-President*, Dr. Willis S. Putney of Milford; *Secretary*, Dr. Herbert A. Roberts of Derby; *Treasurer*, Dr. Henry P. Sage of New Haven.

THE NEBRASKA STATE MEDICAL ASSOCIATION, at

its fiftieth annual convention in Omaha, on May 9, elected the following officers: *President*, Colonel John M. Bannister of Omaha; *Vice-Presidents*, Dr. Fred W. Buckley of Beatrice, and Dr. A. I. McKinnon of Lincoln; *Secretary-Treasurer*, Dr. Joseph M. Aitkin of Omaha; *Librarian*, Dr. William P. Wherry of Omaha.

THE WORCESTER MEDICAL SOCIETY, of Massachusetts, which met in Worcester on May 9, elected the following officers: *President*, Dr. W. L. Johnson of Uxbridge; *Vice-President*, Dr. William J. Delehanty of Worcester; *Secretary*, Dr. George A. Dix of Worcester; *Treasurer*, Dr. George C. Ward of Worcester.

THE KENTUCKY STATE HOMEOPATHIC SOCIETY, at its thirty-third annual meeting, in Louisville, elected the following officers: *President*, Dr. F. L. Juett of Lexington; *Vice-President*, Dr. Mary E. Hopkins of Louisville; *Secretary*, Dr. Joseph Winn of Louisville; *Treasurer*, Dr. Paul Kerkow of Covington.

THE NEW HAMPSHIRE STATE MEDICAL SOCIETY, at its meeting at Concord, on May 16, elected the following officers: *President*, Dr. Charles P. Bancroft of Concord; *Vice-President*, Dr. A. W. Shea of Nashua; *Secretary-Treasurer*, Dr. D. E. Sullivan of Concord; *Trustee*, Dr. Herbert L. Smith of Nashua.

THE TEXAS STATE MEDICAL ASSOCIATION, at its meeting in Dallas, on May 17, elected the following officers: *President-elect* for 1919, Dr. W. R. Knox of Houston; *Vice-Presidents*, Dr. H. Leslie Moore of Dallas, Dr. H. F. Connally of Waco, and Dr. L. J. Mankoff of Aransas Pass.

THE OKLAHOMA STATE MEDICAL ASSOCIATION, at its meeting in Tulsa, on May 17, elected the following officers: *President*, Dr. L. J. Moorman; *First Vice-President*, Dr. E. D. James of Miami; *Second Vice-President*, Dr. H. M. Williams of Wellston; *Third Vice-President*, Dr. Walter Hardy of Ardmore.

THE INDIANA ECLECTIC MEDICAL ASSOCIATION, at its annual meeting in Indianapolis, on May 16, elected the following officers: *President*, Dr. McG. Porter of Elkhart; *Vice-Presidents*, Dr. A. J. Ashabrammer of New Albany and Dr. J. W. Gage of Indianapolis; *Secretary*, Dr. J. E. Holmes of Indianapolis; *Treasurer*, Dr. C. A. Tyndall of Shelbyville.

THE CONNECTICUT STATE MEDICAL SOCIETY, at its annual meeting in Hartford, on May 16, elected the following officers: *President*, Dr. Charles J. Bartlett of New Haven; *Vice-Presidents*, Dr. F. E. Guild of Windham and Dr. J. H. Kingman of Middletown; *Secretary*, Dr. John E. Lane of New Haven; *Treasurer*, Dr. Phineas H. Ingalls of Hartford.

Obituary Notes.—Dr. J. HERVEY BUCHANAN died at his home in North Plainfield, N. J., on June 7, aged 47 years. He was a graduate of Jefferson Medical College, in 1896, a member of the American Medical Association, and the medical staff of the Muhlenberg Hospital of Plainfield.

Dr. JAROSLAV RADDA, a graduate of the University of Maryland, Medical College, in 1908, and of the Fordham Medical College in 1909, died at his home in New York City on May 5, aged 46 years. Dr. Radda was a member of the American Urological Society.

Correspondence.

QUININE AND WARBURG'S TINCTURE IN MALARIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR: In answer to the letter of Dr. H. Rabinowitsch, published in the MEDICAL RECORD of June 8, 1918, I would say: Of course, I am familiar with the fact that Warburg's tincture contains a proportion of quinine. Nor do I doubt that some of its remedial effects are due to the presence of this alkaloid. On the other hand, I also know and affirm again that in not a few instances quinine in similar or much larger quantity is wholly inadequate to effect a cure of malaria. Warburg's tincture in these instances effects the cure. Why, I cannot precisely say, nor can anyone else. It contains numerous drugs, and among them there may be some that are inert. It still remains true that the multiple combination does what nothing else known up to the present time effects in some most obstinate and imminently threatening cases. That, we know, as shown by repeated proofs and the published records of some of the best clinicians of former days.

"Ars longa, vita brevis." The greatest rôle of the physician is to cure and to relieve symptoms. Science, so-called and merely temporary, must give way to experience, based upon long and careful bedside observation of the wise practitioner. Only a few days ago the distinguished Surgeon General of our Army insisted in an address before the University and Bellevue Hospital Medical College upon the great value of the all-around doctor with our army at the front as compared with the specialist whose importance has a relatively limited field of work, in time of greatest stress. I wish particularly, at the present time, to insist that useful knowledge of our great forebears in medicine shall not be practically ignored. For this reason I wrote a strong word for Warburg's tincture in the treatment of malaria. In more than one of our latest and best works on the practice of medicine it is scarcely referred to.

BEVERLEY ROBINSON, M.D.

42 WEST 37TH STREET.

THE WAR AND INTERNES IN SPECIAL HOSPITALS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The inclosed is the result of inquiries made to the War Service Committee of the American Hospital Association. Believing that the information will be of interest to many, of value to some, and an aid to the Surgeon General's Department in carrying out its work, we are asking the prominent publications concerned in medical and hospital matters to assist in giving it publicity. Your cooperation will be very much appreciated.

R. P. BORDEN, Sec'y.,
Special Committee on War Service
American Hospital Association.

For two reasons the Department of the Surgeon General of the Army has signified its desire to promote the education of internes in proper hospitals for as long a period as the exigencies of war will permit: Primarily, that the future military surgeon may begin his

medical career with as much professional experience as possible; secondarily, so that the organization of hospitals for civilian treatment and for instruction of physicians and nurses may not be unnecessarily disrupted.

How far do these considerations apply to certain special hospitals such as hospitals for women, children, consumptives, eye and ear cases, and insane, and what should be the policy of the army with regard to internes in such institutions?

It seems clear that thorough education in all types of cases treated in the above, except maternity and children's hospitals, will have definite value for military purposes and that the same policy with regard to internes in these should be followed as in general hospitals. Probably the children's hospitals may be placed in the same category as the others, as the medical and surgical experience gained therein is such as to afford a substantial foundation for military service, and this taken into consideration with the desire to preserve the hospital organization should warrant the placing of children's hospitals on the same basis as general hospitals so far as interne service is concerned.

With hospitals for women the situation is very different. Service therein is intensive in a branch of medical science which has no direct relation to military needs and therefore such hospitals can not receive the same consideration as other hospitals as places of preparation for military service. On the other hand, it would seem that in such hospitals the organizations could be properly maintained by the aid of personnel not fitted for army service. Not every medical student is eligible for active military service of the kind to be anticipated and desired by the young medical man who has at last reached the place in his career where he can be of great value to the country.

General hospitals should give first choice to those who are physically fit for the work in the army and navy while young men who are not physically handicapped should equally seek internships in hospitals where they can obtain the best possible training for military service. Those who, by reason of physical disqualifications, are not entitled to enter the country's service in its military branches should welcome the opportunity to aid in its general efficiency by engaging in other work essential to welfare.

Thus, by co-operation between hospitals and between hospitals and student, can we come nearer a solution of the tremendous problem of making the supply of medical men meet the requirements of war.

With the use of women physicians, medical students and the proper allotment of student internes to places where they can be of the greatest use according to their qualifications, it would seem that an obvious difficulty may be at least minimized and the authorities in medical schools can aid materially in advising their young men as to the proper course to pursue. Some men who have a special interest in obstetrics and gynecology may dislike to abandon the opportunity to specialize in such branches during the period of their internship, and surely the country cannot afford to be without the services of men so especially educated, but the needs of our fighting men are immediate and imperative and our young men will no doubt be willing to sacrifice their personal ambitions for a time as many of the older men of the profession have already done.

The foregoing is the result of interviews with officers of the Surgeon General's Department by a representative of the American Hospital Association. It has been submitted to them and is believed to fairly represent the policy of the Department with regard to internes in special hospitals.

OUR LONDON LETTER.

(From Our Own Correspondent.)

THE LONDON WATER SUPPLY DURING THE WAR—AN EPIDEMIC CALLED BOTULISM—MEDICAL MEN AND THE NEW MILITARY SERVICE ACT—DEVELOPMENT IN THE ARMY MEDICAL SERVICE.

LONDON, May 16, 1918.

THE twelfth annual report of the Metropolitan Water Board made its appearance in the middle

of May, a date which implies remarkable promptitude inasmuch as the report gives the results of the chemical and bacteriological examination of all the sources of this London water supply for the twelve months ended March 31. Six weeks is not a long time in which to collate, print, and publish an elaborate document dealing with so many elaborate calculations. Dr. A. C. Houston, the director of Water Examinations for the Board, states definitely that, despite the disadvantages of a constantly changing staff, the work of water examinations has not been allowed to suffer appreciable diminution either in quality or quantity. Such a statement could not possibly be made in a public document, if all the proofs were not contained at any rate for those who can follow them in the document, and it is a remarkable testimony to the efforts of the staff. It suggests also that those who in the fourth year of the war are found acting as temporary substitutes in the delicate work of modern water examination, have proved themselves able recruits. There has never been a time when satisfactory evidence as to the purity and safety of the London water supply was more important, and the work of Dr. Houston and his staff deserves the greatest credit. Among the most interesting sections in the report are those which deal with the value of chlorine as a germicidal agent, and with the technical difficulties to be overcome, when adding the germicide to a water supply in the proper dose. Dr. Houston considers, as the result of practical experience during the colder periods of the year, that the gas must be added as a solution to the water to be sterilized unless some improved form of porous diffuser be discovered. From April 1, 1917, to March 31, 1918, 23,426,000,000 gallons of raw Thames water were chlorinated during 315 days (West Middlesex Supply Area) and 313 days (Staines Supply Area) out of a total of 365 days, the intermissions being caused by floods when the water was too turbid for filtration purposes and when the consumers had to be supplied with stored water. The percentage proportion of raw to stored water was 85 to 15, that is to say, that over 74 million gallons of raw water was daily treated with chlorine. No complaints whatever with regard to the chlorinated water were received as to the taste, while the bacteriological results were every whit as good as those obtained by storage, and what those mean in respect of *B. coli* we all know now. It has been demonstrated thus far that success in the chlorination of water supplies can be much more readily obtained when the air and water temperature are above a certain point.

The Medical Department of the Local Government Board obtained evidence by the second week in May of the presence in the community of an obscure disease manifesting a certain group of cerebral symptoms and attended with a case mortality of perhaps 20 per cent. None of the outbreaks was large, but their geographical range was an ominously wide one. This is the disease which was tentatively labeled "Botulism" by some of the medical observers who first called attention to its presence among the community in communications to *The Lancet* in the last weeks of April.

The term "botulism," of course, implies direct connection between the disease and food poisoning and should be confined to intoxication by the products of the *Bacillus botulinus*, described by von Ermengen, while later accounts of various outbreaks do not support the supposition that food, tinned or otherwise, plays a part in the infection. The official communication on the subject which has been issued by the Local Government Board to all medical officers of health of urban and rural sanitary districts alike describes the disease with perfect vagueness as an "obscure disease with cerebral symptoms," while in the medical press the disease has at various times been termed "infective ophthalmoplegia," "toxic ophthalmoplegia with acute asthenia," "toxic bulbar paralysis," "toxic encephalitis," "epidemic stupor in children," "X disease," "central nervous system toxemia," and Heine-Medin disease.

Dr. F. G. Crookshank, the medical registrar to the London Hospital, who is attached also to a general hospital at Hempstead, where cases came under his care, says that authentic accounts of outbreaks of botulism furnish no grounds for saying clinically that the cases differ in any way from certain types of Heine-Medin disease. As more and more cases occur at different centers, and the reports arrive with varying stress laid upon the different symptoms, the clinical identity of the epidemic with Heine-Medin disease appears to many observers probable. Many cases under observation were typical of meningomyelo encephalitis and none of the cases have been without many features which are characteristic of Heine-Medin epidemics.

In the meantime what label is to be affixed to a disease which has come in for much discussion, and will yet come in for much more? The convenience of a definite name for purposes of index and reference is obvious, just as the inconvenience is obvious of giving a name to a disease which implies for the conditions a wrong origin or a wrong pathology. There seems immediate room here for the medical etymologist. In the meantime the Local Government Board on May 15 have issued a schedule of inquiry to all medical officers of health following on the official summary of symptoms and asking for the sex, age, occupation, and environment of all cases; and observations with regard to symptoms, especially as pointing to various forms of meningitis, syphilis, diphtheria, or food poisoning. The medical officers of health are asked also to look carefully into the general food history of all patients, as well as the sicknesses which have really occurred among those with whom the patients have been in contact. In this way some material has already been obtained for a scientific investigation of the outbreak, which has now been undertaken for the Local Government Board by the Medical Research Committee.

The Director General of National Service has ahead of him considerable difficulty with regard to the calling up of medical men under the new Military Service Act. The extended age up to which medical men can obtain commissions makes it certain that a large proportion of those re-

cruited can only be intended for home service. There are three points which the Director of National Service has before him. The first two, in their order of importance, are: (1) Always to meet the needs of the Army at the earliest possible opportunity; and (2) to see that while attending to (1) no particular locality is unfairly denuded of medical men. The two prime points having been attended to, it is essential that the Director General should (3) judge fairly between medical man and medical man with regard to employment in his own area or employment elsewhere.

Probably all the medical men in the different areas whose age brings them within the scope of the new Act will undergo medical examination as a preliminary proceeding. This form having been complied with—and it is to be hoped that the examination will be a practical one and not merely a form—the Central Medical War Committee, the recognized recruiting body for the Army Medical Service, will consider which doctors can best be spared from which areas. This having been decided, the question will arise as to whether an individual doctor should be spared for military service direct, or to take the place of others who could accept commissions, or to obtain employment through the Ministry of National Service of a civilian kind. It seems at last as though the man power in the medical profession was going to be used with sagacity and economy. Developments in the Army Medical Service are following the same fortunate trend.

Surgeon-General Goodwin, the new Director General of the Army Medical Service, has lost no time in displaying the talents of energy, tact, and orderliness which his work, both with the British forces in France and with the mission to America, had led all to expect from him. Having reconstituted, and with a very strong personnel, a Medical Advisory Board for his Service, he immediately, as President of the Board, mapped out a program by which each medical section and surgical section of disease and injury, in the various stages from inception to convalescence, could be supervised by the highest available scientific authority.

The Board is already meeting regularly, Sir Bertrand Dawson, Sir Berkeley Moynihan, Sir Harold Stiles, Sir Robert Jones, and Surgeon-general W. H. Horrocks lending regular assistance, practical and advisory, both as to what should be done in their various departments and as to who is the right man to do it. To meet this latter and difficult problem, a rigorous card-index has been set up at Adastral House, the headquarters of the Army Medical Staff. By this index a complete register of all the officers, regular, territorial, and temporary, of the R. A. M. C. is being obtained, the entries showing the past work of every man, the posts that he has held, his proofs of special ability, and his record either in literature or research. With this index before them the Medical Advisory Board will be able to select for any post the man most calculated to fit it adequately, and the result of such discrimination cannot fail to be most valuable to the country, both now and in the future.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

INVESTIGATION OF TRENCH FEVER—HOW THE HUNS SHELL OUR STRETCHER BEARERS—RED CROSS STANDS BY BELGIUM.

Paris, May 1, 1918

A SCIENTIFIC investigation of trench fever, the disease which is causing an alarming wastage of man-power among the armies fighting in France, is now under way at the hands of the American Red Cross. The investigation has been entrusted to a staff of medical officers of the American Expeditionary Force, which, through the courtesy of officials of the British Army, is conducting its experiment at a British base hospital. Sixty enlisted men of the United States sanitary corps have unselfishly volunteered as living subjects for experimentation.

As the American Red Cross is seeking conclusive answer to the debated question of the transmission of the disease by lice, these sixty volunteers, all from New England, are serving in specified detachments, either as "hosts" to normal or infected lice, or have received injections of blood taken from soldiers known to be suffering from trench fever. They are quartered in four tents in the British hospital enclosure, back of the lines in the northern part of France. The Red Cross has provided comfortable walled hospital tents for the accommodation of the volunteers, laboratory assistants, and clerks and has transported to the hospital a complete laboratory equipment which will permit the most accurate study of the disease in relation to its transmission through parasites.

Trench fever is a new disease; it was unknown to the medical profession before the present war, and there is still little information of value in regard to it. But among the British troops at the front it is at the head of all the fevers and stands second in the list of those which cause the greatest wastage. It has caused almost one-third of all the sickness in some of the armies in the field in Northern France; in one division alone during a year the number of cases sent to field hospitals averaged 350 a month.

In employing the services of living subjects, this American Red Cross investigation is similar to that which was conducted many years ago in Cuba in reference to yellow fever. Trench fever, although absencing a soldier from his command for from six to eight weeks, is not fatal in its effects and leaves no permanent disabilities. It is the extended absence of the sufferer that has made the disease so alarmingly destructive of man-power at the front. It was with the approval of General Pershing that a call for volunteers to act as human subjects was made last month. There was no lack of volunteers. In transmitting the names of the sixty chosen for experimentation, the divisional chief surgeon wrote to the chief surgeon of the American Expeditionary Forces: "It is a subject of some pride in this division that practically all of the men of the 101st, 102nd, and 104th Field Hospitals, and the 101st, 102nd, 103rd, and 104th Ambulance Companies volunteered for this service."

The urgent need of determining the origin of the

devastating fever is announced in a memorandum sent to General Pershing last December by the chief surgeon of the American Expeditionary Force. After directing the commander-in-chief's attention to the sufferings of the British Army through trench fever in the last three years, he wrote: "On account of the scarcity of physicians in the British Army and the enormous demand made on them for duty outside the laboratories, the Royal Army Medical Corps has not yet been able to discover the cause of this disease, nor has it been able to prove the mode of transmission. The American Red Cross has set aside a sum for research work for determining the cause of those diseases, which are producing the greatest wastage in our armies. As trench fever is one of the greatest sources of wastage this subject is to be taken up first."

Trench fever became recognized as a distinct, specific infection during the latter part of 1915 and in 1916. While the first cases disabled the patients for only a brief period, the time a soldier is kept away from his command has materially increased in the development of the disease owing to the many relapses which occur in the majority of cases. The fever appears generally in one of two types, either as a short, evanescent fever, lasting for a few days or a week and frequently followed after a few days by a single short relapse or as an affection in which there is a series of relapses. The onset of the fever is sudden, as a rule, and marked by headache, dizziness, pains in the back, and particularly in the legs, and a sharp rise in temperature. Pains in the shins is a common complaint by patients and is often very distressing. The pulse is usually in the neighborhood of 100, and the heart is normal in the early stages of the disease. Disordered action of the heart is very common after the severe cases. Medical experts of the British Army have demonstrated that it is infectious through transmission of it to healthy men by injection of blood taken from patients during the acute stage of the affection. As the incubation period of the disease has been known to extend to twenty-two days, it is not possible at present to announce more than the inauguration of this important work, but it is hoped that the result of this American Red Cross investigation, aided by the devoted service of the volunteers no less than by the skill of the medical experts of the American Army, will be the solution of one of the greatest problems of the war. The writer published a paper in the *MEDICAL RECORD*, July 28, 1917, describing this fever.

How American soldiers, new in the war game, beat down a determined attack made by veteran Germans; how American lives were risked to bring in a wounded German prisoner, and how the Y. M. C. A. is seeking to do its bit "up front" as elsewhere, was told recently in an address by Mr. D. A. Poling, who is in France for the World's Christian Endeavor Union. Mr. Poling was at the front when fighting took place, working in one of the advanced Red Triangle centers which give hot drinks to soldiers and offer other comforts to the men, and from which workers go out into the trenches to be of such service as they may.

"The French were ready to back up the Americans in this big raid," said Mr. Poling, "but the

'poilus' who were in behind our lines were not called into action, as never a German got through. Our men withstood a terrific barrage and then smashed the German infantry attack before it got past the first trenches. An accident during the heavy fighting in the afternoon shows the chivalric stuff American men are made of. The secretary, in whose hut I was working, and I, were helping some stretcher bearers to bring in a wounded German. We could not get through the trenches at this point, so started across an open space toward battalion headquarters, a little way back. Then hell broke loose. The enemy saw the party of stretcher-bearers and opened a fierce fire. We fell to the ground and waited a bit. Scared? Well, I never before knew what it was to be genuinely scared. Finally, when the fire did not cease we ran for it and got through, all of us, without injury, though one of the soldiers was blown about 5 feet by an exploding shell. The incident was reported to the major. He asked where the prisoner was, and being told the facts, said 'He is a Hun, but we are Americans; bring him in.' Two lieutenants took charge of the men that went back and my companion of the Y. M. C. A. went along to show them where the prisoner was left. Soon the enemy guns broke loose afresh and I knew this party had been sighted and was being shelled. It seemed a long time waiting back there to learn what was the fate of those soldiers and of the secretary. Finally I went down the road a bit and there met them coming in, all well. You see the officer in charge of that party knew the contour of the land and immediately after picking up the stretcher with the prisoner on it they skirted under a rise of the ground and thus evaded the shells. After a strenuous day we came back to our hut. The secretary asked the sentry to inform men returning from the trenches that the Y. M. C. A. would be open. These men were due to come in about 3 A. M., and when they came they found hot drinks awaiting them. It was as little as any one could do, opening up at 3 A. M., when one stops to think that a soldier endures day in and day out hundreds of experiences similar to the one which is easily the most thrilling of my life."

The Belgian front has just received a visit of a deputation of the United States Red Cross, comprising Mr. Eliot Wadsworth, vice-chairman and member of the Council of War of the Red Cross; Colonel Ernest P. Bicknell, Majors John Van Schaick, Ivy Lee, and Simmons. The deputation went about the Belgian trenches, military hospitals, and civil schools established almost immediately behind the fighting lines. On leaving, Mr. Wadsworth stated to General de Ceuninck, the Belgian War Secretary, that he and his colleagues were on the point of returning to the United States to organize a fresh fund for the American and the Allies' war and benevolent institutions, and he added: "Our visit to the Belgian front has been for us a most precious lesson. It has afforded us the opportunity of admiring the pluck and undying confidence of the Belgians, from the general in command and the soldiers under his orders, down to the young children quietly studying in school, amid the hell of German artillery

firing close by. The cheerful determination of the soldiers and the population to go on fighting to the end, to the day of victory, must most powerfully strike any American visitor. As one of the directors of the United States Red Cross I here express the resolution of the 22,000,000 members of our organization to assist Belgium and its marvelous work, not only for the relief of all who are suffering from the war, but in order also to assist in winning this war. America will be at your side until the victorious end!"

116, AVENUE DES CHAMPS ELYSÉES.

MEDICAL WEEK IN CANADA.

(From Our Special Correspondent.)

HAMILTON, ONTARIO, June 1, 1918.

THE eighteenth annual meeting of the Canadian Association for the Prevention of Tuberculosis was held in Hamilton on Wednesday, May 29. Addresses of welcome by the Mayor of Hamilton, Chas. G. Booker; the president of the Ontario Medical Association, Dr. J. P. Morton, and others. Social and Public Health Aspects of Tuberculosis; "The Secretary's Report," by Dr. Geo. D. Porter, Toronto; "Rôle of Health Officers in the Control of Tuberculosis," by Dr. Geo. D. Porter, secretary of the executive council, in his annual report, gave an exhaustive account of the year's work. After stating that satisfactory progress had been made, he gave as an instance the great increase in the accommodations for the tuberculous owing to the problem of the returned soldier. It was pointed out that despite the war, education by publicity had been carried on widely, thanks to the Federal grant. Allusion was made to the opening of the new sanatorium in London and to the new hospital in Quebec which would accommodate 100 patients. The statement was made that records of those rejected on account of tuberculosis could be obtained from the army, and these cases followed up in an educational way, as done in the United States. It was urged that food production should be increased as a means of keeping up the vitality of the people and thus lessening the menace of tuberculosis.

Capt. H. W. Hill of London, Ont., said that tuberculosis should be dealt with on similar lines as any other infectious diseases, by discovering the sources and stopping further spread from them. In short, by blocking the routes of spread from unidentified sources, so far as our present knowledge admitted of such a procedure. Education of the public was also a factor of great importance in the prevention of tuberculosis. The public should be so enlightened that every one, as a matter of course, would avoid all sources and block all routes of infection of whatever nature, and would aid in the search for any system of protective operations which might enable the human body to resist the disease. Routine methods were outlined briefly by Hill. Diagnosis as to whether the case is an open or closed one. Isolation, if necessary, and if not necessary, advising as to treatment and keeping the case under supervision. Open cases in children were fortunately very rare. It was pointed out that it was essential to differentiate between the human and bovine forms of disease. Pasteurization of milk would end bovine tuberculosis. Hill laid especial emphasis on the fact that open cases should not be allowed to com-

mingle with closed cases, and in his opinion open cases should not be allowed to mix even with open. He was not a believer in the widely held view that tuberculosis is almost always contracted in childhood. He thought that a very large number of cases were contracted after the age of sixteen. Hill advised sanatorium treatment for open cases occurring in childhood. Open cases found in a family should lead to an examination of the other members of the family and of their close associates. It may be said that the local courts in London, Ont., and vicinity, over which Captain Hill is health officer, have strongly supported his compulsory methods of dealing with tuberculosis. Captain Hill asked why syphilis could not be dealt with in the same way.

The president of the association, Dr. I. A. Machado, delivered an address in which he advocated the federation of all the agencies cooperating in the work. The speaker gave high praise to the work being done by the invalided soldiers' commission in Canada, which he said had opened the eyes of thinking soldiers to the splendid accomplishments possible in the treatment of tuberculosis.

Dr. John H. Prior of Buffalo gave a concise description of the Rollier treatment. He said that it involved a great deal more than heliotherapy, and included special appliances and methods of extension and fixation devised by Rollier. The treatment was a great addition to measures usually in vogue with the view of benefiting various forms of tuberculosis. He emphasized the point that the improvement of general condition and increase of resistance was a prime necessity of treatment if successful results were to be looked for, and argued that the Rollier treatment was of very considerable assistance in gaining this end. A description of the routine employed at the J. N. Adam Hospital, Buffalo, was given, and some of the difficulties met with in the application of the method were entered into. The results obtained in bone, peritoneal, and gland cases were considered at some length.

Dr. J. S. Pritchard of Battle Creek discussed the differential diagnosis of tuberculosis. He pointed out that the danger of errors in diagnosis was often made by arriving at a too hasty conclusion on limited evidence, such as indefinite physical findings. Attention was drawn to the fact that moisture might persist in the chest for months in non-tuberculous pathology, and that localized râles were not always caused by a tuberculous lesion; that clinical symptoms must be carefully investigated; and finally, that it was necessary to acquire an adequate knowledge of internal medicine in order to become proficient in any specialty.

Artificial pneumothorax was the subject of a paper by Dr. C. D. Parfitt. He gave an analysis of the results obtained by artificial pneumothorax during a period of five years. A series of efficient compressions was contrasted with another series of cases in which the procedure proved to be impossible, in order to show the relative value of the method. The several incidents and complications which had been met with were described, and a series of case records was given. Indications for the employment of artificial pneumothorax were given at considerable length.

Dr. A. F. Miller of Kentville, N. S., discussing sanatorium treatment and results, gave a brief history

of the evolution and development of the sanatorium. While admitting that rest and exercise, employed judiciously, were important factors in sanatorium treatment of pulmonary tuberculosis, he said they were by no means the sole methods by which the course of the disease could be arrested or improvement promoted. The treatment of tuberculosis did not begin and end with fresh air and exercise, nor fresh air and rest, but according to Dr. Miller the three, properly proportioned, brought results. While it was granted that sanatoriums had not come up to the expectations of the public, it was claimed that the public was more or less ignorant of their functions. Standing by themselves they could not reduce to any appreciable extent the spread of the disease. In his opinion the State should provide local clinics for those who took home treatment. With good after care in the homes of the patients those in charge of sanatoriums would try to carry out the work they were intended to carry out.

The last paper read at the meeting was on tuberculin treatment, by Dr. J. H. Elliott of Toronto. A résumé was given of cases, principally of the non-pulmonary type. It was shown that splendid results had been obtained in cases of glandular tuberculosis, tuberculides, and tuberculous sinuses following spontaneous evacuation of abscesses, or following operation for relief of various tuberculous conditions.

J. A. Machado of Ottawa was again elected president of the association, Dr. George D. Porter of Toronto secretary, and Sir George Burn of Ottawa treasurer. The vice-presidents were Lieut.-Col. McKelvey Bell, Mrs. P. D. Cerrar, Hamilton, and E. L. N. Clubbett, Hamilton.

The election of officers of the Canadian Medical Protective Association resulted as follows: Dr. R. W. Powell, Ottawa, president; Dr. J. A. Cannard, Sherbrooke, Que., vice-president; Dr. J. Fenton Arque, Ottawa, secretary-treasurer.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

May 30, 1918.

1. Roentgenology in the American Army. Frank Wheatley, Jr.
2. The Physician and Psychology. J. Danforth Taylor.
3. Renal and Ureteral Stone. Benjamin Tenney.
4. Mobilization of the Knee Joint in Suspension-Traction Treatment of Fracture of the Femoral Shaft. G. A. Moore.
5. Report on Dermatology. John T. Bowen.

2. The Physician and Psychology.—J. Danforth Taylor impresses upon members of the profession the importance of the study of psychology, which has been well described by McDougall of Oxford as "the study of behavior." For the successful practice of medicine naturally the first requisite is a complete knowledge of medicine and surgery in its various branches. This alone is not sufficient, however; it must be supplemented by common sense in the application of that knowledge, a neat personal appearance, correct habits, a courteous manner, and, what is important, ability to "size up" the other fellow, as Taylor puts it. But beyond all this the successful physician requires a practical psychology—embodying *suggestion*, *sympathy* and *imitation*. For instance, the physician should *suggest* by his manner that he is interested in the patient and should show a *sympathetic* interest in him and his family. The hypnotic effect of a well modulated voice upon the patient's nerves must also be remembered. Assured that "there is hope" and that with care and proper attention to directions given there is every prospect of

cure, the patient leaves the doctor's office better in mind and body. The physician has given his message to a receptive mind and his success is assured in 80 per cent. of cases. The patient's primitive sensations have been appealed to and stimulated. His *visual* sensations have recorded the courteous manner and, if the physician dispenses his own drugs, have seen the medicine prepared; his *auditory* sensations have been pleased with a well modulated voice which has assured him of relief, and his *tactile* sensations have felt the package containing the remedy. He feels that the doctor is in sympathy with him and unconsciously he tries to *imitate* a man of stronger mentality and fall in with his suggestions. Association may also play a part here; previous success that the physician has had with the patient or with his friends impresses upon his mind more forcibly the thought that he will be well. Thus the physician is able to treat the mental as well as the physical condition of the patient. Taylor concludes: The study of psychology is a review of the behavior of all peoples at all times and in all conditions. It is a college education in itself. Why not look into it?

The New York Medical Journal.

June 1, 1918.

1. A Specific for Every Pathogenic Microorganism. Edward H. Ochsner.
2. The Treatment of Hay Fever by Pollen Extracts and Bacterial Vaccines. William Scheppegrell.
3. Infection of Children with the Tubercle Bacillus. E. Mather Sill.
4. Diagnostic Kinks in the Infectious Diseases. S. Dana Hubbard.
5. Gallstones. Samuel Weiss.
6. Polyglandular Disease. Morris H. Frantz.
7. The Cardiovascular Problem of the Draft. Harlow Brooks.
8. The Army Medical Museum. W. O. Owen.

3. Infection of Children with the Tubercle Bacillus.—E. Mather Sill tested for the von Pirquet reaction 658 children up to thirteen years of age, who came to his clinic for various reasons during a continuous period of four months. The children came from families living in congested districts on the lower East Side of New York, in which there was no history of tuberculosis. A positive reaction was given in sixty-one cases, or 9.2 per cent. The author compares these findings with those of other observers. Lamson at the University of Minnesota in 1913 found that 2.5 per cent. of individuals in non-tuberculous families showed evidence of infection, 22 per cent. in families where there was latent tuberculosis, and 67 per cent. in families in which were open cases of the disease. Manning found that 22.8 per cent. out of sixty-two children in Seattle gave a positive reaction. Alan Brown found that 67.21 per cent. of babies exposed to tuberculosis were infected and of these 60 per cent. died of the disease. Fishberg found 67.25 per cent. of 692 children living with tuberculous parents in tenements in New York City gave a positive von Pirquet reaction. In private practice Cattermole of Colorado tested sixty-six children, ranging in age from one to fourteen years; 38 per cent. were positive. All showed symptoms which might be due to tuberculosis and thirty-four had tuberculous parents. In Cattermole's series twenty-two tuberculous and twelve non-tuberculous children had tuberculous parents, and one tuberculous child had non-tuberculous parents. Mather Sill points out that the younger the child is the greater is the danger of infection resulting in clinical tuberculosis and death. (In Brown's series 70 per cent. of infants under two years of age giving a positive reaction, and 60 per cent. of those with a family history of tuberculosis, died.) He also points out that when the reaction comes up quickly it indicates an active focus, whereas a delayed reaction indicates a latent process. A comparison of the figures of American observers with those of Hamburger and Monti shows the incidence to be much greater in Vienna, although it varies in different cities in the United States. In Mather Sill's series infection was rare up to the fourth year of age and when it did occur it usually meant tuberculous disease, invariably so in those under two years of age. From the fourth to the thirteenth year there was a steady increase of infection, and from the tenth to the twelfth the percentage of infections was nearly three times that from the eighth to the tenth year. From the twelfth to the

thirteenth there was a marked increase in infections over the preceding years, being more than three times that from the eighth to the tenth year. He found that older children appeared to be more resistant to tuberculous disease, but more liable to infection from sources outside the family. The cervical glands were frequently the chief seat of involvement, the tubercle bacillus no doubt entering by way of the tonsils and adenoids. He refers to the observations of Park and Krumweide, and Mitchell of Edinburgh, which have shown that in a large percentage of such cases the infecting agent is of the bovine type. He considers the von Pirquet cutaneous reaction one of the most reliable aids to diagnosis, and states that in infants under two years it usually means a recent infection and active tuberculous disease. A persistently negative reaction, except in very ill patients and those with measles, excludes tuberculous infection. The Roentgen ray this writer considers also of great assistance in the diagnosis of tuberculosis of the lungs or tracheobronchial glands. Not only can the extent and location of the lesion be ascertained by its use, but also the character of the lesion. He attaches the greatest importance to the examination of milk intended for the use of infants and young children, in view of the fact that so large a percentage of cases of infection are due to the bovine type of bacillus, and recommends that all milk should be heated to a temperature of 140° F. for twenty minutes before being given to infants, should any doubt exist as to its purity.

Journal of the American Medical Association.

June 1, 1918.

1. Use of Corn (Maize) as Human Food. H. C. Sherman
2. Skin Grafting. J. C. Masson.
3. Physiologic Colectomy in Chronic Toxemias of Intestinal Origin. Charles A. L. Reed.
4. The Value of the Wassermann Reaction: A Reply. John H. Larkin, I. J. Levy and John A. Fordyce.
5. Primary Unilateral Optic Atrophy in a Child, Following Fracture of the Skull. Aaron Brav.
6. All Year Medical Study and the Education of Medical Officers. George Dock.
7. Trench Fever Investigations: Trench Fever Commission. American Red Cross. Majors R. P. Strong, Homer F. Swift and E. L. Opie; Captains Ward J. MacNeal, Walter Baetjer and A. M. Pappenheimer; and Lieut. A. D. Peacock.

1. Use of Corn (Maize) as Human Food.—H. C. Sherman points out that if one-fifth of the total corn crop of this country were consumed for human food, it would set free all the wheat needed for our Allies and still leave enough corn on the farms for the adequate feeding of live stock. A series of experiments have been carried out in healthy men and women by the department of food chemistry at Columbia University in cooperation with the New York Association for Improving the Condition of the Poor, special attention being paid to digestibility and nutritive value of corn proteins. In the first experiment a diet consisting very largely of wheat bread was first taken, one third of which was later replaced by an equivalent amount of corn in the form of mush. In the second experiment a low protein diet was given, 200 gm. of cornmeal being used daily, 90 gm. in the form of mush and 110 gm. mixed with wheat flour and eaten as bread. The third subject consumed 110 gm. of cornmeal per day for eight days, after being twenty days on a diet consisting largely of bread made in part from patent and in part from whole wheat flour. In all three cases slight digestive disturbances resulted, which however might be attributed to the use of a bulky and starchy diet during the summer months, when these experiments were undertaken. A fourth experiment was therefore made and cornmeal in still larger quantities given in the form of thin scones, so that the starch was more uniformly heated and more thoroughly cooked. This diet was taken for a month without disturbance of appetite or digestion. Determination of the nitrogen balance showed that the maize protein functioned with unexpectedly high efficiency, since the equilibrium was maintained throughout the month and the body weight of the subject remained constant. It is evident, therefore, that cornmeal suitably cooked can be substituted for wheat products even to the extent of the whole usual consumption of wheat in the dietaries of those who live largely on bread. It is also evident that corn prod-

ucts, if suitably cooked, can be introduced into the dietary of those not accustomed to their use without any effect upon digestion. The author gives a week's menus, in which 50.5 per cent. of the calories are contributed by corn products. Such menus, however, should be supplemented by a liberal use of fresh fruits and vegetables. In regard to the continued use of cornmeal in the dietary, Sherman refers to the animal experiments carried out by McCollum, who has repeatedly stated that wheat and maize are very similar in their dietary properties. He also reminds us that Osborne and Mendel, to whom we owe in great measure our knowledge of the deficiency of zein, have shown that the other important protein of corn, maize glutelin, is adequate to meet all protein requirements and maintain a normal rate of growth when fed as the sole protein of the diet. These observers have also shown that zein supplemented by a much smaller amount of milk protein may take the major part in meeting the protein requirements either of maintenance or growth. Sherman adds that the exclusive and persistent use of any one grain leads to unfavorable results, but that the substitution of corn for half of the wheat usually consumed may improve the biologic value of the diet. Seeds, however, should be supplemented by leaves and tubers and by milk, which latter forms the greatest factor of safety in our diet. Referring to pellagra, he says the cause is not to be found in the use of cornmeal but rather in the lack of a sufficient quantity of other foods. He closes with a plea for the fuller use of corn as human food in view of the fact that the wheat situation is becoming constantly more acute.

British Medical Journal.

May 1, 1918.

1. Cerebral Edema (Excess Cerebrospinal Fluid): Its Causation and Surgical Treatment. Major L. Bathe Rawling.
2. Removal of Worm (Filaria Loa) from the Eye. Lieut. Col. R. H. Elliot.
3. The Prognosis in War Nephritis. An Analysis of 171 Cases. Captain Rudolph G. Abercrombie.
4. Invalid Rations. Edmund I. Spriggs.
5. A Case of Prompt Recovery After Nerve Suture. John W. Heekes.
6. A Special Crutch for Men Who Have Lost Both an Arm and a Leg. Lieut.-Col. R. Lane Joynt.
7. Toxic Jaundice: Atrophy of Liver: Regeneration and Recovery. W. Bower.
8. A Wax Thermometer Primarily Designed for Use in Hot Air Sterilizing Chambers. Captain E. Emrys-Roberts.
9. Fracture of Internal Condyle of Humerus by Muscular Action. Captain Gerald Lawrence.

1. Cerebral Edema (Excess Cerebrospinal Fluid): Its Causation and Surgical Treatment.—Major L. Bathe Rawling makes this contribution to the study of cerebral edema as a result of his Eastern experiences. He applies the original term "excess cerebrospinal fluid" to the naked eye appearance of brain and membranes when soaked in an excess of fluid, "cerebral edema." This writer first discusses the conditions met with in cerebral edema, and its cause. Disagreeing with Halliburton, he believes there is a very definite relation between the amount of cerebrospinal fluid present intracranially and the intracranial venous pressure, for the following reasons: (1) It is accepted that the cerebrospinal fluid is formed either as an active secretion from the choroid plexuses of the lateral, third, and fourth ventricles, or by a process of filtration through the choroid capillaries. (2) It is accepted that the greater part of this fluid passed from the ventricular spaces through the foramina in the roof of the fourth ventricle to the cerebral subarachnoid system and spaces. (3) It is accepted that it exists at very much the same pressure as the intracranial venous system, but slightly above the venous pressure. (4) It is accepted that, under normal conditions, it is absorbed, as formed, into the cerebral venous channels, more especially into the lateral lacunæ of the superior longitudinal sinus. It would be unwise, in the present state of our knowledge, to make any very definite statement as to whether this is a mere mechanical transmission of one fluid of a lower specific gravity and of higher pressure into another, through a permeable wall, or whether the walls of the veins possess a certain selective action. In all probability the vessels do exercise a selective action, but, under the more ordinary conditions, the absorptive process is probably purely mechan-

ical. Anyhow, this venous absorption must be dependent on the healthy condition of the walls of the cerebral venous channels, and on the intracranial venous pressure. Consequently, if for any reason the absorptive capacity of the veins is impaired, either by disease or injury, due absorption cannot take place and cerebrospinal fluid collects in excess in all possible spaces—in the subarachnoid system, in the ventricles, on the surface of the brain and in the subdural space, producing, as a result, a typical state of cerebral edema. For example, if, as the result of heat-stroke, the tunica intima of the cerebral sinuses and veins is impaired, temporarily or permanently, cerebrospinal fluid will collect in excess. Again, if as the result of some head injury the intracranial venous pressure is considerably raised, so as to be well above the tension of the cerebrospinal fluid, the normal rate of absorption of cerebrospinal fluid will be impeded, and it will collect in excess. As regards the hypothesis that toxic conditions, acting on the choroid plexuses, lead to an increase in the rate of secretion, the writer believes that there is no particular evidence of this. In his work in the East, Rawlings treated a number of patients suffering from "heat effects," the symptoms being headache, usually frontal, and worse between 5 and 8 P.M., and general mental effects; vomiting; ocular changes; slow pulse (50 to 60), and rise in systolic blood pressure to 140 or 150 mm. Hg. (it was found that the average blood pressure of patients in India was below the normal); exaggeration of superficial and deep reflexes; slight rise of temperature, more marked during severe headaches, and epileptiform convulsions, several of the cases giving a previous history of brain disturbance. Decompression was done in seven cases with satisfactory results, and in four cases which refused operation the fits and headache grew more severe and the patients were eventually discharged in a rather pitiable condition. Rawling points out that all the symptoms mentioned point to an increase of intracranial pressure and the satisfactory results obtained by decompression would seem to show that the excess of cerebrospinal fluid was directly responsible for their development. He states that as all the cases recovered he has not had an opportunity of putting his views to the test by obtaining microscopical evidence as to pathological changes in the cerebral veins. He adds that, of course, lumbar puncture can only bring about temporary improvement, and more radical measures are required for the relief of the accumulating fluid. He found also that in some cases lumbar puncture made the patients worse, and that in others failed to show any excess, but rather the reverse. In one of his cases four punctures carried out immediately previous to operation showed a great diminution in the amount of cerebrospinal fluid, whereas in the operation performed immediately afterward the opening of the dura showed a most typical condition of cerebral edema, with very great excess of fluid. He suggests that in such instances some swelling in the membranes in the region of the fourth ventricle, together with considerable local excess of fluid, closed the normal communication between the cerebral and spinal arachnoid system. He believes therefore that the general clinical symptoms are a surer guide.

Berliner klinische Wochenschrift.

March 18, 1918.

A Method for the Examination of the Cerebrospinal Fluid with Colloidal Solutions, "Mastix."—E. Jacobsthal and V. Kafka have examined the cerebrospinal fluid of divers cases from the viewpoint of their reaction of precipitation in relation to colloidal solutions. The technique of their researches, which appears to the reviewer quite precise, but liable to serious errors if not carried out in the most minute detail, consists essentially in the production of a cloudiness and then precipitation in the mixture of the colloidal solution with progressive dilutions of spinal fluid. The dilution is made in a solution of NaCl, which has, in the first place, been accurately estimated from the standpoint of its precipitating properties. The writers have been able to qualify various types of spinal fluid, characterized by their differing charted curves of precipitation for progressively diminishing concentrations. A series

of charts are reproduced, beginning with the normal curve of the cerebrospinal fluid and going down the line to that of general paralysis. Simple syphilis, beginning tabes and cerebrospinal syphilis offer just so many transitory forms following each other. In a general way, this progression appears to consist in a progressively marked precipitation by the use of progressively concentrated solutions. The dilute solutions varied much less, as far as their precipitating properties are concerned.

Acoustic Examination from the Standpoint of Military Aptitude.—E. Wertheim reviews the various tests, all of which are rather familiar, in order to estimate the reality of deafness said to exist by the candidate. To these methods of examination the writer adds that of provoked nystagmus after Barany's method, which alone offers a positive result and speaks in favor of a perfect integrity of the internal ear. Besides this, Wertheim describes a procedure of his own. After the ordinary tests, at the time that the soldier under examination supposes that the examination has ended, a short ocular examination is made as if to estimate the mobility of the eyes. The attention of the subject being thus fixed, he is told to close the eyes, this being suddenly said in a low tone. A simulator who is no longer on his guard closes the eyes or starts to do so, but will interrupt it at once.

Münchener medizinische Wochenschrift.

March 12, 1918.

Neurosexual Observations at the Front.—Lissmann publishes his notes made during a campaign of three years on the sexual life of a battalion composed of men varying in age from 30 to 45 years. He believes that masturbation was not practised by these men. A too abundant regimen and gastronomic dainties sent to the men during 1915 caused manifest pathological symptoms in their sexual life, such as irascibility, anguish, mental depression, etc., symptoms which disappeared after pollution took place. The prolonged effect of abstinence appeared to be a diminution of the sexual instinct. The writer did not meet with any instances of homosexuality resulting from the conditions imposed by war.

Gas Intoxication in X-Ray Rooms.—H. Wintz does not believe that the gases developed by the sparks are the principal factors of the disturbances met with in radiologists. He has measured the proportion of nitric acid and found the quantity so small that it need not be taken into consideration. Wintz thinks that ozone and its derivatives which are produced by the effect of electric discharges are the causative factors of headache, bodily fatigue, disturbances of the attention and memory. As to treatment, the writer advises the isolation of the tracts, followed by the sparks, the use of polished cables or tubes in place of high-tension cables and the more general use of aeration apparatus.

The Spontaneous Cure of Carcinoma, Particularly Cancer of the Stomach.—G. E. Konjetzny studies the processes of organic defense which may result in total or partial destruction of a neoplasm in evolution. He refers to cases of gastric cancer which may be mistaken for ulcers on account of the continued destruction of the epithelioma occurring as fast as the neoplastic production. Besides certain gastric cancers (fibrous carcinoma) are characterized by a diffuse neof ormation in the stomach layers and histological examination shows that some areas of the growth are undergoing destruction from the influence of the fibroblastic reaction of the tissues. Konjetzny has found in 60 per cent. of operated gastric cancer epiploic metastases, and in them he maintains that he was able to detect processes of victorious defense against the cancer cells. From these data he offers very optimistic conclusions as far as the mobility of certain metastatic cancers is concerned. The paper is one of the German scientific pipe-dream variety, long known to the medical profession.

Münchener medizinische Wochenschrift.

March 19, 1918.

On the Technique of Operation for Goiter.—Wilms, basing his remarks on a total of 2100 cases, believes

on the increase. The two dangers are injuries to the recurrent nerve but they can be avoided if modern methods are closely followed. For this reason they should be removed. The writer usually follows the following technique: Freeing of the gland as ordinarily done; ligature of the vein of the capsule on one side; delivery of the gland by the aid of numerous hemostats applied to the capsule; ligature of the superior and inferior thyroid arteries. The inferior thyroid is ligated half way between the carotid and the gland, the recurrent nerve is not isolated, while the parathyroids are sufficiently far away from the point of ligature so that there is no danger of injuring them. In very vascular goiters one may ligate all four arteries without fear. Colloid goiters are poorly vascularized so that ligature of one artery on each side is quite sufficient. Sauerbruch's technique for retrosternal goiter, by splitting the sternum and retracting the incised edges, offers no particular advantage, as the ordinary technique of these goiters permits their delivery.

The Removal of Foreign Bodies from the Pleural Cavity.—H. G. Pleschner advises the use of the endoscope for the localization and removal of these foreign bodies under the control of the sight. These foreign bodies consist of bits of missiles, gauze sponges left in the cavity and pieces of drainage tube which have slipped in. The cystoscope is far less practical than a straight endoscope, the esophagoscope or rectoscope. Drainage tube in the pleural cavity is readily recognized with the endoscope, but one should never seize them at the portion which presents to the view; they are to be seized at one end; otherwise the tube will break and the resulting bits must each be removed. Pleschner concludes this extraordinary contribution (which is a confession of very careless surgery) by relating the case of removal of a biliary calculus from the choledochus through a cholecystotomy fistula by employing an endoscope for locating and seizing the stone.

Deutsche medizinische Wochenschrift.

March 18, 1918.

Theory of Selection (Selektionshypothese).—L. von Liebermann, in a purely theoretical article, maintains that it is proper to include all serologic reactions (immunity, alexis, anaphylaxis) in the general law of reaction resulting from the struggle between the tissues and bacteria. Thus, the weakened cells of the infected organism are destroyed and become antibodies, while their ultimate degeneration produces toxins which give rise to the phenomenon of anaphylaxis.

Experiences with Malaria and Its Treatment.—A. Schittenhelm and K. Schlecht refer to the importance of "plasmodium carriers," not only from the standpoint of the constant menace of an attack of the disease, but also from the viewpoint of their danger to others. The writers are of the opinion that dissemination of the disease, as well as its annual recrudescence, is above all the result of a periodical infection of mosquitoes, an infection derived from malarial patients as well as carriers of the organism. The writers insist, therefore, on the necessity of detecting and treating these "carriers." They can be detected by the injection of various substances, such as milk or salvarsan, or by the quartz lamp, over the splenic area. The writers employed adrenalin, which causes the organism to leave the spleen and enter the circulation as much from the contraction of the gland as from sudden change in pressure. Considering the question of acquired quinine tolerance after prolonged exhibition of the drug, the writers conclude that this does not occur, as these patients eliminate the quinine by the urine quite as slowly as those who begin a treatment for the first time. The writers advise intensifying the doses of the drug as follows: 1 gram, 20 centigrams for three days; 1 gram, 50 centigrams for three days; 1 gram, 80 centigrams for four days, these being the daily doses given fractionally in 30 centigram tablets. The treatment is continued by diminishing the daily dose. The combined salvarsan-quinine treatment is to be recommended in obstinate cases.

Wiener medizinische Wochenschrift.

March 23, 1918.

Pathogenesis of the Pemphigus Bullæ.—F. Samburger at length concludes this long article on the respiratory functions of the cutaneous surface of man, and ends with a study of the anatomical distribution of the cutaneous blood vessels from the viewpoint of this function.

Trachoma.—L. Königstein, in this article, concluded from the previous issue, takes up the treatment of this process and remarks that the ordinary methods advised are usually both long and fruitless. The writer has essayed injections of milk as advised by some, without obtaining any appreciable result. Subconjunctival injections of sublimate only produced temporary improvement. On the other hand, a popular remedy employed in Galicia, namely, the application of leeches to the tarsal conjunctiva, gave a few successful results which were really remarkable. As an operative procedure Königstein usually prefers excision of the conjunctiva. His general results have been satisfactory, inasmuch as 40 per cent. of the cases were able to return to military service and 30 per cent. were discharged without secretion; in other words a total of 70 per cent. The writer ends by an enumeration of certain general measures of a social kind, apt for extinguishing this ocular affection.

Partial Cephalic Nystagmus of Nurslings, Considered as a Vestibular Reaction of Rotation.—S. Gatscher has studied (just why it is impossible to say) the movements of the head in nursing infants following on a passive rotation around the longitudinal axis of the body. These reflex reactions are more evident in the infant who has not as yet learned to hold up his head, this being due to the lax condition of the muscles, whose contraction, in the adult, prevent reflex reaction of the head. The infant responds to rotation in one direction from a reflex of the head in an opposite direction to the rotation. At the time of the cessation the derivation suddenly changes the direction. Therefore, it is a phenomenon similar to the vestibular phase of ocular nystagmus; when the latter exists simultaneously with rotation of the head, both phenomena are of the same duration.

Wiener medizinische Wochenschrift.

April 6, 1918.

Partial Cephalic Nystagmus.—S. Gatscher draws the following conclusions from his case reports given in the preceding issue. Passive rotation around the longitudinal axis of the body produces, in the infant, an active derivation of the head in an opposite direction to that of the rotation. This reflex is a connexe phenomenon of the slow phase of vestibular nystagmus which takes place in the same direction.

The Vitamines and Their Relation to Metabolism.—R. Kleissel offers a long article devoted to theoretical considerations relative to the pathogenesis of scorbutic states. The chemical study and analysis of vegetables which favorably influence the disease have shown that their action is related to a precipitate which is obtained with phosphotungstic acid. By progressive fractional analysis it has been found that the curative effect is obtained from the moment that Millon's reaction is no longer present in the residues of the analysis. The writer recalls the part played by plants in the synthesis of the more complex bodies, as well as the association of certain substances with chemical combinations which appear to increase the activity of these substances. Such for example is the part played by acids which increase the stability and at the same time reinforce the action of vegetable matter (the action of lemon juice in scorbutus). To conclude, Kleissel insists on the part played by tyrosin, which is absolutely requisite for the synthesis of the albuminoids.

Annales de Dermatologie et de Syphiligraphie.

September, 1917.

General Conception of Dermatoses.—Brocq makes the following scale for the intensive study of skin diseases: 1. Elementary lesions. (This, of course, is the time-

honored first study objective.) 2. The objective syndrome. This aspect of dermatology has not heretofore received much cultivation. The prurigenous rash is a conspicuous example. The author would make elephantiasis a syndrome because it originates in any affection in which the veins and lymphatics are obliterated. He would also term pemphigus a syndrome, for it, too, accompanies numerous affections. Cutaneous gangrene also belongs here. Syndromes of this class have to be differentiated from actual diseases—idiopathic affections. There is another group, however, the members of which stand forth clearly as syndromes which are not confused with diseases. These are always due to lesion of some other organs of the body. In hypothyroidism, in renal impermeability, in autointoxications, we may see cutaneous syndromes. The phenomenon is due largely to individual peculiarity or disposition. The author goes much further, however, for he temporarily regards as a syndrome any affection which has no definite proved causation; and from this viewpoint even eczema and psoriasis are only syndromes which occur under the greatest variety of circumstances. Let us suppose that renal impermeability causes a pruritus which as a result of scratching and rubbing becomes an eczema. The syndrome, however, may be understood better if we first consider the true diseases. Here belong naturally all the affections due to fungi, bacteria, and animal parasites, and these considered broadly are very numerous, especially in the tropics. Here belong the whole of cutaneous syphilis, leprosy, tuberculosis, frambesia, blastomycoses, etc., the pyodermites, the tineas, scabies, pediculosis, etc. Here might also be placed the occupation dermatoses and results of local irritants in general. It is evident that such a grouping is not a stable one, but it is thoroughly practical, for it enables us to improve our diagnosis and therapy.

Alopecia Areata in the War Wounded from Radiography.—Frenkel saw in 1917 a small epidemic of false alopecia areata among subjects who had been wounded in the eyes, some of which had required enucleation. In every case the first appearance of the disease was in the occipital region, and the spread was rapid, so that within a short interval the space denuded was as large as the palm. In but one of the cases was the patch centrally located; in every other case it was on the side of the wounded eye. The author relates briefly eleven case histories. In six patients enucleation was required. At first the association with radiography was not entertained, although in every case radiographs had been taken. There had been no x-ray dermatitis, and the alopecia could be termed reflex or neuropathic. But why should this particular group of eye wounds lead to alopecia (for many other radiographs of heads were made at the same time)? There was an interval of nearly two months between the shedding of hair and its first reappearance.

La Presse Médicale.

March 7, 1918.

Cavitary Images in Pulmonary Tuberculosis.—Mantoux and Maingot reach the following conclusions: In addition to the classic image described by Bouchard two other types of radiograph may be isolated. One of these suggests the porosity of a loaf of bread, while the other, with greater regularity, resembles the bee's comb. These two forms occur jointly in about one case in seven of open pulmonary tuberculosis. The crumb type is more common than the comb type. Neither has yet been encountered in closed tuberculosis, although 250 cases were investigated. When this kind of radiograph is in evidence physical exploration has demonstrated the presence of cavities in four-fifths of the cases. In autopsies upon these cases one constantly finds minute cavities, and others of medium dimensions. The authors are as yet unable to state whether the new finds are pathognomic of consumption.

A Practical Treatment for Gonorrhea.—Chevallier has already made public a method for treating gonorrhea in wage-earning men without interruption of business. Since then Renault, a specialist of great experience, has conferred with him personally in regard to the expediency of the plan with a view of bringing it

to the attention of the general practitioner. Gonorrhea should not be a disease for the specialist, for its incidence is much too great. One might as well think of specialists for typhoid fever and pneumonia. The author's method of antiseptic irrigation, according to Renault, cannot cure chronic infectious urethritis. This is partly true, for it does not cure them all. When it fails one thinks of a specialist's services, but these may not be available for one or another reason. In these cases Renault and others believe in the efficiency of sandalwood, and the author also prescribes this drug in combination with salol and urotropin. In addition to the local and internal antiseptics the author mentions diet, but has no special recommendations to make. Carle never saw a case made worse by condiments or asparagus. The "therapeutic continence" of the patient often yields when he is nearly cured. The physician must insist on two months added continence after cessation of the discharge. There is often a justified suspicion as to the reason for the virtue or continence of young men. In some circles the result of coitus is looked upon as the test for recovery without any regard for the welfare of society.

Le Progrès Medical.

March 16, 1918.

Somnambulism in Hysteria and Epilepsy.—Bernheim mentions the great frequency of somnambulism in hysteria. Crises of the latter suppress the inhibitory faculties and exalt the passive faculty of imagination. Some of the phenomena of the latter are seen during major attacks, when the patient enacts her thoughts. Somnambulism is not *per se* an automatic act, but the result of autosuggestion. After having been violated a hysterical girl may reenact the whole scene in a hysterical paroxysm, reproducing her struggles and cries for aid. But these dramatic acts are usually replaced by simple dream states in which the patient performs simple automatic acts, in the course of which she rises, dresses, makes her toilet, opens the door, walks in the garden, etc., and after a while returns to bed with complete amnesia. While somnambulist acts may stand in close opposition to crises they also occur in interval periods. As a matter of fact, however, most somnambulism occurs in subjects who never have hysterical crises and conversely most hysterical women are not sleep walkers. In the epileptic somnambulism is most often seen after *petit mal* in some form. Under such circumstances somnambulism is not an epileptic equivalent but a postepileptic phenomenon, a dream suggestion in action, and we also see, as is well known, dream states without action. The same phenomena may occur in interval periods, although by some they would be classed as equivalents. Maudsley even regarded certain attacks of *petit mal* as enacted dreams. Somnambulist actions in epilepsy may be of a criminal type. A newly married epileptic arose in the night and beat his wife. The question of hallucinations naturally arises in this connection. In a similar case a husband had dreamed of his wife's infidelity. The author believes in the autonomy of somnambulism as a condition which complicates various mental states, and is visible at times in true psychoses.

The Briey Iron Basin has been regarded as one of the motives for German conquest but the Germans seem to have found it a disappointment. Apparently it will be cheaper in the end to get iron from Spain and Sweden. The iron and steel masters of Germany regard it as poor business to annex the Basin to no further end than post bellum resentment.—*La Presse Médicale*.

The Clothing Scarcity in Germany.—A trade in second-hand clothing has sprung up and the government is paying a premium to dealers. Every citizen is asked to keep but two suits of clothing for personal use and sell the surplus if any. Parents and relatives of dead soldiers have been requested to dispose of the habiliments of the latter. At the battle front there is a salvage corps, the members of which collect the clothing of dead soldiers in the darkness of night. These uniforms are then furnished up for new soldiers.—*La Presse Médicale*.

Book Reviews.

HEART AND BLOOD VESSELS. By **DR. SATTERTHWAITHE, A.B., M.D., LL.D., Sc.D.**, Consulting Physician to the Post-Graduate, Orthopedic, Manhattan State, and Babies Hospitals; Fellow of the American College of Physicians; Member American Congress of Internal Medicine, American Therapeutic Society, American Medical Association, Harvey Society, New York State and County Medical Societies; Fellow of the New York Academy of Medicine; Member Association of Military Surgeons of the United States; Society of Medical Jurisprudence; Life Member of the New York Pathological Society; Honorary Member of the Medical and Surgical Society of Washington, D. C. New York: Lemcke and Buechner, 1918.

THIS volume is to some extent a regrouped and revised edition of two works by Dr. Satterthwaite, one issued in 1905 and the other in 1913. Both dealt with different phases of heart disease. In the present volume various matters in connection with the heart and circulation which were mentioned only briefly or not at all in the former books, but which have come into prominence within recent years, have been considered at length. Some subjects which appeared in the previous books have been omitted in the one before us. The object of the author has been to produce a work which fully meets the needs of the practising physician, and it is written in clear, concise language. The scheme of arrangement followed is good. Especial notice may be drawn to the chapters on Graves' disease and the internal secretions, and the summary of the author at the end of the chapter expresses the views as to diagnosis and treatment of one who is well qualified to speak with authority on any disease in which the heart is more or less directly involved. The chapter on the internal secretions and the heart is likewise deserving of close attention, and it is pointed out that animal extracts have produced therapeutic results which were not attainable prior to their introduction.

Stress is laid on the efficacy in many forms of heart disease of hygienic and dietetic treatment. Dr. Satterthwaite has a good word to say for the Karel treatment, but draws attention to the fact that in cardiac diseases the amount of food should be carefully regulated and adapted to individual needs. The intake of carbohydrates and of red meat should be diminished, otherwise stomacic and intestinal antifermentatives will probably have to be in regular use. Overeating after middle age has been reached is to be deprecated. Neither coffee nor tea should be taken unless in weak infusions and in small quantities. Exercise is recommended for the treatment of what is known as the "irritable heart." The chapter on drug therapy is an excellent exposition of the present day practice in this regard. The chapter on cardiac surgery was contributed by Dr. W. Wayne Babcock.

Dr. Satterthwaite has brought out an eminently practical and valuable work on diseases of the heart and blood vessels, and one which may be accepted as a safe guide to the general practitioner in his management of these affections.

MANUAL OF SPLINTS AND APPLIANCES FOR THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY. Report of a Board Convened for the Purpose of Standardizing Certain Medical Department Supplies. Lieut.-Col. WILLIAM L. KELLER, M.C.; Major ROBERT B. OSGOOD, M.R.C.; Major ALEXANDER LAMBERT, M.R.C.; Major JOSEPH A. BLAKE, M.R.C.; Captain W. S. BAER, M.R.C., and Captain NATHANIEL ALLISON, M.R.C. Price, 75 cents. New York: Oxford University Press, 1917.

THIS book of 208 pages embodies the report of a committee appointed by Major-General Pershing, whose membership is noted above, "for the purpose of investigating and reporting upon the advisability of standardizing certain appliances to be used by the Medical Department." The manual describes and illustrates the splints, splint materials, and other appliances that have been found most useful at the front for the immediate treatment and transport of fracture cases, and a number of appliances, such as the Balkan and Blake frames, that are used in the treatment of

these cases at the base hospitals. Individual splints are described in detail and also the indications for their use and the methods of applying them. The descriptions, together with the illustrations, give such a clear idea of the value, indications for and method of applying each type of splint that even the man who has had but comparatively little experience in the handling of fractures should soon become reasonably adept in their application.

This manual is to be distributed to all United States Army Medical Officers here and abroad, and it should be of very great value to all in civil practice who may be called upon to treat fracture cases either in an emergency or as part of their regular practice.

LA PROTHÈSE DU MEMBRE INFÉRIEUR. Par le Dr. F. MARTIN. Price, 5 Francs. Paris: Masson & Cie., 1918.

THIS work is limited wholly to a consideration of prosthesis. Among the numerous illustrations are cinema films showing the mode of progression of one-legged men with prosthesis of different kinds. Provisional prosthesis receives attention. Much space is devoted to American artificial limbs (legs and feet), including those of Marek (Marks?), Frees, Hanger, Palco, Rolwey, Drapier, etc. The only other limbs to be described in detail are those of Belgian make. The subject matter is eminently technical. A preface to the book is supplied by Depage, the distinguished Belgian surgeon.

DISEASES OF THE DIGESTIVE ORGANS. With Special Reference to Their Diagnosis and Treatment. By CHARLES D. AARON, Sc.D., M.D. Professor of Gastroenterology in the Detroit College of Medicine and Surgery; Consulting Gastroenterologist to Harper Hospital. Second Edition, Thoroughly Revised. Price, \$7.00. Philadelphia and New York: Lea & Febiger, 1918.

THE first edition of this work (not to be confounded with the author's monograph on Diseases of the Stomach) appeared in 1915. Three new chapters are added, the subjects respectively being duodenal diagnosis and treatment, intestinal stasis, including the surgeon's viewpoint, and gas producing affections. The success of the work, in the presence of so much competition, is due in part to its eminently practical character—in this respect it is a typical American textbook—and also perhaps to the complete subdivision of the subject matter into general and special chapters, which virtually makes of it two books in one.

AN EPITOME OF MENTAL DISORDERS. A Practical Guide to Etiology, Diagnosis, and Treatment. For Practitioners, Asylum, and R.A.M.C. Medical Officers. By E. FRYER BALLARD, M.B., B.S. (Lond.), Capt. R.A.M.C. (T.), Medical Officer in Charge of the Observation and Mental Blocks, Second Eastern General Hospital (T.F.), Brighton; Sometime Assistant Medical Officer Somerset County Asylum, Wells; Member of the Medico-Psychological Association of Great Britain and Ireland. Price, \$2.25 net. Philadelphia: P. Blakiston's Son and Co., 1917.

THIS book describes mental disease from a symptomatological aspect, but with no effort to understand the symptoms. The writer's classification is poor: hereditary, nonhereditary, and organic. Many obsolete or obsolescent terms are used: "insanity," "lunacy," "amentia agitata," and "persecutory hypochondria." The style is often inexact: divertibility is given as the exact opposite of suggestibility, a precox is "cleverly violent," or shows "degraded conduct." Unwarranted generalizations appear, e.g. that altruists are immune and egoists prone to mental disease. The bromides and early marriage are advised in unstable conditions at puberty, drugging for mania, and chloral hydrate and cannabis indica for dementia precox. The account of the latter condition, by the way, contains much to which exception might be made, e.g. that it is "due to chronic intoxication in degenerate persons," and that "quiet, reserved, egotistical adolescents are chiefly attacked." The writer admits that he is not qualified to discuss psychoanalysis, and then criticizes it adversely. The chapter on shell-shock is the best in the book, but subsequent studies of this subject have automatically rendered it out of date. Altogether this book bears few impresses of the twentieth century.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-ninth Annual Meeting, Held in Chicago, June 10-15, 1918.

HOUSE OF DELEGATES.

First Day—Monday, June 10.

THE House of Delegates was called to order by the Speaker of the House, Dr. Hubert Work of Denver, Col.

Report of the Council on Health and Public Instruction.—Dr. FRANK BILLINGS of Chicago presented this report. He stated that the work of the Council on Health and Public Instruction, like all our other national activities, had been greatly reduced during the past year on account of war conditions. This was partly due to the fact that the entire membership of this Council was actively engaged in public service. Nevertheless, the Council office at the headquarters building in Chicago had been maintained and operated continuously and the routine work had been carried on. Owing to existing conditions and the absorption of the public mind in other topics, it had not been considered advisable to undertake any new activities or the development of any new line of work for the present. As soon as the war was over the Council would resume its function of public education and stimulation of interest in health topics, public health legislation, etc., with the expectation of finding a public sentiment in favor of organized, concerted, and constructive public health work resulting from the educational influence of our military activities greater than had hitherto been possible. The demonstration on a large scale of the effectiveness of modern preventive medicine which had been going on in our camps could not fail to have a marked influence on public sentiment. The entrance into the service of nearly 20,000 physicians as officers of the Medical Reserve Corps would insure in the future a degree of discipline and cooperation in the medical profession that had hitherto been impossible. The Council anticipated a degree of public interest and of constructive effort along public health lines following the war such as had never before been possible in this country. To meet this situation it was more than ever necessary that the organized medical profession should be represented in this field by a permanent board capable of carrying on a definite constructive policy, looking toward the development of the largest amount of cooperation between the organized medical profession on the one hand and the general public on the other. In spite of the handicaps of the war condition the Council had printed and distributed from May 1, 1917, to April 1, 1918, a total of 204,500 pamphlets on public health subjects, besides having replied to many thousands of requests for information.

Reports of Subcommittees of the Council on Health and Public Instruction.—The *Committee on Cooperation with the National Educational Association* reported an increased interest in the various subjects of their committee program. About 8,000 copies of their third report, entitled "Health Charts," had been distributed. The Elizabeth McCormick Memorial Fund of Chicago had made available \$2,000 for the printing of the health chart sets. The Joint Committee approved the proposed plan for the printing of a fourth pamphlet report to be called "Health Improvement in Rural Schools." This would give information regarding the best health work that was being carried out at the present time in the rural schools of the country. Among other activities undertaken under the personal direction of the Chairman of the Committee, Dr. R. W. Corwin, were the following: In southern Colorado they had kept up the protection of the teeth, eyes, and health of the school children in the rural schools. In the coal camps, an eye, ear, nose, and throat specialist had been examining and treating the school children of these schools. A dentist and a special nurse were at work among the school children of the camps, treating and repairing teeth and teaching mouth hygiene. At these camps visiting nurses were working who devoted their entire time to teaching hygiene and sanitation in the homes of the miners. This work was having a decidedly beneficial

effect on the health of the community and did much to improve the schools. Owing to the importance and timeliness of first aid work, they were continuing classes in camps and schools. The importance of architecture of schoolhouses was not being lost sight of—and whenever possible they spoke of the importance of properly constructed schoolhouses.

The Committee on Women's and Children's Welfare reported that during the past year the work of this committee had been largely advisory and cooperative, instead of initiative. This had been necessary because of the lack of appropriation and the absence of the majority of the members of the Council. One new feature of the work had been to get the various state fair boards to make provisions for a department of child welfare. The effort had met with a gracious response in every instance and a number had already established permanent departments. At one fair alone 500 babies were measured and scored. It had been possible for the Committee to come into contact with, and help directly, the plans for child welfare in the women's clubs of the country. In that capacity they had submitted two lines of work closely allied with the work of the American Medical Association, namely, insistence on adequate vital statistics laws and developments and furtherance of baby health conferences. In response to a summons from the Children's Bureau they had met in conference with that body at Washington, D. C., March 14 and 15, to discuss the plans for the children's year. As these plans were being executed by the National Council of Defense with the assistance of the General Federation of Women's Clubs, they offered a far-reaching field for cooperation. The American Medical Association Baby Welfare Charts, Save the Babies pamphlets, and Anthropometric Tables were especially in demand. If the funds were available an unlimited supply of material from this committee would be demanded. It was a source of keen regret that they were unable to meet this demand.

President's Address.—Dr. CHARLES H. MAYO of Rochester, Minn., made this address, in which he said, in part, that he was very glad to meet the members of the House of Delegates. These were momentous times. Never had such opportunities for work been presented to the medical profession as at the present time. The war could not be carried on if it were not for the medical profession. Through its proper organization it was possible to obtain great results in wholesale form. The high position in the Army which the medical profession was now occupying had not been reached without a great deal of trouble. For a long time the medical profession had not been recognized by the Army, the engineers having been given the first place. At first the medical man had been employed as a contract surgeon; he was not an officer, he had no epaulettes, and he was not even saluted. The progress made by the doctor had been certain, but very slow. The medical profession had never acted as a harmonious body, and while great work had been accomplished by various units of the profession, these had always acted separately, often as though in competition one with the other. Even now the activities of the medical profession were being carried out by many units under different Government departments. Under the Treasury Department there was the Public Health Service; under the Department of Labor, the Children's Welfare Bureau; under the Department of the Interior, the care of the insane. If it were possible to coordinate those various activities we could have a wonderful National Board of Health. In Europe the medical was the best maintained governmental organization. It had been our custom in the past to let personalities between individuals or groups of individuals stand in the way of efficient organization of the medical profession, and for that reason it was not occupying the position to which it was entitled. In other words, it was due to petty personalities and jealousies that the medical profession was occupying a so-called fourth-grade position. The world, however, was beginning to realize the work which had been done by the American Medical Association, which consisted of 83,000 men. The work being done was great and should not be belittled by anything within the organization which might divide us. Dr. Mayo gave the names of a number of men prominent in the American Medical Association who were now in the service

, and said that nobody in the Association was so full of his duty.

Secretary.—Dr. ALEXANDER CRAIG of this report, which showed that the

membership of the American Medical Association on May 1, 1917, was 44,010; on May 1, 1918, it was 44,715, a net increase of 705 members for the year. This report contained the record of the *ad interim* appointment of committees to meet the war situation. These committees were appointed in response to the request of the War Department for the active and vigorous cooperation of the American Medical Association and were given full power to act in conjunction with the Provost Marshal General. On this committee Dr. M. L. Harris of Chicago, Dr. Hubert Work of Denver, and Dr. J. E. McKnight of Hartford, Conn., were appointed. Later, Dr. A. R. Mitchell of Lincoln, Neb., was appointed to fill the vacancy caused by Dr. McKnight's death, and the President of the Association and the editor of the *Journal* were added to this committee, through which all the facilities of the Association were placed at the disposal of the War Department. This meant that all the data with reference to the student record, school of graduation, licenses held, hospital service, and practice of medicine of every member of the medical profession in the United States were made available for the War Department. Since the beginning of the war the Association had received almost daily lists of names of those making application for commission in the Medical Reserve Corps concerning which information was desired, and a corps of specially trained clerks had looked up this information and transmitted it to the Surgeon-General's office. This had involved an immense amount of work. A memorial was presented to Congress on January 11, signed by the officers of the Association and the House of Delegates, protesting against the surtax of 8 per cent. on incomes in excess of \$6,000 of all professional men. Copies of these resolutions were transmitted to the Vice-President of the United States, the presiding officer of the Senate, and to the Speaker of the House of Representatives.

Report of the Board of Trustees.—Dr. THOMAS McDAVITT of St. Paul submitted this report, which stated that, contrary to expectations, the year had been a successful one for the Association. Instead of a falling off in subscribers to the *Journal*, there was an actual increase in the circulation, the number of subscribers and Fellows on January 1, 1917, being 65,661; on January 1, 1918, 67,315. The revenue derived from the *Journal* for the past year, that was, for dues and subscriptions, as shown by the auditor's report, was \$318,487.25. Contrary to the predictions of last year, there was also an increase in the receipts from advertising during the year amounting to \$35,000. The fundamental rule controlling advertising was that no proprietary or controlled medicine should be advertised unless it had been investigated by the Council on Pharmacy and Chemistry and accepted for "New and Nonofficial Remedies." The same general principle applied to other articles advertised, that was, the product advertised must be an honest one, and the claims made for it must not be exaggerated. The "Cooperative Medical Advertising Bureau" was giving satisfaction and it was appreciated as a good thing by the various State journals. The *American Journal of Diseases of Children* seemed to be giving satisfaction, at least if judged by the circulation, which was now 2,415; there had, however, been a small loss on this publication last year. The same thing applied to *The Archives of Internal Medicine*, that was, that while there had been an increase in the circulation over the preceding year, the financial loss had been greater than for the year 1917. The Board of Trustees was considering the question of either asking the Editorial Board of the *Archives* to reduce the number of pages or increase the price to \$5 a year. The "Propaganda Department" was cooperating with and advising advertisement vigilance committees, associations of advertisers and advertising managers of various magazines and newspapers with the result that those who were behind the scene appreciated that great improvements were taking place in regard to the advertising standards of these publications. The number of schools and colleges that devoted a certain amount of time each session to the economic, sociological, and health phases of the patent medicine

evil continued to increase. The Educational Posters prepared by the department were becoming widely used in such work. The Council on Pharmacy and Chemistry found its work influenced by the war. Since the war started, no new synthetics or preparations of any kind had been submitted from Germany. Meanwhile radical changes had been taking place in this country. A large number of synthetics for which we formerly depended entirely on Germany were now being manufactured in increasing quantities by American concerns. Four concerns were now making arsphenamine and such products as atophan, veronal, novocaine, phenol, and phenol derivatives. To protect both the public and the profession, as well as to encourage the American manufacture of synthetics, the Council and the Laboratory had willingly investigated the quality of these substitutes for foreign made goods, and when they had been found satisfactory—which has been the case in practically every instance—had accepted them for "New and Nonofficial Remedies." Certain members of the Council had been cooperating with the Federal Trade Commission in solving the problem connected with licensing manufacturers to make certain products hitherto controlled by German patents. At the request of the head of the division of supplies in the Surgeon-General's Office, the Committee on Therapeutic Research and Useful Drugs of the Council held a meeting in Chicago, April 26 and 27, to investigate and make recommendations regarding deletions from, and additions to, the list of drug supplies for the Army. Constituted as this committee was it was thoroughly competent to do this work, and they believed it had been appreciated by the Surgeon-General. The "Committee on Scientific Research" which, in the curtailment of expenses, it was found necessary to discontinue in 1914, the Board of Trustees had felt justified in reestablishing. The newly constituted committee consisted of: Dr. Ludvig Hektoen, Professor of Pathology at Rush Medical College, Chicago; Dr. G. N. Stewart, Professor of Experimental Medicine, Western Reserve University, Cleveland; Dr. A. W. Hewlett, Professor of Medicine, Leland Stanford Jr. University, Berkeley, Cal.; Col. F. F. Russell, Surgeon-General's Office, Washington, D. C.; J. W. Churchman, Professor of Surgery, Yale University, New Haven, Conn., and Herbert Charles Moffitt, Dean and Professor of Medicine, University of California Medical School. This report also included a record of lawsuits in which the Association had been involved and showed what disposition was made of such lawsuits. The long mooted question of whether a corporation not for profit might hold its annual meeting outside of the State of Illinois for the election of its Trustees had finally been settled by a decision of the Supreme Court in favor of the Association. The Supreme Court also sustained the by-laws of the Association, which fixed the method of electing delegates to the House of Delegates and the election of the Trustees by the House of Delegates instead of the membership at large. In reviewing the part taken by the Association in war work, the report stated that in certain quarters the belief prevailed that the Association had not made use of its opportunities or rendered to the Government the service of which it was capable. A brief survey of the work done would dispel any such impression. Since the beginning of the war the Association officers had answered, both by letter and by publication, thousands of questions relative to the service, relieving the offices of the Surgeon Generals of the army and navy of this burden. The Association had printed and sent out a total of 200,000 application forms. It had sent a personal appeal to every physician under 55 years of age and to those who did not answer a second letter was sent. In addition to its effort to increase the Medical Reserve Corps, the Association's plant had printed a large amount of material without cost to the Government. In connection with this point several letters from the Surgeon General's office expressing appreciation of the service rendered by the Association were submitted.

Treasurer's Report.—This report was submitted as an addenda to the Trustees' Report and included the auditor's report. It showed that the surplus of the Association at the beginning of the year amounted to \$382,135.69 and the surplus at the end of the year amounted to \$423,433.87, an increase of \$41,298.18.

Major E. Rist of France was introduced to the mem-

bers of the House of Delegates by the presiding officer, who referred to Major Rist as the Osler of France. Major Rist said, in part, that it gave him great pleasure to have been able to attend the meeting of the House of Delegates of the American Medical Association. He was an old friend and student of the Association. He praised the spirit of association existing among the medical profession in the United States and expressed the hope that now that so many of the American medical men were going over to France the ties uniting the two peoples would be strengthened. He praised the American Medical Association for its work in raising the standard of medical education in this country, and expressed the opinion that the medical education of the United States was the model of the world. The entrance requirements by medical schools in this country were the highest in the world. The United States were also leading the world in public health. He hoped that France would be able to follow the high spirit of association which was existing here in the medical profession and which had accomplished such great work. (Cheers of "Victory" followed this address.)

Report of the Judicial Council.—Dr. ALEXANDER LAMBERT submitted this report, which stated that there had been submitted to the Judicial Council by the president of the University of Minnesota a contract asking for an opinion whether or not the adoption of this agreement would be contrary to the standards and code of medical ethics of the American Medical Association. The agreement was made between E. C. Kendall, party of the first part, William J. Mayo and Charles H. Mayo, parties of the second part, and University of Minnesota, party of the third part. This agreement stated that E. C. Kendall, an employee, working under the auspices of Drs. William J. and Charles H. Mayo had discovered an agent "Thyroxin" for the treatment of disease and had applied for letters patent of the United States thereon and intended to apply for letters patent in foreign countries. E. C. Kendall agreed to give all patent rights and titles and trade name to the University of Minnesota and the Drs. Mayo agreed to give all their rights, titles, etc., in this same medical discovery to the same university. The university agreed to do all the selling and exploiting of the medical discovery and agreed to give 10 per cent. of the returns to E. C. Kendall and to cover in to the present Mayo foundation fund of the university the remainder and use them for scientific investigations and for the furtherance of scientific study. From time immemorial it had been unethical for members of the American medical profession to patent medical discoveries and use the proceeds for gain. The Judicial Council was of the opinion that the same standard which applied to individuals must also be conformed to by partnership companies and corporations of which a physician was a member. It was therefore the opinion of the Judicial Council that it would be unethical to consummate this agreement. It would be unethical for the University of Minnesota because it would be unethical for the members of its medical faculty to agree to accept a patent and patent rights which the university proposed to use for commercial gain, just as much so as it would be unethical for these medical men individually to patent or accept a patent of a medical discovery and exploit it for personal gain. It would be unethical for the Drs. Mayo on their part to consummate this agreement for they would be patenting a medical discovery and using the commercial proceeds therefrom to increase a fund given by them to the university and it would still be unethical for them to patent the medical discovery and turn over to a third party the commercial exploitation thereof.

Report of the Council on Medical Education.—Dr. H. D. ARNOLD of Boston submitted this report, in which he reviewed briefly the progress that had been made during the past fourteen years in improving the character of medical education in this country. The advantages in this country at present were the higher and better supervised entrance requirements; larger staffs of well qualified, full-time laboratory teachers; closer relationships with large and well conducted hospitals; and the use of the more modern methods of practical and clinical teaching. Commercialism has been practically eliminated from medical teaching and only a few

seriously low grade medical schools continued to exist. Now, as shown in one of the charts, 80 per cent. of the medical schools were requiring for admission two years of collegiate work; the majority had teaching relationships with one or more hospitals in which clinical material was abundant and being used in accordance with the latest methods of teaching. Of all the improvements enumerated the one of greatest importance had been the increase in entrance requirements. With the present standards America need no longer apologize when the subject of medical education was broached. It was gratifying to know that the reforms in American medical education were so nearly completed before this country was finally drawn into the world war. As a consequence the majority of students graduating in the last several years had received a medical training equal to the best obtainable anywhere. Furthermore, it was the recent graduates that had entered the government service in larger proportions, and who would be responsible for the medical care of our American soldiers and sailors. It was a matter of congratulation therefore that those fighting for the preservation of America and American ideals would have as skilled medical care as those of the opposing armies. This could not have been said had it not been for the energetic campaign of the last fourteen years to improve medical education. The report showed that there was no dearth of physicians, but an increased demand, and there was also a demand for better, not lower, education. Even for army purposes the demand was not so much for ordinary physicians and surgeons as for those of highly technical and special training. Emphatically, therefore, the present demand did not call for a lowering of educational standards, but for the maintenance of present entrance requirements, for further improvements in laboratory and clinical equipment, and particularly for improved methods of teaching in all the medical schools. It was only by maintaining these fair standards that the demand would be supplied, since in the best medical schools the number of graduates had steadily increased for the last five years, while the number graduating each year from the lower grade medical colleges had steadily decreased. One result of the campaign for improved medical education had been that a generous financial support had been provided for medical schools, either from state appropriations or private sources. In providing funds it appeared that medical schools for negro students had been largely overlooked, although their need for such support was proportionately greater than for medical schools in general. Now they not only lacked this financial aid, but also their income from student fees had been considerably reduced as a result of the general adoption of higher entrance requirements. For these reasons largely, medical schools for negroes had not been able to keep pace with the rapid improvements made in other medical schools. There were about eleven million negroes in the United States and only four negro medical schools. One of these was in Class A, two in Class B, and two in Class C. Since 1904, the Council had had as one of its regular functions, the collection and tabulation of statistics which were published in the State Board Number of the *Journal* in April each year. These statistics had had a large influence in the improvement of both medical education and medical licensure. The various improvements brought about in medical licensure during the last fourteen years were set forth in one of the tables presented. Next to the improvement in the standards of preliminary education the greatest increase was in the number of states (now 37) which were refusing to recognize low grade colleges. The greatest needs at present were that adoption of the requirement of the hospital interne year; a general adoption of the two years of premedical college work, and—a matter of extreme importance—a more general and larger use of practical laboratory and clinical tests in the state licensing examinations. Recognition of the National Board of Medical Examiners, which was organized in 1915, and which had received the recognition of the Association, had now been granted recognition by eleven states and holders of its certificates would be registered without further examination in Colorado, Delaware, Idaho, Kentucky, Maryland, New Hamp-

13, North Dakota, Pennsylvania, Mont. At the meeting of the Council and the Association of American Medical Students in Chicago, in February, 1918, the following premedical requirements which

was unanimously adopted was as follows: "(a) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fourteen units (fifteen after Jan. 1, 1920) in a standard accredited high school or other institution of standard secondary school grade, or have the equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education. Unless all the entrance units are obtained by examination, a detailed statement of attendance at the secondary school, and a transcript of the student's work, should be kept on file by the college authorities. This evidence of actual attendance at the secondary schools should be obtained, no matter whether the student is admitted to the freshman or to higher classes. (b) Credits for admission to the premedical college course may be granted for the subjects shown in an appended list and for any other subject counted by a standard accredited high school as a part of the requirements for its diploma. The requirements of the premedical college course were as follows: (c) Beginning Jan. 1, 1918, the minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above, will be sixty semester hours of collegiate work, extending through two years, of thirty-two weeks each, exclusive of holidays, in a college approved by the Council on Medical Education. The subjects included chemistry, physics, biology, English, composition and literature. Certain other subjects were also urged, as French or German, advanced botany, psychology, algebra, and trigonometry, and additional courses in chemistry. The reorganization of medical education had now advanced to a point where another general classification of medical schools was essential and should be made as soon as circumstances would permit. Aside from the necessity of this revision on general grounds, it was now of special importance in connection with the recognition of medical schools by the Federal service under the regulations of the selective service law. Since the effect of these regulations would be the closure of such institutions as were not considered "well recognized," because of the drafting of their students if the war continued any length of time, it was particularly important that the Council's classification should be made in strict justice and that it be made on the actual conditions now existing in the schools. A new schedule for the grading of medical schools had been formulated, and was included in the report. A scheme was also outlined for continuous sessions in medical schools which suggested that for the duration of the war each year be divided into three periods of four months each, these sessions beginning in October, February, and July of each year. It was shown that the student could enter on the study of medicine at the beginning of any one of these periods and continue for eight successive periods of four months each, at which time he would graduate and enter on an intern service of one calendar year. This would require just four calendar years when he would be ready for active service with the army. It was argued that by the adoption of this or some similar scheme the summer periods heretofore looked on as vacation time would be utilized; the extensive teaching plants would be kept in continuous operation, and students would be graduated from nine to twelve months earlier than under the methods heretofore prevailing. Under this scheme the present junior class would be graduated four months earlier; the present sophomore class would be graduated eight months earlier, and the present freshman class would be graduated a year earlier than under the former method. It was argued also that since there would be no vacations for the boys in the trenches, or for the medical officers in the service, there appeared to be no reason why medical students should expect a vacation. The Council and the information it had collected had rendered important services to the Government in giving the Government access to its files, both those of

the Medical Students' Register and its files of information in regard to medical colleges, and standards of preliminary and medical education.

Report of Council on Scientific Assembly.—Dr. E. S. Judd of Rochester, Minn., presented this report, which emphasized what had been said last year with regard to the number of section meetings in the Scientific Assembly, namely, that too many section meetings were held at the same time. There was no question of this. They had been accused of devoting too much time to scientific work and too little to social enjoyment and getting acquainted with one another. The Council was of the opinion that a more effective distribution of time would be presented if the sections were limited to one meeting a day. The Scientific Assembly ought to be so conducted that a man would not think he was neglecting the section in which he had an especial interest when he took time to keep in touch with what was being done in other sections or to meet other physicians outside the sections. It should be emphasized that the Scientific Assembly of the American Medical Association was an entity and that the sections were merely parts of the whole. Allegiance to a particular section was desirable. It had been and was an important factor in developing scientific work. The Council on Scientific Assembly had been successful in securing cooperation between the sections and arranging for a continuation of the program throughout Friday. If the three full days were used for section meetings, it would be very easy to carry out the suggestion that the number of these meetings being held at the same time should not be more than eight.

Report of the War Committee of the American Medical Association.—Dr. HUBERT WORK submitted this report. He stated that this committee, constituted by action of the Board of Trustees at its annual meeting, held October 19, 1917, and ratified by a postal vote of the House of Delegates, as soon as it was empowered proceeded to Washington, where it obtained an interview with the Provost Marshal General and his associates, and formally tendered the services of the American Medical Association to that office for such services as the Association could render in the creation of medical advisory boards. The committee, at the request of the Provost Marshal General, submitted a working proposition for the formation and supervision of these boards, which was approved and afterward adopted. The Committee then returned to Chicago and arranged a meeting with the representatives of the Committee on States Activities, General Medical Board, Advisory Commission and Council of National Defense. These representatives, together with the Committee of the American Medical Association, formed a joint committee to which were added Dr. Edward Martin of Philadelphia and the Secretary of the American Medical Association, who became the secretary of the committee. They then proceeded to the organization of the medical advisory boards. More recently they had been actively engaged in securing a future increment to the Medical Reserve Corps. A meeting was held in Chicago, on April 30, at which thirty-eight constituent state associations were represented, and a day was devoted to how the organized medical profession could be utilized effectively for the winning of the war, and specifically how the American Medical Association, its constituent state associations, and their component county societies could assist in enrolling the required increments for the Medical Reserve Corps of the Army and Navy. The secretaries of the state associations returned to the several states with the determination to coordinate the forces of the organized medical profession in their states with other agencies working with similar objects. To determine to what extent the medical profession in various parts of the country had met its responsibility to the Government, the *Journal* for June 1 published a survey or "Honor Roll" of the medical profession of the United States. This showed the important facts regarding each county, and had proved effective in stimulating applications for commissions in the Medical Reserve Corps.

Resolutions.—On behalf of the Medical Society of the District of Columbia special courses for "Practical Nurses" were urged to meet the great demand for nurses occasioned by the war, and which would also allow a person of average means the opportunity to

secure nursing services. Resolutions were offered on behalf of the medical societies of California, Ohio, and other states, to empower the President of the United States, the Secretary of War, and the Surgeon General to appoint women physicians in the Medical Reserve Corps on the same salary and footing as men physicians. The various resolutions praised the achievements, ability, and patriotism of the women physicians. On behalf of the Universal Military League a resolution was offered requesting the enactment of a law requiring universal military service of every man before the right of suffrage was granted to him.

Second Day—Tuesday, June 11.

The morning session was devoted to the reports of the various reference committees on the resolutions which had been offered during the previous session.

The Reference Committee on Rules and Order of Business recommended that Section 3, Chapter 4 of the By-Laws be amended to read: "Provided that the House of Delegates upon a motion of its members could change the time of election of officers, the motion having been made one day in advance and carried by three fourths of the voting delegates." The recommendation was adopted. The Committee further recommended that Section 4 of Chapter 4 of the By-Laws be changed so the words *Speaker* and *Vice-Speaker* be substituted for chairman and vice-chairman. That recommendation was also adopted.

Dr. J. W. SCHERESCHEWSKI, U.S.P.S., as chairman of the Committee of Hygiene and Public Health recommended that the resolution which had been offered on behalf of the Medical Society of the District of Columbia relative to special courses for nurses be adopted, and that a special committee be appointed for that purpose.

Dr. COLLIN of Baltimore wanted to know what the Surgeon General's office was doing on that question and suggested that Dr. McClain, who had been present at the session, be called upon for information. Dr. McClain stated the question had been discussed freely by the nurses themselves and that if a committee appointed by the House of Delegates could assist them in any way they would welcome such aid. He stated that the Surgeon General had opened a school for nurses in connection with the army. Dr. Craig of Chicago suggested that the report of the Committee be accepted, be favorably commended, and be referred to the Council of Public Health and Instruction.

Dr. ALEANDER LAMBERT of New York said that the nursing situation was an acute problem. Not only must there be enough nurses to send across but enough must be left at home. The French and British had to meet the same problem. In Britain this was solved by means of the Nurses' Aids Association, many educated and clever women were attracted to that work; they had soon become proficient and often equaled the trained nurses in caring for the wounded. There had, however, resulted a great deal of friction between the regular nurses and the nurses' aids, and the latter had been frequently placed in the position of scrub women. Educated and intelligent women could learn the technique of caring for wounded quite rapidly. Instead of having all graduate nurses there should be undergraduate nurses as in all hospitals. There were many clever and intelligent women who were eager to help in this war. Instead of being aids they should constitute an Undergraduate Class. Women of college education would be given one year's credit and they could get their diplomas in two instead of three years. The special character of warfare carried on now resulted in the death of many nurses and this deficiency would also have to be met.

Dr. FREDERICK SONDERN of New York said the Committee on Public Hygiene realized that so far as the supply of nurses for the army and the navy was concerned that question was in good hands, the work of the proposed committee would be to handle that question from the civilian's standpoint only.

Dr. KRESS of California moved that the recommendation of the Committee on Hygiene be referred to the Council of Public Health and Instruction, with instructions that special attention be paid to the question of the civil population, and that a sub-committee be ap-

pointed for that purpose. The motion by Dr. Kress was adopted.

Dr. GRAVES of Texas, chairman of the Reference Committee on Legislation, recommended that a resolution be adopted empowering the Surgeons General of the army, navy and public health to employ women physicians in the special fields for which they were fit and that when employed they were to receive the same pay and rank as men in similar positions. That recommendation was adopted.

Dr. WETHERILL of California, chairman of the Committee on Election of Officers, recommended that the War Committee appointed by the Board of Trustees be confirmed, that the work of the propaganda department be endorsed and commended, and that the Board of Trustees be specially commended for having successfully defended the suit which had been brought against the American Medical Association, and further that the entire report, which had been made by the Board of Trustees be adopted. Dr. Wetherill's recommendations were adopted.

Dr. HUMISTON of Illinois, chairman of the Committee on Miscellaneous Business, recommended that the resolution which had been introduced on behalf of the Universal Military League urging the early adoption of a national policy of universal military service for all men, before the right of suffrage would be granted them. The resolution was adopted.

The following resolutions were also adopted upon motions by various members of the House of Delegates: The House of Delegates endorsed the Owen-Dyer bill now before Congress, giving increased rank to medical officers of the army, and urged its early adoption.

That it was to the best interests of the nation that Surgeon General Gorgas should not be retired when he will have reached the retirement age, but that he be retained in active service and in the same capacity and that a copy of that resolution be forwarded to the President of the United States.

That in consideration of the impending emergency a class of undergraduate medical men be established in the army with commissions as high as First Lieutenant, who would not have the authority to practise medicine after the war unless they had met all requirements made by the then existing State boards.

That the American Medical Association calls upon its members to further the cause of the war by confining their prescriptions to products owned and manufactured by loyal citizens of the United States wherever the welfare of the patient would permit it.

OPENING MEETING.

Tuesday Evening, June 11, 1918.

THE PRESIDENT, DR. CHARLES H. MAYO OF ROCHESTER, MINN., IN THE CHAIR.

THE Sixty-ninth Annual Meeting of the American Medical Association was opened by an invocation by the Rev. Dr. John Timothy Stone of Chicago.

Address of Welcome.—Dr. EDWARD W. FIEGENBAUM of Edwardsville, Ill., President of the Illinois State Medical Society, made this address, in which he extended the greetings of that organization and of the medical profession of the State to the Fellows and guests of the Association. He said that the profession of Illinois was not all present this evening. Nearly 2000 of the foremost medical men in Illinois had volunteered in the service of the country, and he had been commissioned to speak for them. Though in body they were over one thousand miles away, in spirit they were here giving us their greeting. They were in the camps and cantonments of this country, in battleships and on transports, on the high seas, in base hospitals, and on the firing lines. Each one was doing his duty by his country in a medical way. They had left families, successful practices, and prominent places in their respective communities. They were eager and anxious to serve the Government. They had left security and were braving sickness and death. "All hail to the medical profession which had laid its all on the altar of its country." It was fitting that the meeting of

Medical Association should hold its meeting in the Centennial year of Illinois, and was preparing to celebrate. The oldest medical school of this State was older than the State. In 1802 George Caldwell landed in Madison County opposite St. Louis and laid the foundation of a medical organization in this State. A little later an attempt was made to register the physicians of this State and this foreshadowed the present complete registration of the physicians of the State. The physicians of those days had upheld the science of medicine at that time to the best of their ability, and from decade to decade after that they were always upholding the welfare of the State. There was no state that had medical laws that were superior to those of Illinois. In the dawning years of the Twentieth Century they had been instrumental in eradicating medical schools not up to the standard, until in this State they had nothing but Class A medical schools. Their last achievement was to get the best medical practice act that had yet been enacted in this country. The medical profession was always laboring to maintain the standard of medical education at all times. This was the foundation upon which they had built and reared this superstructure. They had always been guided by the highest ideals and it was now not only possible but almost an assured probability that these men would make within the confines of this State a medical center of the universe. It was such men as these that had bid him say "welcome" to the State of Illinois.

Address of Welcome.—Dr. CHARLES E. HUMISTON of Chicago made this address in behalf of the Medical Society of Chicago. He said, in part, that Chicago was proud to be the host of such distinguished company. This was the home town of the American Medical Association. There was perhaps no State on the Continent that did not share in this honor, but still the American Medical Association must feel more at home in this State than in any other. The American Medical Association ranked high among scientific organizations of this country. It was the representative medical body of this country to which every reputable physician might belong and to which most reputable physicians did belong. The Nation at this time was depending upon the organized medical profession and in this confidence the Nation would not meet with disappointment. The three thousand members of the Medical Society of the County of Chicago extended their welcome to the Association. Davis, Senn, Finger, Murphy, and others, were here in spirit and bid them welcome. These members who were not here were now engaged in building and preserving the military strength of our beloved country and many had gone to that undiscovered country from whose bourne none returned. We had their example to inspire us to greater endeavor. Dr. Humiston then greeted individually guests from France, from Belgium, from England, Italy, Australia, New Zealand, and Canada, and his greeting was supplemented by enthusiastic applause on the part of the audience. He also extended personal greetings to the representatives of the Army, the Navy, and the Public Health Service.

Introduction of Distinguished Guests.—Dr. MAYO then introduced Surgeon General Gorgas, Surgeon General Braisted, Sir James Mackenzie of London and Edinburgh, Sir William Arbuthnot Lane of London, Major E. Rist of France, Major DeHellen of France, and Lieutenant Colonel Bruce of Canada.

Address.—Honorable FRANK O. LOWDEN, Governor of Illinois, delivered this address. He said, in part, that it was a very great honor which the organization had conferred upon him in permitting him to speak to-night. Never in the history of this country had so distinguished a body of the medical profession been gathered together as was in this hall tonight. It was not only an honor which he appreciated, but one which he coveted because he wanted to say to the American Medical Association that they of Illinois were under great obligation to the Society. In the last eighteen months they had organized their State Health Department and in this work the American Medical Association had cooperated admirably. When they sought to elevate the standard of the society they had their own troubles he understood. If a man got the idea that, if he only went somewhere where the magical

words "medical college" were over the door, he could come out from that place and treat the sick he was against this society. Again some men obtained their license to practice medicine that they might prey on the sick and unfortunate, and those men were against this society. Again he wished to say that it was a great pleasure to admit that this country and the whole civilized world were under obligation to this association for the way it had thrown itself into this war heart and soul. Governor Lowden said he wished to explain to them why it was that American physicians and surgeons had been so keen to appreciate the significance of this colossal conflict which had divided them from German professional men: it was because they had never come under the influence of Kultur; they were still guided by the old fashioned in what they called civilization. Sometimes he thought that we of America as well as those of our Allies did not dwell enough on the contributions which our scientific men had made to civilization. They had taken too much for granted the claims of the autocracy of the Central Empires to what they called Kultur. This new Kultur was borrowed from England. It was the invention of an Englishman and was based on the law of the survival of the fittest. Although that was a biological law, Germany had misapplied it when she brought it into her country. While they all recognized that this was a great law, the survival of the fittest, most people recognized that it did not refer to the moral and spiritual which was in control of the physical laws of the universe. When this idea was imported into Germany it was interpreted to mean not only the survival of the fittest physically but that they should rule the world. They considered moral law as only a foolish thing made to protect weaklings. The strong must rule the earth and to this end they developed the superman. But the rest of the world knew that the law of the survival of the fittest had nothing to do with right and wrong. All the rest of the world knew that moral force, although unseen, was the final arbiter of the universe and therefore Kultur was only a materializing philosophy which was possible only by the exclusion of all other truth; therefore the difference between the physicians of England and Scotland, France, Italy, and America and those of Germany. The physicians of the rest of the world had bowed to the biological truth, but it only meant to them that they were to remove the cause of disease by removing the unfavorable environment of the weak and by lifting up and strengthening the sick and unfortunate, and in that way they gave expression to the modern law. As the Germans applied this law it meant the destruction of the weak and unfortunate and thus made the superman supreme. Thus had Kultur been developed. The physician, in common with the minister of religion, made it his aim to alleviate moral ills and to devise ways and means of making the weak strong morally and physically. In contrast to this the physician of Kultur had no tenderness for humanity, for women, or for the home.

The speaker stated that he was very much interested in the German mathematical accuracy which had computed the value of every man in the service. It had found that a physician was equivalent to five hundred men in the ranks. The American Medical Association was contributing 40,000 physicians, which would by easy mathematical calculation show that it was contributing the equivalent of twenty million men in the ranks. When one considered that that great force was directed by a great genius like Surgeon General Gorgas, who could compute the results, for it was to be remembered that this, the German, was not the first enemy General Gorgas had met. All were mindful of his former achievement in Panama, where his enemy was not the German but the mosquito, but they were both very much alike in that they had the same notion of the rules of civilized warfare and the same disregard of men. The mosquito was no mean enemy to trifle with. General Gorgas did to the mosquito in Panama what the German Army had not done to the French; it drove the French from Panama and the French had so far held the Germans back. But Governor Lowden said that when he spoke of the French it was always France that had delighted the world with their marvelous creations, but the greatest master of romance had

written nothing as thrilling in fiction as the French soldiers had written in fact during the last three years. But to return to German Kultur—German Kultur had appropriated the inventions of the French, the Italians, the English, and the Americans. They vaccinated their men against smallpox by a vaccine discovered by Jenner; they soothed the pain of their wounded by anesthesia discovered by an American; they treated their wounded by antiseptics discovered by an Englishman. Had it not been for the inventions of the other nations, they would not have been able to hold the world at bay these last four years. After referring to the brutality inflicted on women and children, Governor Lowden said if we did not vanquish Kultur it would take the next logical step in its course and it would exterminate the weak, the helpless, the deformed, and would rule the world; it would exterminate the men and reduce the women to slavery. No savage was so dead to everything that pertained to civilization as the exponents of Kultur, and if unconquered it would overshadow and blacken the whole world. If Germany won, the superman of Germany would become the superfiend of the world. After the Germans had devastated and pillaged Belgium their mathematical efficiency had led them to classify the watches they had taken into first, second, and third class and to keep record of the number of spoons taken and the amount of champagne; it was logical that they should keep these things and value them, but they destroyed the cathedrals because every cathedral spire pointing to heaven was a rebuke to their brutality and an act of reproach. The German God of to-day was brought from the dark forests of 2,000 years ago. If we only knew what this war meant we would win it. In the darkest hour a few weeks ago when it seemed that the French and the English would be overwhelmed it was our deepest regret that the American forces were not there in full force. But if the Germans had separated the French and English armies, if they had driven the British Army into the channel, if they annihilated the allied armies, if they came to the gate of New York, we remained indomitable. It was better to die as free men than to live as slaves. In closing, Governor Lowden strongly warned his hearers against being seduced by a treacherous peace, and showed that Russia was more wretched under the peace she had made with Germany than under war conditions.

Post-Graduate Medical School in France.—Dr. MAYO, before introducing the president-elect, stated that it might be of interest to the audience to know that plans were under consideration for the establishment of a great post-graduate medical school in France, which would accommodate 1000 medical officers. This school would be most perfectly equipped and at the end of the war it would be turned over to the medical profession of France as a gift from the medical profession of America.

The Organization of the Medical Profession for War.—Dr. Arthur Dean Bevan then delivered the presidential address (see page 1036).

ELECTION OF OFFICERS.

President, Alexander Lambert, New York.

First Vice-President, William N. Wishard, Indianapolis.

Second Vice-President, Edward Starr Judd, Rochester, Minn.

Third Vice-President, Charles W. Richardson, Washington, D. C.

Fourth Vice-President, J. M. Barlow, Philadelphia.

Secretary, Alexander R. Craig, Chicago.

Treasurer, William Allen Puscy, Chicago.

Speaker of House of Delegates, Hubert Work, Pueblo, Colo.

Vice-Speaker, Dwight H. Murray, Syracuse, N. Y.

Trustees, Frank Billings, Chicago, Wendell C. Phillips, New York, Thomas McDavitt, St. Paul, Chester D. Brown, Danbury, Conn.

Judicial Council, M. L. Harris, Chicago, William S. Thayer, Baltimore.

Council on Health and Public Instruction, John M. Dodson, Chicago, William S. Rankin, Raleigh, N. C.

Council on Medical Education, H. D. Arnold, Boston.

Council on Scientific Assembly, Roger S. Morris, Cincinnati.

Next place of meeting, Atlantic City.

ASSOCIATION OF AMERICAN PHYSICIANS.

Thirty-third Annual Meeting Held at Atlantic City, N. J., May 7 and 8, 1918.

DR. F. H. WILLIAMS OF BOSTON, PRESIDENT.

(Continued from page 1010.)

A Study of the Empyemas at Camp Upton.—Major H. BROOKS, M.R.C., and Major R. L. CECIL, M.R.C., presented this paper. Major Brooks said that Major Cecil had undertaken an extensive study of the laboratory side of the problem. They had had a very virulent type of empyema. The cases were all associated with pneumonia. The disease had also been associated with measles, but not with mumps. The causative germ had been the streptococcus in 50 per cent. of the cases, in the other 50 per cent. the pneumococcus. Cases of pneumococcus empyema had recovered after operative treatment. There were 49 cases of streptococcus empyema with a mortality of 61 per cent. Of four *Streptococcus viridans* cases three died; four mixed infections with streptococcus and pneumococcus, no deaths; of 35 hemolytic streptococcus cases, 22 died. The empyema seemed in each case to be a concomitant infection of the pleural sac. With the entrance into camp of a large contingent of colored troops the percentage of hemolytic streptococcus infections increased. The question arose as to whether this disease was transmitted directly from soldier to soldier, but with very careful isolation of cases there was found to be no diminution of occurrence. Still, the isolation was being carefully maintained. In the bronchial type of infection there was very little cough, very little sputum raised, and very little pleuritic pain. The chief symptom throughout was prostration. The diagnosis was made by aspiration, confirmed by the x-ray findings, and the changes in percussion were an important sign. The exudate in these cases had the appearance of alkaline urine and generally contained streptococci. Pericarditis usually developed early in these cases and was progressive, but there was lack of metastases elsewhere. Of 27 cases that came to autopsy 23 were streptococcus cases. The pulmonary lesion showed interstitial bronchopneumonia of the type described by Cole. Pneumothorax was also present. As regards treatment it had been found that early operations were fatal. It was essential to wait till the pus became cellular in character, when operation could be safely performed.

Dr. H. A. CHRISTIAN of Boston said that in civil practice they had had practically the same experience as had been reported in army cases. Very frequently the streptococcus was the etiological factor. The cases were the interstitial type of bronchopneumonia. Experience showed that fatalities occurred from too early operative interference. Some cases got well with repeated tapplings of the fluid. The pneumonias had a tendency to shift in type and at first they had been much disturbed with atypical forms, until they found that frequently they had to deal with streptococcus.

Dr. E. LIBMAN of New York said that Fraenkel had drawn attention to the fact that during epidemics of grippe the pneumonias and empyemas followed a devious course. During such epidemics it was found that primary empyemas occurred. This form of the disease had been named pleuritis acutissima. The apex had to be watched for accumulation of fluid. Dr. Libman said his experience had been that the x-ray would help in detection of empyema, but that sometimes it failed. This failure occurred when the empyema was localized between the lobes and under the axillæ.

Major W. H. WELCH of Baltimore said that in civil practice streptococcus infections were the most important infections. In regard to these cases there had existed at first a period of great confusion. Investigations were then made by Drs. Zinzer and Dochez which brought out clearly that the streptococcus was the most important cause. At one camp the cases seemed to be due to the *Streptococcus viridans* and it was a question as to what had imparted to this streptococcus these unusual properties. What reasons had played a part in enhancing the virulence of the streptococcus? This was the most important problem today in dealing with infections of soldiers. With universal evidence of the disease spreading within the hospital it was nec-

light one could upon the etiological information as would bear upon the management of the disease. It was of experts should give undivided attention to the solution of the problems. Dr. MacCullum had thrown much light on the problem of the lesion in the lung as seen at autopsy. The pulmonary lesion was frequently so mild as not to be recognized. The infection through the respiratory tract the streptococci made way rapidly to the pleural passages, but no doubt they left one or more small foci of the disease which could be detected on careful examination. This matter was of the utmost importance and could be studied in camps under different conditions to those of civil life. For the proper control of the disease it was necessary to discover exactly what the biological properties of a given streptococcus were. There was no cultural distinction for these different properties. Men all over the country should unite in comparing their investigations so that medical officers should have the necessary knowledge for controlling disease among the troops.

Major R. L. CECIL, M.R.C., spoke about the bacteriological aspect of these cases. In regard to the pneumococcus, cases were found with Type II in the sputum and Type IV in the pleural fluid. Of the streptococcus group four cases had shown non-hemolyzing streptococci. These were recognized as *S. viridans*. Dr. Cecil said he was loath to make a diagnosis of *S. viridans*, as this could be said to be a constant inhabitant of the normal mouth, but upon using blood broth medium the sputum cultures showed absolutely pure growth of this organism. The colonies were typical—small, green, with a very slight zone of hemolysis which did not appear in blood broth cultures. In the types of cases with mixed infection there was a mortality of 60 per cent. Often there was streptococcus in the pleural fluid and pneumococcus in the sputum. Drs. Cole and MacCullum had met with cases of mixed infection in Texas. In regard to sterile empyema there was some confusion as to what was empyema and what simply pleural fluid. Empyema cases had pus cells in the fluid. Some cases showed bacteria in the smears, but cultures on blood agar were negative. Many cases showed localization between the left lung and pericardium and this probably explained the frequency of pericarditis.

Major E. P. JOCELIN, M.R.C., said that of 55 cases operated on seven died. Operations were by simple drainage and no osteotomies were done. Twenty cases died without operation. In many cases several cavities were involved.

Dr. RUFUS COLE of New York said that in the epidemiological view, rather than the viewpoint of complications of pneumonia, the streptococcus empyema was very different from the pneumococcus infection. Things were not as yet very clear about the whole situation. They had to be very accurate about interpreting favorable results of any procedure until considerable conclusive evidence had been obtained and until they could tell whether they were dealing with a frank streptococcus pneumonia or an empyema developing under deep lobar pneumonia. A large group of cases had to be carefully classified and the results of various methods analyzed before one could say that one or other form of treatment was the best. Another important point was the necessity of cooperation between the surgeon and physician following operation. The internist had not completed his whole duty when he had made a diagnosis of empyema and had turned over the case to the surgeon. Often in these cases several pockets of pus were present. Simply putting a knife into the chest would not cure the empyema. Where a second pocket was known to exist extreme care on the part of the internist was necessary.

Experimental Hemochromatosis.—Dr. PEYTON ROUS of New York made this presentation. The pigment seen in cirrhosis of the liver was stated to be derived from the blood. If the activity of the spleen and the liver could be overborne the pigmentation could be controlled. It was sought to do this by experiments on rabbits, which were known to be able to put away a very large quantity of alien blood. Rabbits were transfused and in 3 months there was found to be a considerable siderosis of the spleen and bone marrow, caused by the pigment hemosiderin. This was analogous to the

deposits of hemosiderin in human hemochromatosis. Dr. Rous showed lantern slides illustrating the deposits of hemosiderin in various organs, such as the liver, kidney, spleen, and bone marrow of transfused animals. The siderosis was caused by the breaking down of over-pigmented cells. In the human subject the hemosiderin pigmentation might be secondary to the cirrhosis. The injury to the pancreas in the cases caused death. The pectoral distribution of lesions in hemochromatosis indicated the influence of actinic rays upon the pigment.

Hemosiderin Granules in Cells of the Urine; an Aid to the Diagnosis of Pernicious Anemia and Hemochromatosis.—Dr. Rous read this paper also. It was thought that hemosiderin might be found in the urine. In a soldier of 46 years of age, with lesions of hemochromatosis, the diagnosis between this disease and syphilis was doubtful. There was enlargement of the liver and spleen and a peculiar gray pigmentation of the skin. The urine was found to contain considerable hemosiderin granules. The patient died within 3 months with characteristic signs of hemochromatosis. It was also stated that in eight-tenths of the cases of pernicious anemia hemosiderin granules were found in the urine. Fresh urine should be used for the test.

Dr. E. L. OPIE of St. Louis, Mo., said that the experiment did not explain the etiology of hemochromatosis, but it did account for the pathology. In every essential it seemed clear that the disease had been reproduced by the experimental method. The disease was perhaps due to interstitial inflammation of the pancreas. The cirrhosis of the liver was probably secondary to accumulation of iron pigment in the cells. Had Dr. Rous found any destruction of parenchymatous cells as the result of accumulation of pigment in them? He thought it was difficult to produce cirrhosis of any organ in the lower animals, in which reproduction of parenchyma occurred more readily than it did in the higher animals.

Dr. W. TILESTON of New Haven said that in connection with pigmentation in chronic family jaundice he had recently found in the spleen and liver a hemosiderosis very comparable with that shown by Dr. Rous in the picture. In this case, a patient of 67 years, there was no cirrhosis of the liver.

Dr. P. ROUS said that the animals had not been pushed far enough to get breaking down of the cells. They were now trying to keep the animals longer. The body was found to tolerate hemosiderosis to a remarkable degree, but in the human organism, in cirrhosis, the cells were not flooded with pigment as were those shown in the experiment. One must assume that the liver was in some way prevented from destroying the blood pigment so that hemosiderin would accumulate in the cells.

Mould Infections.—Dr. C. P. EMERSON of Indianapolis read this paper. The patient, a man of 48 years, presented himself for treatment of tuberculosis. He had no toxic symptoms, no asthenia, no secondary anemia. He stated that he had not been able to lie down to sleep for 11 years, on account of asthmatic attacks. The sputum culture showed aspergillus and was negative for tubercle bacilli. The x-ray showed massive cirrhosis of the hylus of the lung. He was put on large doses of potassium iodide and improved greatly, but the x-ray still showed masses of scar tissue. Two other cases had occurred in one family at the same time. The *Sporothrix shankii* was isolated, a parasite supposed to be derived from buckwheat. The infections had come on after the buckwheat crop. It was said among the population in the buckwheat raising country that those who worked among buckwheat plants were subject to chronic boils. This was clearly a mycosis infection. One woman showed lesions in which the pus had small black flecks, clearly a sporothrix.

Dr. W. W. FORD of Baltimore said he would like to confirm Dr. Emerson's observations in regard to buckwheat. In northern Ohio, a buckwheat district, boils were extremely common. This had been interpreted as increased sensitiveness to the buckwheat poison. The boils did not have the appearance of ordinary infections. No bacterial studies had been made so far as was known.

The Rat and Infantile Paralysis; a Theory.—Dr. M. W. RICHARDSON of Boston presented this, his second

communication on the subject. The possibility of transmission of human poliomyelitis by means of the rat and the flea was considered. That direct human transmission was not likely was shown by the fact that a block adjacent to an infected block was frequently untouched. Cases often occurred in the same house, but in different families. Nothing but the rat and the flea could effect such conditions. A comparative study with bubonic plague had been made. Great similarity was found in the phenomena. Rats were always noticed before the appearance of the plague, but it was not necessary to find the rats to prove the existence of the plague. The question "Does the rat suffer from paralysis?" had been answered. At the time of epidemics of infantile paralysis rats had been seen with paralyzed legs, and hardly able to move. Children who played with dead rats had been found to contract poliomyelitis within a short time. Since 1894 plague had become pandemic and had extended all over the world. Infantile paralysis had spread in about the same time. Rats were found to follow the grain traffic and a connection between infantile paralysis and grain traffic would have to be proved. In a very large number of rural epidemics the infections were found to start "at the mill." In plague the flea curve preceded the plague curve by about ten days, and it was found that it also occurred with the poliomyelitis curve. Water fronts, usually infested with rats, were commonly centers of infection. There was also a disease of rabbits which carried off large numbers every 6 or 7 years, and this was found coincident with the poliomyelitis years. Another point was that in plague the lesion was apt to occur where the patient was bitten, and in poliomyelitis the paralysis was most apt to occur in the lower limbs, which would be the ones to be bitten by the flea.

Major S. FLEXNER of New York said he was very much interested in the views of Dr. Richardson. The aspect of the epidemiology had received considerable attention, but the other aspects had also to be considered. The possibility of the reservoir of the virus was very evident to the men engaged in the study of the disease. It very soon came to light that there were cases of animal paralysis coincident with the outbreaks. Animals had been studied by the experimental method to see if any evidence could be secured to indicate epidemics in the lower animals. Paralytic disease of all kinds of animals had been studied. Material had been used for inoculation into monkeys, the only secure method for transmission of virus. The histological lesions in the man and the monkey were very characteristic. It was supposed that the effects would be similar. There was, however, no instance on record in which histological characteristics had been sufficient to compare the disease in animals with the disease in human beings, or in which inoculations could be successfully performed with the nervous tissues of animals on monkeys. Observers began early to use the reverse method. They tried domestic animals, mice, rats, rabbits, guinea-pigs, calves, sheep, goats, ponies, and cattle. They had never succeeded in producing characteristic poliomyelitis in those animals. Inoculations could cause death in rabbits but there was no histological change in the nervous system. In 1916 a large number of rats were collected from infected districts in Brooklyn, in order to test out Dr. Richardson's views. It seemed a promising direction in which to search for evidence. The nervous system of these animals was examined. Inoculations into the nervous systems of monkeys were made with the material from rats. In no instance was monkey poliomyelitis produced. The reverse method was then used. Active virus from monkeys was injected into rats to find out how long the virus survived in the nervous system. The tissue was then removed and put into monkeys to see if the virus survived. At the expiration of 7 days the virus had apparently disappeared. It would seem that if the virus did not survive this length of time in the rat, that the rat could not act as a reservoir. One could not say that Dr. Richardson's theory was disproven. The rat might be the reservoir and the flea, under favorable circumstances, might carry the disease to human beings. Dr. Richardson had brought together a very interesting series of observations and the meeting should be indebted to him for the knowledge of the subject which he had put into the question. It was,

however, necessary to go very slowly and cautiously. Workers now possessed what the earlier workers did not possess, when they demonstrated the transmission of malaria by the mosquito. The experimental evidence was necessary to corroborate epidemiologic evidence of the relation between the rat and poliomyelitis.

Dr. M. RICHARDSON asked Dr. Flexner if the rats were old or young which they had obtained from the infected districts in Brooklyn.

Dr. FLEXNER said they were fairly young, white rats.

Dr. RICHARDSON said the diseased rats might be done away with, and the old rats would not be likely to have the disease. If there was anything in the theory of rat transmission, it would appear in the trenches which were known to be overrun with rats. In one sector of the trenches 11 cases had been reported. This was an unusual number among adults.

(To be continued.)

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

FORTY-SECOND ANNUAL REPORT OF THE MANAGERS AND OFFICERS OF THE NEW JERSEY STATE HOSPITAL AT MORRIS PLAINS. For the Year ending October 31, 1917.

THE ROOSEVELT HOSPITAL, NEW YORK. Forty-sixth Annual Report, from January 1, 1917, to December 31, 1917. 66 pages. Published by the Hospital.

PROCEEDINGS OF THE NEW YORK CONFERENCE ON HOSPITAL SOCIAL SERVICE. Supplement No. 1. 161 pages.

DISPENSARY CONTROL OF TUBERCULOSIS IN NEW YORK CITY. Tenth Annual Report of the Association of Tuberculosis Clinics of the City of New York. 37 pages. Published by the Association.

ANNUAL REPORT OF DEPARTMENT OF HEALTH OF THE CITY OF LOS ANGELES, CALIFORNIA. For the year ended June 30, 1917. 97 pages. Published by the Department of Health.

UNIVERSITY OF IOWA, MONOGRAPHS, STUDIES IN MEDICINE. Vol. I, No. 3. Collected Studies and Reports. Illustrated. Price, 40 cents. Published by the University.

PHARMACEUTICAL BOTANY. By HEBER W. YOUNGKEN, Ph.G., A.M., M.S., Ph.D. Second Edition. 386 pages. Illustrated. Price, \$2.00. Published by P. Blakiston's Son & Co., Philadelphia.

LONG HEADS AND ROUND HEADS; OR, WHAT'S THE MATTER WITH GERMANY? By WILLIAM S. SADLER, M.D. 157 pages. Illustrated. Price, \$1.00. Published by A. C. McClurg & Co., Chicago, Ill.

MEDICAL WAR MANUAL, No. 6. LABORATORY METHODS OF THE UNITED STATES ARMY. 256 pages. Price, \$1.50. Published by Lea & Febiger, Philadelphia and New York.

TYCOS GRAVITY AND TEMPERATURE TABLES FOR MINERAL OILS. First Edition. Compiled and Edited by E. N. HURLBURT. 204 pages. Illustrated. Price, \$1.00. Published by Taylor Instrument Companies, Rochester, N. Y.

TRANSACTIONS OF THE THIRTY-NINTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION. Held at Atlantic City, N. J., May 28, 29 and 30, 1917. 390 pages. Illustrated. Published by the Association, New York.

SHALL DISEASE TRIUMPH IN OUR ARMY? By Major LOUIS LIVINGSTON SEAMAN, Late Surgeon-Major, U. S. V. E. 291 pages. Published by American Defense Society, Inc., New York.

STATE OF NEW YORK, THIRTEENTH ANNUAL REPORT OF THE BOARD OF MANAGERS OF THE MANHATTAN STATE HOSPITAL TO THE STATE HOSPITAL COMMISSION. For the year ending June 30, 1917. 79 pages. Published by the State Hospital's Press, Utica, N. Y.

MEDICAL SERVICE AT THE FRONT. By Lieut.-Col. JOHN MCCOMBE, C.A.M.C., and Capt. A. F. MENZIES, M.C., C.A.M.C. 128 pages. Price, \$1.25. Published by Lea & Febiger, Philadelphia and New York.

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Original Articles.

FACTS AND FANCIES ABOUT TONSILS.*

By HENRY L. SWAIN, M.D.,

NEW HAVEN, CONN.

PROFESSOR OF OTOTOLOGY, YALE MEDICAL SCHOOL.

A PATIENT came to me the other day and said: "Is there any other way of knowing whether my tonsils ought to be taken out because they may be causing my wrist trouble, than to put me through the dreadful ordeal and expense of the operation of removal?"

It is this question with the facts and fancies involved in answering it that moves me to ask you to go over with me this evening one of the burning questions of the hour. Sins of omission, sins of commission are being laid at our door by a long suffering public which occasionally stops and thinks. Let us reason together. Though our sins be as scarlet yet shall they be white as snow—forgiven—if out of a nebulous conception of duty we shall by any such deliberation be led into any better light, any clearer, more exact knowledge of when, what, and how to do in matters of this kind.

To bring the matter properly before you, the previous history of the patient who asked these questions is intensely interesting. Told in her words:

I have been having so-called rheumatic symptoms of various kinds, and now for a long time they have been principally in the wrist. I have dieted, taken medicine, and I was told by a physician that my nose needed an operation before I could expect to feel better. He did some work and then wanted to do a big operation on my bone. This I delayed doing, because I could not see my way clear to do it at that time, and finally I visited a physician who, with great insistence, said that I could only be improved by having certain of my teeth out. He took some x-ray pictures and I have had many of my teeth extracted. I had a lot of trouble following the extraction and have never been able to get a set of teeth which are anywhere near comfortable. I cannot chew properly and nothing tastes right, and all this has told on my appetite and nerves. I was finally sent to another nose and throat man and asked whether I ought to have an operation done on my nose, and to inquire whether the tonsils could be causing the trouble. This man looked me over very carefully. He was of the opinion that my nose could by no chance be causing any absorption to give me my painful wrists. The tonsils did have some pockets which were retaining matter and might possibly be causing some trouble, although he very much doubted it. A good plan he had found in previous cases was to slit these pockets up and fix them so that they certainly would make much less trouble, allowing that they were causing any. He did all that he thought was necessary and, having had no change whatever in my wrists, he wondered if it could

be, as it sometimes is, some other portion of my throat. From the back of my palate I am always sucking down matter, especially mornings, and he thought treating that region for a while might lead to some further clue as to the source of infection. I did not quite want to do that, and as the man who treated my nose before had always done me a lot of good I thought I would look him up once more. He (forgetting all about my nose) immediately looked into my throat and squeezed what he called pus out of my tonsils, and said they were something dreadful and ought to come out immediately. Taking out his appointment book to make a date for the operation. When I told him that I recently had had a very distinguished man say that my tonsils were all cured up he was very much at a loss to understand the situation, but insisted on making the date, so I am going to try once more. He will take my tonsils out (mentioning a date), but what I would like to know is what a poor patient is going to do when opinions differ so, and if there is any other way to know whether the tonsils need to come out except to remove them. I have followed all the advice given and, after six months of endeavor and expense and no end of discomfort and trouble, I am no nearer being cured than before.*

A sad tale of woe, and a sadder commentary on "medicine as she is practised." The fact remains that notwithstanding all the exceedingly interesting and brilliant work that has been done in the last few years all of our boasted progress leaves us still adrift and still lacking a chart, compass, and chronometer to guide us accurately in our attempt to steer the wandering derelicts to a safe harbor of convalescence and perfect health. You all remember how only a few years ago all these complaints were supposed to be due to errors in diet and faulty assimilation. Men rose in this and every other center who not only professed, but were actually able to make many patients much better by a purin-free or otherwise altered diet. We listened as you are now so patiently doing to long harangues on the subject. These patients, however, did not lose decayed teeth or decadent tonsils, and yet some of these were benefited. Recently we have heard in this hall some most interesting cases where wonderful results came from removing tonsils and on another occasion teeth, and so now every sufferer and even the consulted physician wonders if he is doing his duty in letting any such escape without tonsillectomy and a full set of false teeth. In the minds of some of us the sequence should always be, first the teeth and then the tonsils. But regarding the latter it is certainly a frequent answer to the question to say the tonsils do not amount to anything anyway; who ever heard of anyone having bad results from being without his tonsils? So when we have reason to question what to do next,

*Since the paper was written the patient had her tonsils removed most skillfully and later the nasal operation first proposed was performed. At present there is only a very trifling amount of pain in one joint and the patient is much improved. What did it?

*Read before New Haven Medical Association, Feb. 8, 1918.

"Out with them." Nobody loves them and they do cause a lot of harm.

As years go by more and more obscure diseased conditions grossly classed under the name—which covers a multitude of sins—"focal infections" are being traced to one or another condition of the tonsils and the teeth. Wherever in a body a locus minoris resistentiae exists, thither the absorbed matter may be conducted and there make a rheumatism, a neuritis, a stiff joint, a painful muscle, a thyroiditis, a nephritis, a leucemia, or an endocarditis. Orchitis, as we have known for centuries I presume, is sometimes due to inflammation of the parotid gland so that the principle of the vicarious effects of inflammation has been easily accepted by the profession and laity alike. Some of these conditions produced are no worse than a feeling of malaise and general debility, so distressing, however, that one physician the other day related the remarkable comfort he had received, not only from the apparent cure of a so-called rheumatic tendency which so nearly cost his life that it was on one occasion despaired of for days, but also what was to him of most importance, his relief from the dragged and tired feeling which made him dread the next day's awakening, so much did he have to force himself. From such complaints as that, to having a disease of a fatal tendency is quite a jump, but any or all of the diseases mentioned except the cases of leucemia and endocarditis due to streptococemia of the viridans variety have either been cured or improved by the removal of tonsils when the latter were the cause of the trouble. But on the other hand, sometimes and often they are not. In some of these latter instances the tonsillectomized patient has an awful sore throat or has nearly bled to death, or has a distorted palate and a nasal voice because the endeavor was to do a very thorough operation, or, lastly, he was carelessly, on the part of his medical attendant, told that at least he would not have as many sore throats. His cup of complaint is full when he learns to his sorrow that not only is that not the case, but his sore throats are different and sometimes more painful even than before. Somebody comes along and finds a tooth needs attention or a discharging nasal accessory sinus or, as in an instance known to me, a very painful knee is later relieved by wearing sensible shoes and a lame shoulder has been relieved by asking the patient not to sleep with her arm under her head. We all strive for the remarkable, the striking. The humdrum cases tire and bore us and on the other hands our patients in this, the eminently surgical age, are impatient. They like a man who comes to them when they have a sore throat and says: "You do not need to have these painful times; you have a tonsillitis. Have your tonsils out and everything will be all right," ignoring the fact that all sore throats are not due to the tonsils, and therefore not to be cured by removing these latter. It must also not be assumed that it is a simple thing to have the tonsils removed as is done nowadays. The younger members of the profession know of nothing but tonsillectomy and there is much more blood lost in one of these and more avenues for new infections opened up in a non-sterile field than occurs in an interval appendix operation as is usually done by the modern surgeon. It may take weeks to recover, and life

has even been lost to prove this simple question as to whether the tonsils are the cause of the focal disease.

In spite of every care the luck of war will go against us and a little one slips away from us into the other world—no oftener than the usual operative risk, but one would like to feel sure of the necessity of taking these risks which I have not in the least exaggerated. In view of these, there ought to be some more exact method of deciding whether to operate or not, than merely to say inanely that we cannot find anything else to lay it to, so let us get the tonsils out.

So far we have only touched the high spots in the question of focal infection, and what about the group of children who every operating day in all of the large hospitals all over the country are brought one after another, anesthetized, into the operating room, and whatever they may have in the way of adenoids and tonsils are quickly removed from them. The dexterity of the operating surgeon becomes so automatic that it is to the lay onlooker a most marvelous and wonderful thing. A carping mind might sometimes wonder if some of the smaller bits of removed tissue really are a source of trouble or a great menace. Yet there are some men who think and write as quoted to you the other evening that the human race would all be better if we all of us had our tonsils and adenoids removed as a routine procedure before we are four years old. With such there can be no discussion. Usually, however, the little creatures are sent to us at the hospital because the tonsils and adenoids are large enough to be in the way and ought to be removed, or it is feared they will be, or there has been history of so frequent infections that it is best not to allow the suspected tissues to remain longer as a menace. (If, this tissue is ever a menace then it is always a menace to everyone, is apparently the usual method of reasoning.) In older people referred to the hospital, it is a question of enlarged glands in the neck, the probability of tuberculosis, and the plague of frequently repeated attacks of quinsy as well as the question of focal disease. The hope that by the complete removal in children the exanthemata and even infantile paralysis may be avoided, and susceptibility to colds and earaches banished, all inspire to make it seem that we could not possibly have any use for these lymphatic structures.

Of course, it might be reasoned that if the good Lord really wanted us not to have them he could have managed it so that we should not all of us been born with them. He might have let a few have them so as to keep the laryngologists busy and good natured, but a few of us might have been allowed to get by without them. Surely a much favored few. However, it may also be equally cogently urged that, inasmuch as the Lord did give all of us some of this kind of tissue, and as He also did allow animals to have tonsils, not reserving these blessings exclusively for the human race, there is in the great scheme of nature some reason why they are there. Animals and the untutored or uncivilized savage seem to have but little trouble from these directly. Civilized man has his full share almost in proportion to the degree of civilization. However, the fact is that in the developing embryo the pharynx tonsil or adenoid and the faucial ap-

pear early and always. No one has to my knowledge ever recorded a case of absence of the tonsils where everything else was all right. At birth there is plenty of lymphoid deposit at the base of the tongue. The adenoid or pharynx tonsil comes into prominence first, works out its mission in life when not cut short in its career by the ruthless surgeon of the time, and normally shrinks, practically disappearing analogously with the thymus gland. The faucial tonsils come in for their share of the work for good or ill about the time when the first molar teeth are erupted. They, the faucials, in their turn have a rise, a maximum, and a fall in their physiological activity, sometimes showing a marked decrease in size when a serious systemic drain, such as typhoid fever or chronic malaria, makes the system need more white cells. In late youth or early adult life the lingual tonsil takes up the work and carries it on well into the late forties or fifties if one chances to live that long. This seems to argue for intent and purpose in the divine scheme. Therefore the tonsils, one and all, are not merely residual organs. The first layers of lymphoid tissue forming in the embryo at the junction of epiblast and hypoblast are in certain places thickened up into large masses with much later a capsule forming and separating them from the surrounding structures. These masses are called tonsils. In other places the tissue is spread out more diffusely as on the posterior pharyngeal wall and lateral columns but in all places it is a distinctly lymphatic structure, part and parcel of the lymphatic system with which it directly communicates. The most highly developed or specialized portions are the faucial tonsils, the pharyngeal, and the lingual in order named. Here the resemblance to a lymph node is most noticeable. If this lymphoid tissue anywhere has any excuse for existence, then the most highly developed, refined, specialized portions must be the most useful and effective portions so long as healthy. Like most lymphoid tissue in the body, these portions are most active in the younger years of life, that is, during the growing period up to puberty.

It has been observed that if a part of this ring of lymphoid tissue is removed completely some other part takes up the work. If it is necessary to remove the adenoids very early, even without the known intervention of a single bad inflammation, the faucial tonsils will gradually enlarge. If, as I have numerous observations to confirm, the tonsils are removed before the period of physiological activity of the adenoid or third tonsil has passed, the adenoid will grow and have the same passive and functional hypertrophy of which we have spoken in the case of the faucial tonsils. The system needs it in some way and so functional activity develops it anew.

The lymph nodes in the neck also very frequently enlarge, do a given work, and recede. Sometimes in trying to "do their bit" they receive and hold up some tubercle bacilli and are removed then because being permanently enlarged, they are a menace. When healthy and behaving themselves, nobody ever heard of a recommendation that they be removed because they might make trouble later. And that is just what is done with the faucial tonsils largely perhaps because they are accessible and their removal leaves no external scar.

Through countless generation of existence through aeons of time in the development from unicellular to multicellular organisms, certain cells of the animal body have been differentiated for various purposes, and finally the highly specialized organs have been developed as in evidence in the human body of to-day. A humble but important office early developed upon the lymphatic structures and as such is handed down to the present time.

We recognize that certain of these tissues, if active, help to filter out and purify the fluids of the surrounding tissues which (actively or passively) pass through them. In this endeavor the lymph nodes seem to be the most active and capable and the tonsils, so-called, with their follicles and their phagocytes are certainly very properly to be ranked in this same category. If a tonsil is diseased it is a menace; if it is healthy it is not. Every faucial tonsil has crypts, every crypt in every human being has a fluid filling it, especially when it is deep set as in every large tonsil whether healthy or unhealthy. Large protruding tonsils often are much healthier than small buried ones. These tubular cavities filled with an organic fluid contained in a warm, moist chamber are always growing a numerous and diversified flora. There could not be conceived a better breeding ground; a better culture tube and incubator for germ growth never existed. Hence in every tonsil healthy or otherwise pure cultures of pathogenic germs may exist, but more frequently a symbiosis of numerous germs will be present. In the living human being there can never be for more than a moment or two a sterile tonsil crypt. The Peyer's patches of the intestine and the solitary follicles are other examples of similar lymphoid tissues, which, as they lead a more sequestered existence far from the usual haunts of the active foes of lymphoid tissue, pursue an unchallenged career. They exist in immediate contact with a cavity, the walls of which are bathed with all kinds of bacteria, many times of the putrefactive type. These lymph nodes sometimes, how often we do not know, are as in typhoid fever, well recognized pathologically. They absorb and they must occasionally succeed in purifying what they take in, or else ward off germs, because we do not all die. In fact, so far as known, very few of us pass out because of their failure. Still many a tubercle bacillus gets by and the mesenteric glands hold it up as a second or third line of trenches, and so the analogy with the faucial tonsil could be carried out quite to a finish. If we knew how we could support "Mr. Peyer, his patches," in their efforts in our behalf we would not, at least at present, want to remove them, for they are too numerous. Even if they hold up a tubercle bacillus we extol their efforts as desirable and praiseworthy, and yet allowing even the faintest reason for existence to similar tissue elsewhere, how we raise our hands in holy horror if anyone ever finds a tubercle bacillus in a section of tonsil tissue. Did you ever stop and think that such a tonsil was doing in this way just as yeomen a bit as every trench full of Yankees will do for a better civilization and for liberty, when it holds the foe up and keeps him until conquered. Remember it is only when they, the phagocytes in the tonsils, fail in their work that the germ gets into the second line trench, the lymph nodes of the neck. Many times therefore they kill the

tuberculous germs off, and it is lucky for us that they do. But suppose that, in consequence of previous disease or surgical intervention, neither the tonsils nor the lymph nodes are present, what happens when a lustier bacillus than usual manages to get in beyond the outer epithelium, free to make an insidious march where the current of lymph takes him?

I have often wondered if it was not safer to have a good healthy tonsil absorb the germs where there is tissue rich in phagocytes, as in the follicles, than some other region further up—equally permeable to a vigorous germ. It must at least be admitted for the sake of argument that some of us have gotten to a reasonable old age in possession of our tonsils and some of our teeth. Nobody will say that no exposure to disease has ever existed. Notwithstanding that our tonsil crypts have bred countless millions of germs we have lived along. Why? Because cells of active functioning powers have expelled the invaders. They have been hurled back into the mouth again and lost in the maelstrom of the secretion or carried into the stomach. Actual microscopic specimens are in existence showing crypts of the tonsils full of streptococci, but not one of them even in the interstices of the epithelium of the crypt; just as there are also specimens from perhaps the same tonsil showing the germs within the tissues, the attack having at that particular spot overwhelmed the sturdy defenders. Lack of reinforcements for the men (leucocytes), diminished resisting power because of weakness from long strain and most exhausting activity result in the fact that the battle is often to the strong. Some tonsils protect, some put up a very minimum resistance, some lie inanely down, while some actually seem to harbor disease, sedition, and rebellion and aid and abet the enemy.

How shall we separate the sheep from the goats? We cannot do so by removing every tonsil in every child. We certainly cannot thereby hope to breed a tonsilless race. Many live, revered, and respected, yes loved in spite of their tonsils. Removal of tonsils cannot always stop all sore throats or other absorptions, but, on the other hand, no more spectacular cures have occurred anywhere in the realm of medicine than have followed the removal of the tonsils. Hundreds of tonsils are removed, however, to one of these same brilliant results. Some operators excel others, do their work better. Allowing that we knew and could always tell which tonsil was making trouble and which not, then would we be able to escape the opprobrium which cannot fail to be cast upon our work, as evidenced in the care reported above.

Some of you have known of the desire on my part to find out some way to improve and be able to give a better opinion occasionally than to remove as the only way to determine. Seven years ago I wrote a paper "Are the Tonsils a Menace or a Protection?" I started out to write that paper, fully believing that one should not only not curtail, but should spur on to even greater activity. I came to conclusions which were expressed and summed up as follows:

First, that logically tonsil tissue must have a function, and if so it is to the young that it is of most value.

Second, if it is necessary to operate in children

upon the faucial tonsils, which are merely large and not diseased, then there surely are safe, sane, and effective methods other than complete tonsillectomy to deal with the problem. Be thorough with the adenoids, but save some healthy tonsil tissue.

Third, while what has just preceded may apply perfectly well to adults, in them the evidence of disease may be so apparent that radical procedures against the tonsil are surely justifiable; and then by all means do a tonsillectomy in any one of the admirable ways which you gentlemen have been so prominently identified in developing to a perfect detail.

Twenty-seven years ago I said some of the same things dealing with the academic question of the fate of the lymphoid tissue of the nasopharynx. This paper I had entirely forgotten when I wrote seven years ago, "whichever of these theories we adopt, we cannot escape from certain difficulties in trying to explain certain observed phenomena. For example, if the sole purpose of the adenoid tissue of the throat is to furnish leucocytes, which shall protect us from the invading host of rapacious microorganisms, then we may safely conclude that for those who breathe through the nose the pharynx tonsil is really the most valuable in this particular. Is it not strange, then, that this should be the first to atrophy, when it is the one most needed? To be sure there are other parts still left, but they cannot get at the inspired air. Or must we suppose that the pharynx tonsil takes care of the air, while the faucial and lingual do duty in fighting the organisms present in the secretions of the mouth and pharynx? This takes place in the youth of the individual, and later in the adult there is not such an urgent necessity for such protection, in that other organs may do the work or the system be more capable of resisting. Certainly if the above be the case we must not be hasty in removing enlargements of these organs unless we find them to be producing disease of other parts, for one cannot have too many leucocytes at his command. And yet while we find these little inconsistencies, surely we must almost *a priori* conclude that the leucocytes must exercise some protective influence, and that an active one, for how could we otherwise so often escape infection? Surely nothing would seem more favorable to the ingress of organisms in the system than the tonsils, which present in the lacunæ the most convenient of resting places for microbes, and then in the openings which unquestionably exist in the epithelium we have an almost open door for the entrance of the little micrococcus. Granted that the majority of the organisms referred to are entirely innocuous, still some are not, and were it not for some active interference we must often become infected under the conditions just quoted. So I think in the light of present knowledge we must give Killian's view a decided credence; but in view of the fact that the immensely larger number of the leucocytes present in the tissue do not ever get to the surface, and remembering the observations of Stohr, which I can in part second, as regards the diminution in the number of cells in adenoid tissue under strong demand for white blood corpuscles by the rest of the system, we must look upon the tissue as strictly lymphatic tissue—a blood-producing organ. And in the light of this view we can more easily explain the atrophy. Therefore the

function is twofold. As regards the theory of soaking up the fluid in the throat, it seems to me to be quite a secondary object, if it exists at all."

Writing at that time when ether operations for adenoids had just begun to be counseled and when the tonsils were never interfered with unless obstructive, dangers to life and the integrity of the parts were few and far between. Very young children for the most part escaped; and yet even at that time men differed in opinion regarding the tonsils, and this came eminently to the fore at the International Medical Congress in Copenhagen in 1884. Here the American delegates, notably Dr. Daly of Pittsburgh, created quite a furious discussion because of the assertion that all tonsils were pathological and should be removed whenever causing the slightest annoyance. But at that time operators never, except by chance, removed a tonsil, only chopping off the redundant tissues in the older operation called tonsillotomy. Nevertheless it is interesting to note that ideas move in circles, that there is nothing new under the sun, even the notion of getting rid of all lymphoid tissue wherever found. As time went on it became apparent that more must be done to the tonsils than merely to chop off redundancy, and so for the smaller tonsils various operations were devised, ignipuncture, slitting of the crypts, and removal of larger and smaller masses by the punch, the hot and cold snare, and still others. Finally there was developed the operation of the present time of tonsillectomy.

Here was a chance by one method to operate on both large and small tonsils alike. Even the wee small chaps buried out of sight might be dissected free by clever "smiths" and removed from chance of further harm. Then came the universal application of the method. It appealed to all as thorough, and with one of the most tremendous waves of approval ever given a special operation, unless perhaps that for straightening of the septum, a perfect furor for operating came into existence and still holds the stage with undiminished enthusiasm. Caught in the midst of this maddening swirl, the writer sought to get evidence to support him in his own efforts, but ended in writing the paper under the title given "Protection or Menace." Since then many papers have come out, stating that others have been led to similar feelings, and I will quote a few, if I may, as evidence. You all doubtless remember the wonderfully well expressed paper by the talented Dr. John N. Mackenzie⁸ of Baltimore, who spoke to the sentiment, "The Massacre of the Tonsil." He was one of the first to take up the cudgels for a wiser conservatism in the matter of operating. It is impossible to do this paper justice here, but this very title backed by the distinguished opinion of the writer made a tremendous impression. Following this a most interesting series of papers was brought out by the late G. Hudson Makuen, Professor of Defects of Speech,⁹ who demonstrated that resulting from ill-considered efforts many serious impairments of the voice occurred in consequence of injuries to the soft palate and its pillars. Some most grotesque throats will bear witness of the zeal if not the skill of the operators. Then Dr. French¹⁰ of Brooklyn did a most wonderful amount of work to perfect a method to decide in some more objective, definite way whether a tonsil should be re-

moved or not. Of this splendid endeavor and its results I will speak more at length later. Dr. Chas. W. Richardson¹¹ spoke lately to the sentiment, "Tonsillectomy in the adult; are we justified in doing so many indiscriminate tonsillectomies for remote infections." After detailing a number of cases where he had yielded to pressure, and had done the operation against his own judgment, and scored failures, he concluded his paper as follows: "It is hardly necessary to state that the operation for enucleation of the tonsils is a major operation of some gravity, having immediate and remote possibilities of danger to the welfare and life of the patient, and therefore should not be entered into without well defined and justifiable cause for their removal. I cannot but contemplate the removal of the tonsils which are apparently healthy, for the reason that they may prevent systemic infection, or because they may be the probable source of general infection, without a certain amount of misgiving. It seems to me, therefore, that one should most conscientiously consider every case wherein enucleation is suggested for chronic systemic infection, if the tonsils are not enlarged or show evidence of local pathological changes, and weigh carefully the clinical evidences, the possible existence of other infective foci, and the experience of the operator in previous cases of a similar character, as to the results obtained, before committing oneself to the suggestion of operative intervention."

Dr. Otto T. Freer¹² of Chicago said in part, in discussing Dr. Richardson's interesting and illuminating discourse: "A doctrine has of late years been ardently advocated by a group of Chicago men who may be called the focal infectionists, this doctrine attributing many chronic diseases, especially chronic arthritis, to chronic systemic infection originating in some latent or inconspicuous septic focus somewhere in the body, but nearly always in the tonsils. The doctrine has failed to convince the experienced because of the exaggerated claims made for it, which are contradicted by common experience. The majority, however, which unquestioningly follows authority, has been misled by this teaching into the indiscriminate removal of harmless tonsils because the statements of the focal infectionists make any tonsil, no matter how normal in appearance, or devoid of local symptoms of disease, a probable source of one of the multitude of diverse chronic ailments classified by them. That is, such an ailment is taken as unquestionable proof of causal tonsillar disease, whether such disease be locally evident or not, a dictum which is not supported by proof except of the questionable post hoc ergo propter hoc kind taken from case records, helped out by bacteriologic experiments, the more important gross and cellular pathology of the subject being ignored. The many tonsillectomies into which the medical public has thus been led have often been badly done by inexperienced operators, objectionable mutilations of the palate, septic conditions causing grave complications, and even death often resulting. In addition the numerous failures to remove by tonsillectomy the chronic ailment aimed at, are subjecting the profession to the criticism of groping and experimental therapy."

That general infections, notably acute articular rheumatism, may originate from infected tonsils,

is old and undisputed knowledge. This old knowledge, based on fact and long experience, has by exaggerated enthusiasm, been expanded into a theory of the most elastic kind, which claims to cure by tonsillectomy, chronic arthritis, chronic nephritis, goiter, and many other things with the assurance of a patent medicine advertisement.

In contrast to the presumptive tonsillar focus of infection whose existence is supposed to be disclosed by a pain in the back or a stiff neck, how does a real focus of infection as known to common surgical experience show itself? Most plainly in addition to evident local inflammatory symptoms by the infections of the nearest lymphatic glands. Thus a chronic root abscess will lead to tenderness of lymphatic glands, underneath the lower jaw; an abscess, ulcer, or bone disease of the lower extremity to swelling of the glands in the groin; a chronically inflamed tonsil with septic pockets similarly will lead to the well known enlargement of the cervical lymphatic glands. The road travelled by such infections from the tonsils is especially often seen in childhood, where greatly enlarged and even suppurating glands in the neck accompany tonsillar disease, but in children, in whom because of the great prevalence of septic conditions in the tonsils, the chronic disease of the focalists should be especially prevalent, they are exceedingly rare. They are also rare in connection with many chronically inflamed and infected tonsils removed because of local tonsillar symptoms by nose and throat surgeons, although, if the focalists' theory be true, such tonsils should be the very ones most often complicated by the systemic chronic diseases, supposed to be of tonsillar origin; for, if the latent tonsillar focus of the focalist can cause them, although too insignificant to affect even the nearest lymphatic glands, tonsils containing foci formidable enough to enlarge these glands and demand tonsillectomy because of the throat distress they occasion, should not only lead to these chronic affections invariably, but also in a far more marked degree than the hypothetical little focus of the focalist.

In respect to remains of the pharyngeal tonsil my observation agrees with Dr. Logan's that a large number of cases of acute and chronic tonsillar infection are merely secondary to diseased states of the pharyngeal tonsils or its remains, and I think that the faucial tonsils have received the undue attention accorded to them chiefly because they are so accessible and visible, and that the pharyngeal tonsil, though even more liable to acute and chronic infection, escapes notice because of its hidden seat. Dr. Richardson has done conservative rational tonsil surgery a great service in presenting his admirable article.

This year in Chicago they had a discussion at their local laryngological association around the papers of Dr. Boot⁸ and Dr. Shambaugh,⁹ the former speaking to the question in children and the latter to that in adults. To quote from Dr. Boot's very sane paper: "There is no doubt of the fact that the tonsils are more active in childhood than in later life. If a tonsil is normal up to the age of puberty it becomes so largely fibrous that in adult life it is of little or no importance functionally. The younger the child the more active the tonsil, and the more

we should hesitate about advising tonsillectomy. The ease with which the tonsils enlarge during any infection of the throat in children shows them to be very active. The fact that many of these enlargements will subside with proper attention seems to be largely overlooked by the general practitioner, and at times even by men devoting themselves to children's diseases. If a child with acutely enlarged tonsils is put on syrup ferri iodidi for two or three weeks, a wonderful reduction in size often follows, and many children with enlarged tonsils but with no cheesy plugs or pus in the crypts should be treated before deciding that tonsillectomy is needed. We are often asked to remove tonsils in children because of habitual colds. Unless the tonsils are so large that they obstruct the nasopharynx, or unless there are other reasons for their removal, I discourage tonsillectomy in such cases. It has not been my experience that removal of tonsils influences head colds, unless they are large or plainly infected. Removal of adenoids in such cases is another problem.

"There are many islets of lymphoid tissue scattered over the pharynx, and especially behind the posterior pillars. These islets seem to be particularly prone to compensatory enlargement if the tonsils are removed in early childhood. The condition that results is much like chronic granular pharyngitis from any other cause. This is one of the disadvantages that should be kept in mind in recommending tonsillectomy in children. Hypertrophy, the classic indication for tonsillectomy, may or may not require the operation. If the tonsils are so large that they obstruct the nasopharynx, remove them. If they are the projecting kind that on cursory examination seem large simply because they are all seen and no part is hidden behind the anterior pillar or in the velum, then it matters little whether they are removed or not. These are the easiest removed, with the least resulting deformity and ordinarily with no particular change in the child's condition. Such a tonsil is rarely the seat of a focal infection or the cause of a tubal occlusion. It can be removed by any method with perfect satisfaction, and is the kind that leads the occasional operator to think he is capable of doing tonsillectomy.

"Operate only for definite disease. Be sure the condition of the tonsil is the cause of the disease. Don't destroy a functioning organ unless the gain more than offsets the loss. The younger the patient, the more carefully the need of tonsillectomy should be established."

Dr. Shambaugh summed up quite clearly as follows: "It is evident, therefore, that there may be cases where neither from the history of acute attacks of tonsillitis or from the local findings in the tonsils is there any positive evidence of tonsil infection, and still they may be the seat of an infection capable of producing the most serious systemic trouble. It is this class of cases where the indication for removal of the tonsil is the most difficult to work out. Because such cases are known to occur must not be construed as an indication for indiscriminate tonsillectomies in cases suffering from systemic infection. Only in cases where the systemic infection is of a serious character, and where a careful search by a competent internist has failed to discover any probable focus of infection, should

the advice be given to have the tonsils removed. The operation for the removal of tonsils in adults is by no means a minor operation, and while the indications for this operation have been greatly increased by a better appreciation of the menace existing in tonsils when the seat of chronic infections, still it is quite evident that the indiscriminate removal of tonsils in adults is to be discouraged. The decision to remove the tonsil can be reached in a great many cases only after a careful investigation, which, to be complete, requires the cooperation of the internist."

In discussion of these papers Dr. Norval H. Pierce¹ said it seemed to him that there was very little left to discuss. He heartily agreed with most of the things said in the two papers. He was happy to see that they condemned the massacre of the tonsils which had been going on. He thought that there was no doubt that there had been an enormous amount of unnecessary operations, especially in children. An adult can protect himself, but a child is the victim of his physician or overanxious parents. This is seen constantly at the dispensary of the Illinois Eye and Ear Infirmary and St. Luke's Hospital. He was sure he was right in saying that in the cases which he inspected immediately before operation, which had been prepared for operation, fully 15 to 20 per cent. were turned away and not operated upon. The visiting nurse and the physicians in charge of schools have been obsessed by the desire to remove all tonsillar tissue in the human race.

He considers the indications for tonsillectomies in the child to be about the same as those in the adult, with perhaps the exception apparently in the minds of those in charge of children, that all tonsils should be removed if they were at all enlarged. He agreed with Dr. Boot that the mere enlargement of a tonsil did not indicate operation. A tonsil can be quite large, but if it is not embedded and not the seat of recurrent attacks of inflammation, it should remain in the child.

As Dr. Boot had said, such tonsils very frequently undergo reduction in size very rapidly under syrup of iodide of iron or potassium. It is true that very little harm comes to a child from the removal of tonsils, other than the dangers necessarily dependent on the operation. It is remarkable how small a mortality there is in tonsillar operations, but he is quite sure that we do not accurately know the mortality. We accidentally hear about septic pneumonia, infarcts, hemorrhages, and sepsis, but very rarely read about them in the literature. He is quite sure that removing the tonsils in children must be a more or less dangerous operation—we know it is so in adults—and he believes we should be very circumspect in recommending any operation on the tonsil.

He thought Dr. Shambaugh had handled the question as to indications suffering from focal infections in a masterly manner. The crux in the matter in these adults, he thought, was represented in such a case as this: An internist sends a patient to a laryngologist for removal of the tonsils. He tells the specialist that he has very carefully gone over the patient with Bright's disease, or neuritis, or a rheumatic type of disease, and has found absolutely nothing; therefore, the tonsils must bear the brunt

of suspicion. He recommends the removal of the tonsils. There is no manifestation of local disease, there is no history of sore throat, or only a slight one now and then; nothing can be squeezed out of the tonsils—no cheesy matter or pus. They may or may not be imbedded. Should we yield to the internist, and remove these tonsils? He admitted that he had been guilty of yielding in this way, but he has yet to see in such cases any benefit whatever from such an operation. It is probably true, although personally he had never seen such a case, that tonsils had been removed in cases with focal infection symptoms in which the tonsils, before operation, exhibited no sign of inflammation, yet the operator has found at the base of the tonsil, absolutely sequestered, a small abscess. He has seen cheesy matter deep in the tonsil that could not be expressed by pressure, but he has never seen a real abscess deep in the tonsil without manifestation of it in the tonsil before operation. He has yet to see a good singer hurt in any way by a tonsillectomy well performed. He has seen young women who said that their singing voices were entirely lost from removal of the tonsils, but he was in a position to know that they had never had a voice and never would have a voice. They were willing singers, but not gifted singers.

Dr. Elmer L. Kenyon said that since the question of voice had been brought up, perhaps it was just as well to make a remark about it. Last winter he examined some forty or fifty tonsillectomized throats, with the purpose of determining exactly what had happened to the palatoglossus and palatopharyngeus muscles. In that series of cases five voices were found to have become permanently nasalized. That is a terrible percentage. If that ratio held in all operations it would mean that one out of five had permanently nasalized voices; but, of course, that is impossible. These findings did not represent at all the true percentage, but they almost certainly did show that there was more injury to the speaking voice following tonsillectomy than any of us had thought. In all of these cases the trouble with the voice had resulted from a permanent injury to the palatopharyngeus muscle. That muscle had been pulled to one side and become adherent to the outer wall, with the effect that the soft palate was held down, making it impossible for it to move back to the posterior pharyngeal wall on phonation.

At this meeting Dr. Beck² of Chicago was also present, and, as a result, wrote a paper about "The Tonsil in Children and Adults," rather than trust himself to speak in extenso from the floor. In this paper he discusses the subject in the sense of the "get the tonsil habit," following the line of least resistance in that so long as the tonsils have no known function, and as no one was ever any worse for being without them, inasmuch as many are much better minus these impedimenta, remove them always when in doubt. Better remove in focal disease, because by failure to remove you might miss a chance to do good. His paper is replete with suggestions as to methods and instruments, and written by a man of his talent makes a deep impression for radicalism. In discussing it, Dr. Pierce of Chicago again gives us food for thought. He said in part: "Still his paper did bring out points for discussion. The axiom which he voiced at the

beginning of his paper, 'that a tonsil is better out than in,' Dr. Pierce disagreed with. If we accepted such a position it would eliminate all intelligent consideration of the subject. It would be very easy, if a patient came to you with a pair of tonsils, without any further consideration to say 'your tonsils must be removed.' That mode of action has brought numerous procedures into disrepute. It is a position which surgical men have condemned in all branches, and it is the very turning point between humanely directed effort in medical practice and the veriest quack who has nothing in view but his fees. There is something besides merely removing the tonsils; there is the danger that the patient is exposed to—a danger which has not been properly appreciated, the danger from the anesthetic and of shock, whether of local or general; the danger of sepsis, the danger of pneumonia, etc., and every patient who is subjected to tonsillectomy is liable to all of these dangers. But aside from that, Dr. Pierce still claimed that the tonsil must perform some function in the human economy. This is shown by the fact Dr. Beck brought out, that even after a year a very careful, complete tonsillectomy there will be most pronounced hyperplasia. Nature is trying to do something to take the place of the excised tonsillar tissue.

Dr. George W. Boot believed that most of what Dr. Pierce and Dr. Beck had said was right, but he must disagree with part of Dr. Beck's statements. He had recently attended a meeting where one of the doctors urged that the people get the "tonsil habit." He thought it a bad habit for the people to get. It is bad enough for the doctors to get the habit. One of the first things impressed upon him as a student of medicine was to do his patient no harm, even though he did him no good. He thought no one could deny that in removing tonsils the patient was subjected to some danger. Occasionally lung abscesses have followed tonsillectomy, and there are all manner of other bad effects that are seen, such as absence of the uvula, soft palate, artificial cleft palate, and so on; so that we can hardly deny the danger of the operation, and we have no right to subject our patients to such danger without justification. These results are not always from the work of beginners, but some of them have followed the work of very good men, and he thought one should be careful in urging the laity to get the 'tonsil habit.' "

In an article on "Pernicious Anemia," by Barker and Sprunt,¹³ the following comments were made concerning the removal of tonsils and other things. In the mouth, stomatitis and glossitis receive appropriate local applications; infected teeth are extracted, and the sockets are curetted and treated for a few days with iodine solution; gingivitis and pyorrhea alveolaris are treated by a pyorrhea specialist. Any teeth loosened by pyorrhea are extracted. Pyorrheal pockets are carefully curetted and locally treated. After the mouth has been put in good condition the patient is instructed in the details of a proper mouth toilet, the nurse seeing to it that the technique is acquired and regularly applied.

In the nose, throat, and ear, any active infection found is treated at once. For example, a suppurating sinus (antrum, ethmoid, etc.) will be drained;

infected adenoids or badly infected tonsils will be removed, though great care should be taken not to subject the patient to an operation on the tonsils merely because they are adherent or because tonsillitis has previously existed. Here the common sense of the physician in charge may often be required to check the cacoethes secandi of an overzealous specialist. Similarly the best judgment of the physician will be called on in deciding for or against operation for suspected infection elsewhere (gall-bladder, appendix, renal pelvis, endometrium, etc.). In our experience infections of the teeth and gums have more often than any other infections required immediate attention in pernicious anemia. Rapid improvement has so frequently followed the treatment of such oral sepsis that we cannot help but feel, with William Hunter, that this side of the treatment is, in many cases, very important, and that poisoning from oral sepsis may, in some cases at least, play an etiological role.

Granting every concession to men who may differ in opinion with me as the result of their operative experience, there is nevertheless to my mind no doubt that far too many tonsillectomies have been done in the past. It is certainly utterly unscientific and begging the question to shrug one's shoulders and say, "The tonsils don't amount to anything anyway; what's the use of talking about it." Equally illogical, reactionary, and puerile, would it be to belittle in any way, or by ignoring the work of others, deprive any of our patients from receiving the good results to be obtained by properly studying the teeth or which have come from such splendid work, as has been done all over the world in perfecting the operation of tonsillectomy, and notably by two men we have with us tonight, Dr. Smith of Hartford and your president, Dr. Sperry. Each has perfected a method of operating in which no one can excel and even few approach them. What should be done is in all sincerity to try and improve as so nobly shown us by Dr. French in our knowledge of the problem of how to be accurate enough in our diagnosis and estimate not to put our patients through unnecessary operations. This would be the only reasonable thing to do from the standpoint of simple everyday justice to our patients. We should face the proposition fairly, squarely, and conscientiously.

Let us for a moment assume what seems to me is proven, that our tonsils exist for good and sufficient reasons, and that when normal they are a part of us which should remain unmolested. How are we to know when they are not normal? This question Dr. French of Brooklyn has tried to answer. He first devised a method whereby he could examine a piece from every tonsil excised after the anesthesia was begun. This was in brief an old-fashioned incomplete tonsillotomy which was plenty good enough for a great many years and in hundreds of thousands of cases. This tissue was immediately examined by a transilluminating light under very strong magnification. If unhealthy the rest of the tonsil was removed in its entirety by the Sluder method. If found healthy, more or less was allowed to remain. This method was a little slow and cumbersome and he devised his present improved method whereby a light is passed behind the tonsil *in situ* and before the operation is be-

gun at all. By this means the sheep are separated from the goats and the wicked tonsils removed. This method under proper cocaineization can be used in adults. The answer to the question, what is healthy or unhealthy tonsil tissue, Dr. French has settled for us by the very beautiful paintings of the tonsils so illuminated. To aid one in becoming experienced in deciding about these tissues, he devised a little dark box into which the excised tonsils could be put and there studied, the observer thus acquiring facility in judgment. Dr. French summed up his discoveries in such a way that I wish I might quote him at length. As this is a terribly long drawn out affair already I forbear and will briefly state the most interesting results of this painstaking piece of work occupying three years, one of the most edifying examples I have ever seen of what pluck and determination can accomplish by hard work, especially if one has the cooperation of his comrades in his work. His classification you have before you. He learned that "one and two" may be allowed to remain. The rest ought to be treated—or removed. So cheer up all you ardent operators—for over four-fifths of all enlarged tonsils are in the last four classes after the age of six or eight up to adult years, when all are included.

Secondly, a large number of tonsils needing operation can in adults and older children be cured, and most brilliant results obtained by simply opening the foci of disease and curetting, without necessarily passing through the ordeal of tonsillectomy. I know the above to be truer even than stated here by an abundant experience through many years.

Thirdly, one can often learn that the tonsils are very hyperemic, and being forewarned is forearmed for any increasing danger from hemorrhage.

Fourthly, when one is a wee bit stumped where to locate a focus of pus in a quinsy, the small transilluminating lamp placed behind the tonsil will be very revealing.

This is but a very parsimonious excerpt from the wealth of observation chronicled in his paper. You must read it to appreciate what I mean. Having for years developed and practised the more conservative methods of dealing with diseased tonsils you can well imagine the pleasure which I have experienced from Dr. French's assertion that he has had some of the most brilliant results from measures even more conservative than my own. In addition, a recent article by Dr. Murphy¹ on the trouble caused by the redundancy of the plica triangularis overlapping the tonsil is most interesting. The simple removal of the plica makes many a patient free from all his tonsil trouble.

The conservative remarks by the various men quoted, together with the opinion of many others, bring me to believe in all sincerity:

First, inasmuch as many tonsils require removal, when this is necessary there is no way as good nor anywhere nearly as satisfactory from every standpoint as tonsillectomy. When possible I use the Sluder-Beck method as developed by Dr. Sperry. He can get many more by that method than can I. Where that method will not suffice I work by a combination dissection and snare method, a very poor imitation of what Dr. Smith does so very well.

Secondly, by preference, whenever I can, I prove the necessity for graver procedures by first trying

the more conservative. By this latter I often succeed, and I think it only fair to infirm, or delicate, or timid folks, to do the easiest way for them. They have a right not to be dragged through the more serious ordeal when unnecessary.

Thirdly, in children, especially under six or eight, one should be just as thorough as is possible—if necessary reoperating, in order to get rid of all adenoid or third tonsil. Unless very large or the cause of much trouble, the faucials are allowed to remain. When the child is under the anesthetic, some operators always remove the tonsils when operating for adenoids. By simply seeing that the plica is freed from the tonsil, and the tonsil from adhesion to the pillar, small unsuspected tonsils can certainly quite safely be allowed to remain and do some good to the growing child.

Fourthly, every tonsil worthy of the name will at some time have thick white cheesy matter in its crypts, large ones almost always. This will almost always squeeze out when the tonsil is snared out in operation, quite generally it appears when a tonsil is squeezed by a spud or by the edge of a tongue depressor. To accept this as the criterion for operation, means that you must remove every tonsil, for as we have just said this probably happens at some time to every tonsil. Simply slitting up a crypt or two or punching out the partitions between them will remove this tendency to accumulate and, therefore, one indication for tonsillectomy. If accumulation continues, remove, but to say that because once or twice a year a simple sore throat occurs, or a bit of accumulation is found that often, is not to my mind a logical indication for removal in toto.

Fifthly, it would seem only fair to think that we all (and this whole paper is written in no "holier than thou" spirit for any error here defined has been also laid at my own door) ought to remember and explain to our patients—and this applies alike to internist, surgeon, and specialist—that too much must not be promised or expected as a result of the tonsillar operation, for otherwise we greatly mar the splendid work done in our own circle and elsewhere, to perfect the operation of tonsillectomy, doing thereby a great injustice.

Finally, would it not be a most beneficent action if by any chance some of this effort which the world over has been spent on the mere mechanical aspects of removal of the tonsil, could be diverted to studying the broader question, whence come the germs which get into noses and throats and make all this trouble. They come from some given source, to be sure perpetuated by carriers of the human variety, but is it too Utopian to expect that some of the tireless workers in the laboratories may discover just this source of trouble, and as was the case with malarial parasites, also a means to prevent their growth and spread. May God speed that day.

REFERENCES.

1. Swain, H. L.: Trans. Amer. Laryngological Assn., 1911, p. 245.
2. ———: Trans. Amer. Laryngological Assn., 1890, p. 316.
3. Mackenzie, John Noland: *Maryland Medical Journal*, Vol. LV, p. 209.
4. Makuen, G. Hudson: Trans. Amer. Laryngological Assn., 1911, p. 223.

5. Makuen, G. Hudson: Trans. Amer. Laryngological Assn., 1915, p. 116.
6. French, Thos. R.: Trans. Amer. Laryngological Assn., 1916, p. 25.
7. Richardson, C. W.: Trans. Amer. Laryngological Assn., 1915, p. 106.
8. Freer, Otto T.: Discussion of Richardson's paper, *ibid.*, p. 114.
9. Boot, Geo. W.: *Annals of Otology, Rhinology, etc.*, Vol. XXVI, p. 129.
10. Shambaugh, G. E.: *Annals of Otology, Rhinology, etc.*, Vol. XXVI, p. 135.
11. Pierce, Norval H.: Discussion of Shambaugh's paper, *ibid.*, p. 261.
12. Kenyon, Elmer L.: *Ibid.*, p. 204.
13. Beck Joseph C.: *Annals of Otology, Rhinology, etc.*, Vol. XXVI, p. 149.
14. Barker and Sprunt: *Journal Amer. Med. Assn.*, Vol. XIX, p. 1919.
15. Murphy, F. G.: *Laryngoscope*, Vol. XXVII, p. 409.

195 CHURCH STREET.

SELECT MEDICATION IN CHILDREN.*

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IN the practice of medicine, in contradistinction to surgery, every physician, I believe, passes through three well-defined psychologic experiences in the first few years of his momentous career. Overwhelmed by the enthusiasm over the infallibility of drugs as impressed upon him during his college days by the learned professor of *materia medica*, he enters into the medical arena with boundless confidence in his power to cope with every phase of disease and anxiously awaits the opportunity to demonstrate and to reap the benefit of his skill. In the early period of his career he may luckily find encouragement for his belief and anticipations, rarely, if at all, surmising that many of the cures he happened to effect were in reality only natural or accidental events, often based upon false premises, erroneous diagnoses. Lo and behold! A few unexpected failures and his fantastic dream is cruelly shattered.

With multiplying failures the state of exultation is gradually replaced by that of depression, his hyperoptimism changes into hyperpessimism. His growing skepticism in the efficiency of medicines often leads him to seek unalloyed selfsufficiency in one of the many fields of surgery. Or, if he is over susceptible to the pricking of his conscience, he even goes as far as to abandon his profession entirely, little realizing that no profession, trade, or business has attained the millenium of righteousness and immaculate dealing with his fellowmen. Some physicians, though continuing to practice medicine, permanently float in the "river of doubt," prescribe nostrums and placebos or fall in the trap of the polished patent medicine mercenary or promoter of some newly discovered, but invariably threadbare, mechanical device or manipulation, or spiritual panacea, cult or science.

Fortunately most of us are not so readily swayed from the straight path of duty by such melancholy philosophy. On the contrary, we continue conscientiously to minister to the sick and to strive to perfect our knowledge in accord with the scientific advances of modern medicine. Indeed, as with many years of hard work and careful study our

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powers of intuition and judgment improve and we acquire a higher degree of skill to select the most appropriate remedial measures to combat disease, we soon find ourselves in the happy psychic state of equanimity and self-reliance and contentment with our noble mission, undaunted by occasional failures and untainted by triumph, fully conscious of the limitations of medicine, yet perfectly confident in our ability to relieve suffering, prevent disease, and prolong life.

Having safely survived the trials and tribulations, the vicissitudes and temptations that becloud the horizon of the young practitioner, I take the liberty of appearing before you with a few suggestions regarding the selection of the most efficient medicinal preparations which may aid you to surmount some of the aforementioned difficulties.

Those of us who believe in the therapeutic value of the drugs they prescribe must, first of all, see to it, that their patients are able to swallow and retain them. As a rule, adults manage by means of capsules or condiments to render medicines disgusting in taste either tasteless or at least acceptable. On the other hand, children are compelled to take the medicine as given to them, and what is still worse, the more they resist, the more they are subjected to anguish and distress, nay, even to severe corporal punishment, which not rarely borders on serious injury.

Indeed, it is not at all rare to find little children, suffering from acute lung or heart disease, in a state nigh to suffocation from the effects of prolonged and firm compression of the nostrils, and many a helpless child bleeds from the lips and gums and even loses a tooth or two in the struggle with the overzealous mother who is determined to force down its throat a teaspoonful of a miserable decoction, which was, perhaps, intended only as a placebo. There is certainly no excuse for such cruelty, much less so in the present state of pharmaceutical progress, which, as I am about to attempt to show, enables us to select and administer the most potent drugs in concentrated and palatable form.

For the sake of convenience and in order to avoid unnecessary repetition I shall endeavor to follow the usual classification of drugs in accord with their therapeutic action.

Digestants.—Except in combination with other drugs digestants are rarely needed in the treatment of diseases of children. Occasionally pancreatin is indicated in starch-indigestion of infants, and may be prescribed either in powder form with bicarbonate of soda or the diastatic essence with or without a small quantity of milk of magnesia. The latter combination mixed with glycerin and fennel-seed water may be found useful in colic. Altogether digestants occupy but an infinitesimal space in pediatric practice.

Tonics.—The simple bitters fully deserve their striking cognomen, since they are surely very bitter and simple, insignificant, in therapeutic action. I believe that the tinctures of gentian, quassia, calumba, and even cinchona owe their trifling medicinal quality to the alcohol they contain. Their use in children, therefore, is hardly to be commended. Whenever a bitter tonic is desired, we

should preferably resort to a minute dose of *nux vomica*.

Of the so-called Aromatic Bitters *eucalyptol* is the only preparation worth mentioning. Internally it may be administered in one- or two-drop doses, thoroughly mixed with honey, glycerin, and mucilage, in cases of spasmodic asthma or laryngitis, and in the same affections it is very useful as an inhalation, especially if combined with the compound tincture of benzoin.

Quinine, which is erroneously classed among the Peculiar Bitters, is, of course, indispensable in the practice of medicine. Owing to its miserable taste, it is, unfortunately, not receiving as wide an application as it fully merits. We are all familiar with its specific action in malaria, but it is also a sovereign remedy in pertussis, pneumonia with delayed resolution, and in irregular or chronic grip. I am not prepared to say whether or not the brilliant effect in these cases is possibly due to some latent malarial disposition. Its miserable taste, as already stated, often precludes its administration to young children, for disguise it as you may, quinine will ever taste after quinine as long as there is quinine in the mixture. Some time ago (*N. Y. Medical Journal*, Oct. 23, 1897), I suggested the rectal administration of bisulphate of quinine, but, while this method works exceedingly well in hospital practice, it is not very ideal as a routine procedure. Where prompt results are desired we do best by giving it by mouth. The bisulphate is dissolved in water and rendered at least acceptable by the addition of *extractum glycyrrhizæ* and *syrupus acaciæ*. In severe cases of malarial fever, characterized by excessive vomiting and pronounced nervous symptoms, we have to resort to the hypodermic. Five grains of quinine hydrochloride dissolved in fifteen drops of hot water forms a suitable dose and may be injected intramuscularly, under most careful aseptic precautions, two or three times daily. In pertussis quinine bisulphate may be given in one- or two-grain doses every two to four hours, whereas one or two large doses of quinine usually suffice to hasten resolution in pneumonia or grip. Children over five years of age can often be induced to swallow chocolate coated tablets.

Of the numerous iron preparations in the pharmacopœia I prefer the tincture of chloride of iron, the solution of peptomanganate of iron, the syrup of the iodide of iron, and the dried sulphate. Iron is always useful for children and especially infants fed exclusively on milk, which, as you know, is poor in iron, and the solution of peptomanganate of iron will be found to act exceedingly well in all simple anemias of infancy. The tincture of the chloride of iron is usually prescribed as a styptic and hematinic in tonsillar affections and is advantageously administered in one- or two-drop doses in combination with the tincture of myrrh, potassium chlorate, and glycerin. This mixture adheres more or less closely to the tonsils and thus exerts its astringent effect upon them, often dispensing with gargles and local applications. The syrup of the iodide of iron is an ideal hematinic tonic in children, more especially in secondary anemias following or complicating acute infectious diseases, rachitis, and divers forms of glandular enlargement. In the so-called scrofulous affections it often

acts almost specifically, more particularly if combined with codliver oil. We have ample reason to believe also that this preparation, in addition to local attention to the nasopharynx, is frequently instrumental in reducing or even entirely removing adenoid vegetations, and its administration may be highly recommended to children, who, notwithstanding the operative removal of their adenoids, continue to suffer from persistent catarrh of the respiratory tract, and show a marked disposition to repeated recurrence of the adenoids. Finally, it is worth emphasizing that owing to the destructive effect of liquid iron upon children's teeth, whenever possible, powdered iron with a little sugar or in tablet form should be given instead.

The selection of a stable and palatable phosphorus preparation is quite a problem, hence its use in children is usually limited to its derivatives. The syrup of lime and soda hypophosphites will be found particularly beneficial in rachitis and associated affections, such as tetany and eclampsia infantum. It may advantageously be combined with syrup of the iodide of iron and codliver oil, which latter preparation, contrary to all expectations, is taken by young children with considerable delight.

Mineral Acids.—Insufficient attention is being paid to the medicinal properties of mineral acids. Aside from its usefulness in an acidity, dilute hydrochloric acid will be found extremely serviceable in all protracted fevers, such as typhoid, and tuberculosis. In anorexia of children dilute hydrochloric acid combined with essence of pepsin and small doses of *nux vomica* often works wonders. The dilute nitromuriatic acid in from two to five drops, well diluted, is indicated as a preventive of the so-called bilious attacks, characterized by recurrent vomiting, headache, and catarrhal jaundice, and the syrup of hydriodic acid is an invaluable remedy in all chronic bronchial affections of children, more particularly unresolved pneumonia and asthma.

Alteratives.—Arsenic, iodine, and mercury form the standard remedies of this group and if given in ample doses are invariably productive of excellent results. The use of arsenic in children is generally limited to chronic blood affections and chorea. In blood diseases arsenic should be administered in combination with iron either by mouth or hypodermically where prompt action is desired. For this purpose iron arsenate, from gr. $\frac{1}{4}$ to gr. 1, will be found particularly beneficial. From time immemorial arsenic has been lauded as a specific in chorea, and all of us have had occasion to corroborate this view. It is well to bear in mind, however, that arsenic is practically useless in the so-called rheumatic or infectious variety of chorea which calls for absolute rest in bed and salicylates, and may prove to be a very grave affection if procrastinated by arsenic treatment. In the neurotic type of chorea Fowler's solution may be pushed to its full physiological effect, provided the urine is carefully watched for a possible renal irritation. Fowler's solution in small doses seems also to enhance the therapeutic value of the bromides in the treatment of epilepsy.

Except in syphilitic affections, the syrup of the iodide of iron or hydriodic acid should be given in preference to potassium and sodium iodide. Moreover, it is worth reiterating that the iodides *per*

se, i. e. without mercury, will never cure syphilis, be it congenital or acquired. Hence the sooner mercury is resorted to, the better for the patient. The iodides may be rendered more or less palatable by means of peppermint or orange-flower water and simple syrup, or fluid extract of sarsaparilla and water.

Mercury, the specific in syphilis, may be administered to children by inunction, fortified by protoiodide of mercury internally. Five to ten grains of a 50 per cent. unguentum hydrargyri in lanolin rubbed in thoroughly once a day, and from 1-16 to 1-12 gr. of protoiodide of mercury three times daily will show beautiful results in a very short time. In the beginning of the treatment it may be necessary to administer a few drops of paregoric daily to allay intestinal irritation. In newly born infants with congenital syphilis we may at first order, gr. 1-10 of calomel every three hours and follow it up with the aforementioned remedies a few weeks later. There is very rarely any occasion in children to use more vigorous methods of treatment.

Antipyretics and Antirheumatics.—Water internally and externally is the best antipyretic in children. Whenever the temperature is ephemeral in character, as for example, in indigestion, tonsillitis, and the like, a cold sponge or pack answers the purpose admirably. On the other hand, when the temperature is continued and recalcitrant an effort must be made to influence the cerebral heat center, and this is best accomplished by means of warm tub baths. They tranquilize the nervous system, equalize the circulation, produce diaphoresis, and reduce the temperature without shock or depression. However, in highly nervous children antipyretic drugs, such as phenacetin, antipyrin, etc., also are indicated, and if given in moderate doses at long intervals are perfectly harmless. They may be made fairly palatable in syrupus acaciæ and orange-flower water. It may here be emphasized that a moderate dose of an antipyretic will often promptly control an attack of convulsions in children, at any rate long enough until its cause has been determined and appropriate remedies employed for its permanent removal. It is well to remember also that small repeated doses of antipyretics, more particularly pyramidon, will frequently subdue grotesque choreic movements where the usual treatment utterly fails. The specific effect of salicylates in rheumatic affections is too well known as to require reiteration on my part. It may be noted, however, that salicylates are tolerated by children in larger quantities than by adults, and if administered with a little caffeine sodium benzoate or strophanthus are perfectly free from depressing after effects. On many occasions I have had the opportunity to convince myself, as well as others, of the distinct abortive powers of sodium or ammonium salicylate in acute poliomyelitis. In my opinion it is more efficient even than immune serum. The salicylates are also invaluable in all acute infectious diseases and whenever you are in doubt as to what medicine to prescribe, you'll almost invariably strike it right by selecting this remedy. It also has the good quality of being palatable.

Hypnotics, Anodynes, and Antispasmodics.—The selection of pleasant hypnotics and anodynes is rather difficult, and perhaps fortunately so, since their

effect upon the delicate infantile organism at best is more or less deleterious. Very recently I was consulted to see a newly born infant supposedly suffering from atelectasis pulmonum. The baby was in profound stupor, its pupils markedly contracted, its breathing from ten to twelve per minute and pulse from forty to fifty per minute and barely perceptible. It refused to nurse and swallowed with difficulty. The family physician informed me that the baby had been sneezing and coughing, and to relieve the anxiety of the parents, he prescribed a cough mixture containing five minims of paregoric in each dose which was administered every two hours. Obviously we were dealing with a case of opium poisoning. By promptly directing the treatment against it the infant recovered very rapidly. The safe dose of paregoric for children is one drop for every year of the child's age, and one-tenth of this quantity when the tincture of opium is prescribed. In gastrointestinal affections where an opiate is indicated preference should be given to Dover's powder (one-tenth of a grain for every year of the child's age), because of the beneficial effect of ipecac it contains; and whenever vomiting precludes its administration, you will often find an opium suppository to act admirably. Where very prompt action is desired, as for example, in cholera infantum with profuse vomiting and purging, we may advantageously resort to a hypodermic injection of morphine (gr. 1-60), and atropine (gr. 1-600). Morphine and atropine hypodermically are occasionally indicated also in other acute diseases. Some years ago ("Practical Pediatrics," Gratzner and Sheffield, 1905, p. 184), I called attention to the marked efficacy of morphine and atropine in uremic convulsions of children and have employed it repeatedly since, improving, however, on this procedure by performing also lumbar puncture in conjunction with it. I first tried this combination on a seemingly hopeless case of uremia complicating scarlatinal nephritis that was accompanied by total amaurosis of both eyes, and had resisted every other method of treatment for six days. The effect of the hypodermic was almost magical. In respiratory affections codeine and its similar opium derivatives are the drugs par excellence. Whenever a hypnotic is indicated, codeine added to bromide will act by far better than the newer coal tar products. The use of spasmodics in children is somewhat limited. In olden times belladonna was looked upon as the *sine qua non* in pertussis. It was pushed to its full physiological effect—until the child was practically blinded. We know better today. Belladonna will be found useful, however, in ordinary catarrhs of the respiratory tract with profuse mucous discharge and in rhinitis of infants when the nasal discharge interferes with nursing. In combination with codeine, in the form of suppositories, belladonna is of particular value in irritable bladder, strangury, and tenesmus, and also acts nicely as a palliative in catarrhal appendicitis, when medication by the mouth is contraindicated. We may choose hyoscyamus instead of belladonna; in fact, there is no better antispasmodic and anodyne in dysuria accompanying cystitis than hyoscyamine sulphate. The dose is gr. 1-800 for every year of the child's age, dissolved in syrupus altheæ and water.

Stimulants.—Practically all stimulants are unpleasant in taste and require skillful compounding to render them palatable. Glycerin and the elixir digestivum compositum serve best in this direction. Strychnine and strophanthus are indicated in almost all infectious diseases of children and should be administered early rather than late. In the early stage of the disease the dosage, of course, should be small. Gr. 1/300 of strychnine and $\text{m}\bar{\text{q}}$ 1 of tincture of strophanthus will ordinarily serve the purpose admirably. I believe it is a mistake to leave stimulation in pneumonia to the very end, and I have made it a rule to give strychnine and ammonium carbonate or liquor ammonii anisatus the first three days of the disease, strychnine and strophanthus the following two or three days, and digitalis and alcoholic stimulants in the last days, when the cumulative effect of the pneumonia toxin is most apt to undermine the cardiac muscles. In urgent cases we are often called upon to add caffeine-sodium benzoate, and even adrenalin. It is always a good plan to provide the nurse with an ample supply of quick stimulants for an eventual emergency during the crisis, and I am able to assure you that at least in one case this intensive preparedness has worked wonders. About two years ago I was invited by Dr. K. to see a nine-year-old boy suffering from grippal, so-called wandering, pneumonia of two weeks' standing and complicated by double otitis media. As the patient was extremely weak and showed distinct signs of myocardial involvement, I suggested to the doctor to supply the nurse with three additional hypodermic syringes, one containing ten drops of adrenalin, the other one five grains of caffeine-sodium benzoate, and the third one 1/30 of a grain of strychnine—to be on guard against sudden heart failure. The next day another consultant was called and the day following a third one. This excellent clinician, in his laudable effort to erudite the cause for the delayed resolution directed the nurse to sit the boy up in bed in order that he might examine carefully the posterior portions of the thorax. While doing so the patient suddenly flapped backward, his jaws dropped, his pupils dilated, and his heart stopped beating, in short, he seemed as dead as a doornail. The physicians became terrified, mortified, and left the sick room to convey to the child's parents the dreadful message of the unfortunate event. In the meantime the nurse recovered sufficient sense to proceed with the simultaneous injection in the boy's arm of the three aforementioned reserve stimulants. To her great delight she soon noted a slight twitch of his mouth and heard a faint fluttering of his heart, and in another few minutes the boy was himself again. Resolution set in the following day. For a number of years past the profession has put a great deal of reliance on sterile camphorated oil as a powerful stimulant, more especially in pneumonia. I have used it extensively and am still resorting to it occasionally, but must frankly confess I have never been convinced of its utility and often felt that the sorely tried patient ought to be spared the pain and discomfort almost invariably associated with its hypodermic administration. Indeed, I fear that the needle has been recently grossly abused, be it in the subcutaneous injection of drugs or in that of an unlimited

number of inert vaccines and serums. I hope these remarks will not be misunderstood. While I firmly believe in the life-saving properties of antidiphtheritic and antimeningococcus serums and the like, I cannot help but feel that the profession is entirely too credulous regarding vaccines. A few days ago I came across a child with whooping cough who had received nineteen injections of pertussis vaccine!

In treating heart disease, it is well to remember that while digitalis is the indispensable remedy in chronic cases with "ruptured compensation," it is more or less harmful in acute heart disease, with compensation intact, when an ice bag to the precordium and small doses of codeine with or without sodium salicylate are indicated.

Heart Sedatives.—If ever there were any need for heart sedatives in children, we could readily get along with a minute dose of morphine or its derivatives, or possibly some coal tar product, such as pyramidon. Aconite, the standby of the homeopath, like digitalis, is a dangerous drug in the hands of the inexperienced. The real indication for aconite is supposed to be sthenic fever, and there are not many children too vigorous while sick. However, in homeopathic doses and well diluted it probably can do no harm.

Emetics.—No great effort need be made to disguise the taste of emetics. The wine of ipecacuanha, requiring but small doses, should be preferred to the syrup, and whenever emesis is very urgent a hypodermic injection of from gr. 1/12 to gr. 1/16 of apomorphine will prove most satisfactory. It is to be regretted that emetics are dropping into disuse, for many a case of acute indigestion in children could promptly be arrested by swift emesis. It may be worth mentioning also that moderate doses of ipecac are invaluable in whooping cough with prolonged suffocating paroxysms, thus by emesis imitating nature in aborting the attack.

Expectorants.—The selection of suitable expectorants requires good judgment. It is useless, in fact harmful, for instance, to prescribe stimulating expectorants, such as ammonium chloride or carbonate, in cases of persistent coughing arising from nasopharyngeal or laryngeal inflammation. We should rather be inclined to allay the source of irritation by local measures and administer sedatives to relieve the cough. With this object in view excellent results are usually obtained from daily instillation of from 2 to 5 per cent. of argyrol or silvol in the nose and the internal administration of creosote carbonate and codeine, well mixed with glycerin, mucilage, and water. On the other hand, when dealing with an harassing cough in acute bronchitis or pneumonia in which the expectoration is very adhesive and cohesive, scanty in amount, and hard to raise, a stimulating expectorant, with or without wine of ipecacuanha or the compound syrup of squills, in the majority of instances will prove beneficial to the patient by assisting nature to rid the lungs of effete material and save the patient's energy for the terrible battle ahead of him. In chronic bronchitis and unresolved pneumonia satisfactory results are frequently gotten from ammonium iodide, gr. $\frac{1}{2}$ to 1 for every year of the child's age, every three or four hours, or the syrup of hydriodic acid or syrup of the iodide

of iron. The iodides are very useful also in the exhausting cough accompanying non-compensating heart disease, and may advantageously be combined with digitalis and an occasional dose of some morphine derivative.

Diuretics and Diaphoretics.—Water is the most palatable and in large quantities the most efficient diuretic in bladder affections. If given hot and sweetened with sugar it is also an active diaphoretic and should be given preference to offensive diaphoretic mixtures, whenever possible. When drugs are needed, sweet spirits of nitre, potassium acetate, and potassium citrate generally serve well both as diuretics and diaphoretics. Potassium citrate in combination with hexamethylenamine acts specifically in pyelocystitis. Considerable caution, however, is commended in the continued administration of the latter owing to its tendency to produce hematuria. Another excellent preparation is sodium benzoate, which, as I fully emphasized many years ago (*N. Y. Medical Journal*, June 30, 1900) forms an ideal diuretic, diaphoretic, and expectorant in the group of symptoms frequently encountered in acute influenza. Diuretics are practically useless, nay, often harmful, in acute nephritis while the urinary tubules are obstructed by the inflammatory changes. In such cases we do much better with active diaphoresis by means of packs and hot baths and intestinal flushing—to rid the system of effete material without overburdening the renal function. On the other hand, in subacute and chronic nephritis, diuretics must be resorted to whenever the excretion of urine is diminished and a tendency toward dropsy becomes manifest. In such cases the liquor ferri et ammonii acetatis seems to act exceedingly well. If, however, the dropsy is extensive and of cardiac origin we always have to fall back on digitalis and strophanthus with or without diuretin or theocin sodium. Another indication for free diuresis is pleurisy with effusion, especially if the medication is coupled with complete abstention from all fluids in the diet. Under these conditions nature seems to absorb the fluid from the pleural sac to replenish the needs of the human economy.

Laxatives and Purgatives.—We are all too familiar with the action of castor oil, calomel, and phenolphthalein to require any detailed discussion. Attention may here be directed to the fact that there is no particular reason for giving calomel in divided doses and bothering the child unnecessarily. Any baby can stand a grain of calomel without much ado. Effervescent citrate of magnesia is contra-indicated where there is a tendency to vomit, the milk of magnesia being by far preferable. Purgatives and hydragogues are indispensable in acute nephritis and dropsical effusions, when the kidneys are unable to perform their function. Unfortunately, however, all of these preparations are very disgusting in taste and require large quantities to produce the desired effect. I find that Rochelle and Epsom salts may be rendered fairly palatable by the addition, to a saturated solution, of about a third of its quantity of glycerin and a few drops of aromatic spirit of ammonia. The mixture may then be administered in teaspoonful doses at frequent intervals. The infusum sennæ compositum may prove useful in some cases, but we must see to it that it is freshly prepared. In treating chronic constipation

of children our efforts in the direction of regulation of the diet and induction of regular habits will only too often fail and we are frequently called upon to advise a suitable laxative. I believe that malt extract with olive oil or cascara will answer the purpose in the majority of cases. The value of mineral oil in chronic constipation is greatly exaggerated, at least as far as its efficiency in children is concerned.

Intestinal Astringent.—Most of us still recall the sad time when during the summer months every pharmacist was stocked up with a large exhibition of summer-complaint—mixtures to meet the great demands of the season. Fortunately, with our advanced knowledge of the causes of the summer diarrheas of infants and the methods of prophylaxis there is no longer any excessive demand for such preparations. However, we have not as yet reached the millennium in infant feeding and hence are still called upon to prescribe the time-worn, yet efficient, bismuth and chalk mixtures. Ordinarily I prefer bismuth subcarbonate to the subnitrate and direct to give the patient from ten to twenty grains after each evacuation. In this manner we are able to control the dosage in accord with the severity of the diarrhea. As already stated, in colitis and cognate affections, opium and ipecacuanha will be found to act most satisfactorily. Dover's powder may be made palatable by the addition pulvis aromaticus. The different tannin preparations are worthy of trial only in chronic enteric affections, but here greater benefit will be derived from local treatment, more particularly daily intestinal irrigations with $\frac{1}{4}$ to $\frac{1}{2}$ per cent. of nitrate of silver—in addition to an appropriate diet. Bicarbonate of soda is, of course, the specific in diarrhea due to acidosis or fat indigestion, and should be administered in large doses by mouth as well as per rectum.

Gastric Sedatives.—Last in line but foremost in importance are the gastric sedatives, since with a highly irritated stomach, when all food or medication is promptly ejected, even a very mild disease, *per se*, is most apt gravely to undermine the baby's power of resistance. Hence the importance of first of all settling the stomach. In the majority of instances this is readily accomplished by one large dose of sodium bicarbonate, let us say, from thirty to sixty grains in water and followed up by smaller quantities of bicarbonate of soda and subcarbonate of bismuth with or without calomel. Good results are often obtained also from the different medicated waters, such as lime, peppermint, and bitter-almond water in cracked ice, or $\frac{1}{20}$ of a drop of tincture of iodine well diluted. In recurrent vomiting lavage is indispensable and in some cases we may even have to resort to a hypodermic injection of morphine. Of course in all cases of severe vomiting careful attention must be given to its etiology, more particularly involvement of the appendix or brain.

In administering medicines to children, it is often helpful to divide the full dose in several small doses, if need be, giving it drop by drop until the whole teaspoonful has been taken. In this manner even a most irritable stomach will often retain the medication, whereas it would otherwise reject it.

In conclusion let me suggest the following general rules to facilitate the selection and administration of drugs to children:

1. Never prescribe any medicine unless you are convinced of its necessity; if only a placebo is required, prescribe a palatable adjuvant.

2. Never prescribe a medicinal preparation requiring a large quantity, when a small one of the same or an equally as useful a drug will do the work just as efficiently. Thank Heaven, the time is passed when the greatness of the physician stood in direct ratio to the quantity of the concoction he ordered.

3. Never prescribe a painful therapeutic procedure or a nauseous mixture when the patient will do equally as well—and surely much better—without the unnecessary pain and annoyance.

127 WEST EIGHTY-SEVENTH STREET.

ENTEROPTOSIS OR EXOPTOSIS?

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ENTEROPTOSIS literally means a sagging of the insides, or inwards, but as these terms, in either Greek or English, are popularly applied especially to the intestines—the word showing the same tendency in Latin—and as in medical nomenclature, the stem *entero-* tends to be still further limited to the small intestine, enteroptosis may have a general significance equivalent to splanchnoptosis or sagging of the viscera or may be used in a more or less limited sense.

With the possible exception of blepharoptosis, there is a general agreement that all ptoses apply to laxity of the supports of organs, manifesting themselves as a sagging or descent of the organ as a whole in the standing posture. In regard to the stomach, there is, however, an unfortunate tendency to confuse true ptosis, that is to say, a displacement of the whole organ, whether normal in size or dilated, with the inevitable descent of the greater curvature which occurs when the organ is dilated, even when its upper portion is held in the normal position. With regard to enteroptosis in the limited sense of a sagging of the small intestine, it may be questioned whether it is possible, short of inspection by celiotomy, even by very careful and expert use of the *x-rays*, to determine whether the coils occupy their normal place or not in an apparently normal abdomen and whether, with the exception of the duodenum, the first part of the jejunum, and the ileocecal valve, the supporting structure, namely the mesentery, will not, without intrinsic abnormality, allow the bowel to conform to the position and capacity of the abdominal cavity as a whole.

Without entering into a discussion of the pathology, etiology, and diagnosis of enteroptosis, either in its limited or general sense, it may be pointed out that the conception of the term, *-ptosis*, should, on the one hand, be sharply differentiated from variations in size and shape of the organ itself, and, on the other hand, equally sharply discriminated from inevitable changes of position due solely to skeletal, muscular, and connective-tissue abnormalities of the enveloping body walls; whether we admit or dispute that owing to the latter abnormalities, a gradual and equally inevitable stretching or adjustment of the visceral supports has occurred.

In other words, while we may readily admit that the changes in the ligamentous supports of viscera which tend to allow ptosis in the standing posture are more or less analogous to relaxations of the tissues of the organs themselves and to those of exterior structures, there are problems in pathology, etiology, diagnoses, and even therapeutics, that require a discrimination in use of terms. Thus, assuming that we can in all instances map out the position of an organ accurately, the fact that it does not conform to the ideal location does not necessarily justify the word ptosis.

A good deal of the literature on splanchnoptosis is blemished by the failure to discriminate between genuine sagging of the viscera, due to faults of their supporting structures, and disturbances of visceral orientation, due to departures of the body wall from the normal. Hence the title of this paper. This failure of discrimination may be due merely to failure of conception or to lack of diagnostic skill, or it may be due to a definite desire to apply such terms as enteroptosis to exterior defects or abnormalities and to recognize these conditions as a genuine etiologic factor. In the latter case, the matter is one of definition. The writer believes that the term ptosis is too significant and too firmly fixed, so far as general conceptions go, to be changed. But, if it is to be used to designate, in a very general way, any kind of disarrangement of the viscera, due to exterior as well as interior conditions, then we must coin a new term to designate ptosis due to faults of the visceral supports themselves and must, especially with reference to treatment, make a sharp subdivision of nomenclature.

Some discussion is pertinent as to exoptosis, a word which is not intended for presentation as a medical term of permanence, but simply for convenience in this article.

The Venus Type.—Most elaborate articles on enteroptosis in the non-discriminating sense borrow the illustration or enumerate the dimensions of one of the classic Venuses. However pleasing to the eye, a Venus is not, strictly speaking, a feminine type. That is to say, it does not represent the shape of the average woman, civilized or uncivilized, it does not represent, item for item, an average of scientific observations of actual dimensions and proportions observed in health. The breasts, the abdomen, and the general deposit of fat do not conform to actual expectations of either the nullipara or the parous woman of the apparent maturity of the Venus. If a classic Venus were met in modern costume, she would be considered "dead ripe" in development and dangerously prone to obesity and its sequelæ. A thin woman, one with a few additional pounds of fat, one with disproportionately longer or shorter arms and legs, one with smaller breasts or those showing the deformities of lactation, one with a different shaped thorax short of actual deformity, even one with more or less muscular development under present conditions is, from the scientific medical standpoint, just as normal as a Venus.

No Proportionate Standard of Feminine Form Possible.—A very little reflexion suffices to prove that there can be no standard of form if we admit the normality of differences in height and it would be absurd not to do so. The female pelvis must, if

serious obstetric abnormality does not exist, remain of very nearly the same absolute size in its various diameters without regard to height. In plain language, the tall and the short woman, if normal in skeletal development, must be of very different shape. This difference applies not merely to the pelvis but, on account of differences in muscular power required for moving different weights, to the legs and the entire locomotive structure.

Similar remarks might be made with regard to masculine form, but, owing to the absence of the obstetric factor, the same importance does not apply to male form as to female. However, it is a matter of everyday observation that the greatest differences exist in stature and in proportions, as of height of trunk and of legs, without appreciable influence on the general health, not to mention the question of splanchnoptosis.

The Enteroptotic Type.—The flat-chested, round-shouldered, long-legged, skinny, breastless girl with rather protuberant abdomen has been depicted so frequently that it is unnecessary to reproduce the type. Many authors have been candid enough to illustrate this type with the note that splanchnoptosis did not exist. As a matter of fact, this type is very common and does not subject the individual to the social handicap that might be expected. Setting aside esthetics, it may be questioned whether this type is distinctly abnormal. Studies, not very recent, have surprised the profession into the admission that it is rather the round than the flat thorax that predisposes to tuberculosis of the lungs. Such girls and such young men are often vigorous, even athletic, and the latter often bear up well under stress of military life. The omoptosis is real, but enteroptosis in any true sense may or may not be present—in the writer's experience it is not especially apt to be demonstrable in this type. As the individual becomes more mature, better nourished, and takes on even a few pounds of fat, the center of gravity of the trunk is altered so that, almost without effort and certainly without shoulder braces, or abdominal bandages, the shoulders become square and the abdomen is held normally.

The Broad, Flabby Type.—In persons of this build there is obviously more room in the thorax and abdomen for the various viscera and there is a natural tendency toward over-nutrition, at least in the sense of allowing a deposit of fat, which further drags upon the abdominal wall, although the pendulousness of the abdomen is rather apparent from the thickness of the wall than real as affecting the abdominal cavity. Pregnancy produces more permanent results in the deposit of fat and relaxation of the abdominal muscles. As to the pelvic organs, whose ptoses are usually designated according to a different nomenclature, the writer is unable to state further than that such persons are not especially apt to show true splanchnoptosis. Extreme degrees of nephroptosis are, indeed, far less common than in tiny, narrow-waisted women. The projection of the gastric area on the skin at first sight suggests gastropptosis, but this is due merely to the relatively larger size of the viscera, the smaller deviation of its major axis from the horizontal, corresponding to the general contour, the relatively high position of the umbilicus, and the "spread" of vibrations in projecting the stomach on

the surface of a thick abdominal wall by percussion. The intestines naturally assume a slightly different position in such an abdomen, for exactly the same reason that they would spread out differently in a broad pan at a necropsy as compared with their disposition in a high, narrow pail. The liver is broader and flatter than in a narrow-waisted person and it may, without any greater relaxation of its supports than corresponds to the general tonicity of the tissues, project slightly below the costal arch, in which case palpation through a thick abdominal wall exaggerates the conception of its downward extent. Comparing narrow with broad chests, as a rule the former more than cover the liver, while the latter may not quite do so. It is not meant by all this that a person of this type is immune to splanchnoptosis, but that no general predisposition to such a condition exists.

The Narrow-Waisted Type.—Artificial constriction of the waist is, by decree of fashion rather than hygiene, a matter of a generation ago. This was emphasized by the writer a short time ago at Atlantic City by the appearance of a fairly young woman with the waspwaist of the early '80's. The amazement and interest of the younger women was the best evidence that tight-lacing is practically a dead issue—except the transient tight-lacing of the obese. But there is a natural narrow-waisted type, more common in small women, and accentuated by the absolutely nearly identical and relatively larger pelvis. In this type there is an inevitable shortage of room at the waist for various vital organs. Whatever the original cause of the condition—and the histories are positively against artificial deformity—the liver is bell-shaped, there is seldom good pulmonary and cardiac power, the stomach is small, even to such a degree that adequate diet on food of average bulk is something of a problem, the stomach axis is nearly vertical and hence there is a tendency both to dilatation of the lower portion and to the development of true gastropptosis. One or both kidneys are often—not always—quite freely movable. The nephroptosis may be discovered after pregnancy or a traumatism, but it is so common in this type that it must be regarded as preceding such causes, especially as it is often demonstrable in nulliparæ. In fact, it is questionable whether a single case of movable kidney exists that has been positively demonstrated to have been due either to pregnancy or to traumatism, by "before and after" examinations. On the other hand, the renal movability is not congenital, since the proportionate number of cases found in routine examinations of infants is small—1 to 2 per cent., even including the slight movability probably due merely to the natural greater elasticity of immature tissues—whereas the female series after puberty give proportions of about 5 per cent.

Relation of Abdominal Deformities and Lesions to Splanchnoptosis.—Diastasis of the recti, large ventral herniæ, especially when so large as to present virtually a second abdominal cavity, marked spinal deformity, lordotic or kyphotic, extreme trophy of the abdominal muscles, possibly of the fasciæ also, and without even the protection of a reasonably thick fatty layer, inevitably result in greater or lesser distortion of the normal disposition of the viscera. In some instances the condition

is literally a splanchnoptosis, especially an enteroptosis, in others it is difficult to designate the condition by a formal term. Sometimes the intestines have simply followed lines of diminished resistance compatible with perfectly normal supports. For instance, when the intestines have promptly poured through a large hernial ring or through the slit between the recti after labor, we are not warranted in assuming any essential failure of the supporting structures of the intestine itself. But, in practically all cases of gross deformity or traumatic yielding of the body wall, even an originally normal visceral support must eventually yield to the constant forces of gravity and intramural pressure. Without quibbling as to whether the term splanchnoptosis is literally correct or not, such cases must be differentiated from those in which, without gross failure of support by the body wall, an intrinsic failure of supporting tissues occurs.

For the sake of focusing attention on a single point, it has been thought best to omit extensive considerations of splanchnoptosis. This term and its subdivisions should be logically and critically applied. Actual demonstration of position of any organ should precede a diagnosis and the position of one organ should not be inferred from that of another. If this rule is followed, general splanchnoptosis will be found to be quite a rare condition, and plural splanchnoptosis will be found to be somewhat uncommon and by no means regularly associated, nor following plausible a priori conceptions. The ptosis or sagging itself, in the literal sense, is an accident of gravity. The essential factor is the lack of competence of the visceral supports—this general and non-technical term being preferred for our purposes to strictly anatomical terms, in order not to limit the attention to any one viscus. Such lack of competence is demonstrated by movability or displacement of each organ, as a whole. In all cases in which the orientation of the viscera departs from normal standards, a sharp distinction should be made between intrinsic ptosis and deviations which are by no means due to internal conditions but to those affecting the general contour and limits of the body wall. So long as no physiologic or pathologic result occurs, a misshaped body is, from the standpoint of internal medicine, no more abnormal than a homely face with bad features. Exterior skeletal and muscular conditions, within reasonable limits, do not necessarily determine splanchnoptosis. They do not even predispose to it to the degree suggested by much of the medical literature. Therapeutic measures, especially of a mechanical or operative nature, should be directed toward the actual condition of exterior deformity, for its own sake, and not toward a suppositious internal condition.

228 SUMMER STREET.

Alcoholic Polyneuritis.—Juarros reports the case of a woman aged 38 who was addicted to the abuse of alcohol, ether, and morphine. Her father had been a syphilitic, but her own Wassermann was negative. She was attacked with what appeared to be rheumatism, but later there developed motor weakness and anesthesia with pains despite her morphine addiction. The pains ceased on suppressing the alcohol. There was some mental impairment, which suggested a possible Korsakoff's disease.—*El Siglo Médico*.

CUSTODIAL CARE OF ADDICTS.

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SENIOR VISITING PHYSICIAN, CORRECTIONAL HOSPITAL, THE PENITENTIARY; ATTENDING PHYSICIAN, VANDERBILT CLINIC, NEW YORK CITY.

SOME attention is being given of late in the lay and medical press to the drug evil, and, as usual, there are some exaggerated statements of true conditions. However, the real facts are bad enough to demand the earnest attention of thinking men and women. That the drug evil exists and is a growing menace to particularly the young people no one will deny who is conversant on the subject, but when a physician stated some time ago that the U. S. Army contained 200,000 drug addicts that remark was from the alarmist point of view. Those of us who have served recently in the army and held important posts do not agree with the exaggerated opinion. For the benefit of those who may be alarmed, let them rest assured that the U. S. Army Medical Department has long been on the watch; certain drugs favored by addicts have not been permitted to be used for some years past in the Medical Department.

It is astonishing how little knowledge exists among the medical profession as to any course of treatment which may be of a curative nature. The fact is, the management of certain sanatoriums and certain physicians feel they have the only proper course of treatment. Upon reading the leaflets sent through the mails on the subject of a cure, it is noticed that any discussion of treatment is as a rule carefully avoided. It may be that it is left to be assumed by the profession that the stages of elimination, withdrawal, and rehabilitation are fully understood. The generous(?) instincts which prompt the frequent advertising propaganda sent out by some of our lay-medical institutions never lead to a word of help or cheer to the physician or addict, for whatever treatment is suggested is so camouflaged that the average physician learns not a thing, after all, except the address of the sanatorium. It is most unfortunate that in the past so little cooperation and effort has been made by our profession to combat or study the drug addict situation. Some interest has been aroused over the proposed law in New York City, and it is earnestly hoped that the war will not draw our attention from the subject. We have only scratched the surface so far as treatment goes, and certainly there is no specific, while the fact still exists that no two cases present symptoms exactly alike. The so-called reduction treatment might be mentioned, but I have seen so much harm done through this evasion of the spirit of the law as practised by an increasing number of physicians that the less said the better until the strong arm of the law takes hold of the situation and in some manner reaches these medical leeches. Whether the sufferer needs a physician, chiropractor, osteopath, or Christian Scientist, what cares the addict or his relations so long as he can be cured. Therefore, it is the cure, after all, that the patient wants, and one of the first steps in treatment is the elimination stage, the purpose of which is to reduce the physical need for the particular drug.

From the mass of data on treatment certain few

facts stand clearly forth as essential toward any cure of these unfortunates, and it matters not if they are from the lower or higher grades of society. During the elimination and withdrawal stages custodial care is most desirable and important and must be continued for at least ninety days longer while the patient is undergoing convalescent treatment and rehabilitation. The stage of rehabilitation must not consist of the easy-chair sun-parlor type, but of the most active and increasing exercise graded, of course, to suit the individual case. Any kind of physical exercise in the open air is most desirable and particularly of such a character as to interest the patient. It must be understood that the convalescent addicts are recovering from a real disease, certainly as much, if not more, from a physical as from any mental condition. This factor is being more generally appreciated than formerly. During this rehabilitation period, I believe that while custodial care is being exercised if it is of a military type it would be most beneficial. In a certain private sanatorium several addicts ended their lives last year through suicide by jumping from unprotected windows. Such an accident would be impossible in a properly constructed and conducted custodial institution.

No doubt exists in the mind of any one who has given thought and treated many of these cases, but that custodial care is all important and especially so if the patient is frequently assured that he is to be cured. Even when the patient is under custodial care, the ingenuity and cleverness displayed in obtaining the favorite drug is remarkable. In the first place, many of these cases are well supplied with money, even though they may be committed to a public institution. Money used as a bribe to smuggle in drugs will do naturally much damage in thwarting any medical efforts. Through the professional keenness of the resident physician, at the Correctional Hospital, Blackwell's Island, Dr. Thos. F. Joyce, cases have been discovered where letters were being chewed and swallowed which had been soaked in a solution of morphine. Picture postal cards contained powdered heroin deposited between the layers of paper. There are many other equally clever ways of importation known.

Patients of this class are entitled to every consideration, care, kindness, firmness, and attention, especially so during certain stages of the treatment, and the personality of the physician and nurses is a most important factor in obtaining successful results. In the Correctional Hospital, Blackwell's Island, at Riker's Island, and elsewhere, where several hundred each year are treated and afterward physically reconstructed, the results are most interesting and the benefits satisfactory. With the hearty cooperation of the Commissioner of Correction, Dr. James A. Hamilton, it is believed and felt that real constructive work is here now being done. To discharge the addict as cured after from seven to ten days, as is done in some city hospitals and private institutions, is only turning him loose to try it again. The addict has not had any chance to brace up physically or mentally and the result is physical and mental weakness and hence it is that so many return to their old habits. It has also been observed that where the addict has had several treatments the psychological effects are serious as it tends to

make them the most pessimistic of all mortals.

The Whitney Committee in its report to the present legislature recommended the procuring of funds to build State institutions for treatment of addiction scientifically without the prison atmosphere which now shadows the entire period of treatment. It is to be sincerely hoped that the Empire State will discover the necessary funds for this purpose. For the immediate treatment and the handling of these addicts of moderate circumstances and those that are really poor, the city might give over one of its numerous City Hospitals and operate it strictly for addiction cases and under proper custodial care. The department of correction has under construction two splendid sets of buildings, well removed from temptations and relations which, when completed, with the abundant acreage surrounding these units will give a wonderful opportunity for rehabilitation. The New York State law, as above mentioned, on control, sale, etc., of drugs which has been drawn with much care, will be of some aid in keeping down the drug traffic, but one thing is certain and that is until the Federal authorities enforce the Harrison Drug Act, or give us an effective national law, interstate traffic will do much to mitigate against a successful outcome of State control.

4 WEST EIGHTY-FOURTH STREET

SOME OBSERVATIONS CONCERNING THE STRUCTURAL AND RELATIONAL VARIATIONS IN THE UTERINE PERITONEUM.

By HOWARD CRUTCHER, M.D.,

TULAROSA, NEW MEXICO.

MOTION is the essence of life. Change, or alteration, is the standard by which the effects of motion are estimated. The various structures of the human body undergo changes not only of a nutritional character but also of their essential form and substance. The urinary bladder in a boy of five years is not what it is in locality or structure in a man of seventy. The human uterus is covered with a peritoneal coat. So runs the teaching. But it must be borne in mind that coverings of tissue are quite as variable, perhaps, as coverings of fabrics. The surgeon should be the last of scientific men to express surprise at changes of whatever kind. Nature herself is such a prolific maker of history that she pays no heed to the feeble efforts of man in the same field of labor. A thickened membrane here, an enlarged gland there, are Nature's methods of recording her doings within the human frame, precisely as a lake here and a mountain yonder are evidences of her handwriting in another sphere of her dominions.

Surgeons are familiar with the immense variations in the character of the uterine peritoneum, without always being able to assign an acceptable reason for such variations. In some instances the serous investment of the organ is as thick as heavy cloth and as elastic as young rubber. At other times it is as thin as fine silk and quite as frail. Occasionally extreme thinness is associated with high elasticity and great tenacity. Sometimes the peritoneum is more of a supporting structure than an investing membrane. Nothing short of actual

digital and ocular exploration will reveal such variations. The processes of reproduction, contrary to expectation, perhaps, appear to exert little or no influence upon the general character of the peritoneum. In a Langenbeck hysterectomy performed in a multipara of forty-seven the peritoneum was precisely in appearance what it was in the case of a virgin of thirty-three upon whom I performed the same operation. I have only seen the uterus at full term in the living subject four times, in three of which cases the investing peritoneum was freely movable over the tissues underlying it, while in the fourth case it was so immovably attached to the uterine wall that the deep wound made during a cesarean section had to be closed with a single layer of interrupted stitches.

The character of the peritoneal covering does, however, exercise a great and perhaps a decisive influence upon the fortunes of the uterus itself during the expulsive stage of labor. Lacerations of the uterine neck are too common, and are far too well known, to require comment. More penetrating lacerations, extending well into the body of the organ, are probably far less common and are certainly far less understood; but that such lacerations do occur admits of no question whatever. The dangers to life arising from an injury extending to the peritoneal coat and one extending through this coat, are not to be compared. Fatal bleeding might occur as readily in one case as the other, but the opportunities for other complications no less fatal in character would be multiplied incalculably. Careful students of uterine pathology well know that early miscarriages, possibly those occurring in the second and third months, sometimes produce very extensive lacerations of the cervix. Pressure of the fetal head being only one of the factors in uterine laceration of whatever extent, and the extent of the laceration not being proportionate to the size of the head, by what process of reasoning do we set up arbitrary limits for the extent of the laceration in any case whatsoever? There has been, it may well be feared, much loose reasoning and more faulty teaching concerning these matters. It is morally certain that many women have been lowered into their graves from spontaneous laceration of the uterus when some other cause has been assigned for their unexpected taking off.

Nor must it be supposed that the uterovesical and the uterorectal pouches are constant in character. I have opened the cavity of the peritoneum when incising a fluctuating pouch projecting well into the vaginal vault below the lower lip of the uterine cervix. When making the primary incision in performing hysterectomy for cancer of the cervix I have at times mistaken a gush of serum for an escape of urine, so deeply does the peritoneum press at times beneath the base of the bladder and forward into the superior fornix. When the peritoneum is greatly thickened and densely adherent to the body of the uterus the only safe method of proceeding upward is to follow minutely the muscular wall of the uterus and be guided by its fibers, avoiding if possible the mucous canal of the organ.

A word here may not be amiss concerning the Langenbeck operation for hysterectomy. This operation, as I understand it, consists in the removal of the uterus entire with the sole exception of its peritoneal coat, which is not violated at any point

save at the two utterly inconsequential Fallopian orifices; in other words, to employ a somewhat inelegant metaphor, of skinning the uterus from its neck to its dome without buttonholing the hide. It is perfectly clear that this operation is only possible in those cases in which the work of the surgeon has been laid out for him by natural conditions beforehand: the peritoneum must be sufficiently thick and elastic to permit extraordinary pressure without rupture. Clinically, in the light of modern teaching, the operation has no advantage whatever over other methods in every-day use. I performed the first Langenbeck operation in New Mexico on December 18, 1907, the patient regaining her feet within a week. The mere wounding of the peritoneum, and of the peritoneum alone, is of no more comparative consequence than is the wounding of any other tissue.

When the peritoneum, admittedly normal, presents as many variations as the ground under our feet and the clouds over our heads, it should assuredly occasion no surprise when that membrane, distorted by pathological changes, disappears entirely as a distinct structure. Fortunately the general principles of surgery are broad enough to guide us aright with tolerable precision in all regions of the body.

COOPERATION BETWEEN LIFE INSURANCE COMPANIES AND THE PRACTISING PHYSICIAN.

By THOMAS W. EDGAR, M.D.,

NEW YORK.

IT has befallen my lot during the past several years to be engaged in the physical examining of applicants for life insurance, both as a member of the medical department of an insurance company, and at present as a free lance. During this time I have come in personal contact with many practising physicians who are doing general work, attending to the various medical and surgical needs of their clientele. I have talked with these physicians as a personal representative of the insurance company regarding information relative to applicants for insurance.

I feel that my experience has been of such a broad nature that I may discuss the attitude of the lay physician toward the insurance examiner, and express an opinion as to what cooperation exists, and why more does not exist.

Life insurance examining today is a specialty. No physician taken from the ranks of general practice is capable of performing the duties of life insurance examining any more than the general practitioner is capable of doing special work without training. The successful insurance doctor must be trained; he must be taught to appreciate the meaning of perfect health; in other words, what constitutes the "physiological standard."

His medical course plus clinical experience have instituted in his mind the pathological, at the expense of the physiological. The general practitioner has observed individuals who, in the great majority of cases, are below par physically, and he is biased in his attitude toward the physiological when it comes to a physical test. The general practitioner sees the pathological, and through this as a

medium filters his diagnosis or his opinion; while the life insurance physician sees the physiological in the great majority of cases, and expresses his opinion on a definite concrete appreciation of the normal.

Thus we have the first antagonistic phase which is acting as a bar to cooperation.

From the above we may logically deduct that the insurance physician is a specialist in health, while the general practitioner is a specialist in disease, both striving for the same goal, "health," the former trying to prevent disease, the latter to cure.

It has been my fortune often to have my diagnosis in certain cases questioned by the applicant's family physician; and I have also recommended for life insurance applicants who have been pronounced uninsurable by other physicians, this difference of opinion being due to lack of standard and not to diagnostic ability.

The insurance examiner who is devoting his whole time to insurance work (1) appreciates and estimates the degree of health present in the risk; (2) He has learned that all deviations from the normal are not pathological but exceptions to the general physiological standard; (3) His prognostic sense, which has been developed by clinical experience, mortality tables, and personal contact with many risks, comes to the front, and allows him to express a definite opinion as to just what degree the applicant is off color.

The practising physician draws a sharp line of demarcation between the physiological and the pathological, and seldom allows for deviation as fostered by environment, occupation, age, etc. He makes his diagnosis because the physical findings are not normal according to his past experience in the clinics, in the hospitals, and in his practice. Thus his standard of health is biased by the pathological, and is not of great prognostic worth so far as longevity is concerned.

For this one reason and many others, cooperation, especially in diagnosis and prognosis, is lacking between the general practitioner and the life insurance physician. It is not intentional, but simply lack of one standard or control, and until all the physicians, insurance and otherwise, look to the same physiological standard as a basis for prognosis and diagnosis, we shall have this lack of cooperation.

766 WEST END AVENUE.

Medicolegal Notes.

Privileged Communications.—On January 6, 1913, the plaintiff's husband made written application to the defendant company for a policy of insurance on his life payable to the plaintiff, the premium for which was \$13 payable quarterly in advance. In his application he declared:

"That the policy herein applied for shall be accepted subject to the privileges and provisions therein contained, the said policy shall not take effect until the same shall be issued and delivered by the said company, and the first premium paid thereon in full, while my health is in the same condition as described in this application."

At the time of making such application he paid to the defendant's agent \$2, and received a receipt therefor, in which it was stated that the payment "is in no way binding upon the said company except that said company agrees to return the amount mentioned herein in case the company declines to grant a policy on the life of said applicant."

On January 9 he passed the required medical examination and a policy was issued on January 15. The policy was handed to the applicant, but he was unable to pay the premium therefor, and the agent told him that he was not insured until the balance of the first quarterly premium was paid. From that time until February 14 the agent repeatedly called upon the applicant for the unpaid premium, but it was not paid. On the morning of February 14 the agent received the unpaid premium by direction of the applicant at the house of his (applicant's) brother-in-law. On February 12 the applicant had a cold and a slight cough. At 12 o'clock on that day he said to his employer that he was not feeling very well and might stay at home an hour longer than usual, but would be back in the afternoon. He never returned to his work. On February 13 he was attended at his home by a physician. He was then sick. He was taken to a hospital on the morning of February 14, and died there of pneumonia February 20.

The plaintiff signed a certificate in proof of her husband's death and it was delivered to the defendant, accompanied by a certificate of the physician who attended him at the hospital. In her certificate she states that her husband's health was first affected February 12, and in answer to the question "What was the cause of his death?" she referred to the physician's certificate, and she also says therein that it is agreed that the certificate of the physician "shall be considered as part of proofs of death of insured."

This action was brought upon the policy, and the defendant alleged as a defense that when the first premium was paid to the company the applicant's health was not the same as described in his application, and that such fact was not then known to the defendant. The question as to whether his health was the same as described in the application was submitted to the jury and the jury found in favor of the defendant. The judgment entered upon such verdict has been unanimously affirmed by the appellate division. There are but two questions of law presented to us by the appellant: (1) Whether it was error to receive the testimony of the physician who attended the deceased on February 13, that he was then sick; (2) whether it was error to admit in evidence the affidavit and certificate of the hospital physician accompanying the certificate made by the plaintiff as a part of the proofs of her husband's death.

The prohibition against a physician giving evidence of matters within his knowledge, relating to a patient, is statutory. It is confined to information acquired in attending a patient in a professional capacity and which is necessary to enable him to act in that capacity. Code of Civil Procedure, § 834; *People v. Koerner*, 154 N. Y. 355, 366, 48 N. E. 730; *People v. Austin*, 199 N. Y. 446, 452, 93 N. E. 57.

The code section is not intended to prevent a person from testifying to such ordinary incidents and facts as are plain to the observation of any one without expert or professional knowledge, and without tacitly or otherwise inviting or receiving confidences by which the incidents and facts are or may be brought to light and obtained. It was therefore said by Judge Earl, with the approval of all the members of this court, in *Patten v. United Life & Accident Insurance Association*, 133 N. Y. 450, 453, 31 N. E. 342, 343:

"There is nothing in section 834 which prohibited the defendant from showing that Patten was the patient of the doctor; that he attended him as a patient, and that he was sick. Nor is there anything in that section which prohibited the doctor from testifying whether he was called upon to attend Patten professionally before or after the date of the certificate, or to tell how many times he attended him, whether daily or hourly, from the 19th day of April to the 16th day of May."

When the information obtained by a physician extends to the existence of an ailment, although not the subject of his attendance or treatment, but is acquired through an examination of the patient in attending him in a professional capacity, and the discovery of which was a necessary incident to the investigation made to enable him to act in his professional capacity, it is within the language and purpose of the Code prohibition.—*Klein v. Prudential Ins. Co.*, New York Court of Appeals, 117 N. E. 942.

Military Medicine.

MILITARY MEDICINE AT THE CANADIAN MEDICAL CONGRESS.

(From a Special Correspondent.)

HAMILTON, ONT., June 1, 1918.

ON Wednesday, May 29, there was a combined general session of the Canadian Medical Association devoted to a symposium on the returned soldier problem.

The first paper, by Lt. Col. Colin Russell, C. A. M. C., dealt with psychogenetic conditions in soldiers, their etiology and treatment. Psychogenetic conditions and the subdivisions of this type of disturbance were described and their etiology studied. It was pointed out that these conditions were the result of the conflict between the natural inherent instincts and the more lately acquired control of these instincts by the higher self. Psychogenetic means literally born in the mind and such conditions represent physical and mental disability. However, the futility of a refinement of classification was obvious, and suffice it to say that as Russell stated they range from complete blindness to complete mutism. These types appeared in epidemic form and occurred at the outcome of the conflict of deficient control of congenital origin as in mental deficiency, or due to lack of proper training, also owing to the natural exhaustion of the acquired higher control under prolonged strain. The defeat of the higher control and the abolition of the critical activities of the censor rendered the patient open to suggestions that met the wishes of the conquering instinct. Trench backache was the first of these conditions to appear in epidemic form, since which various types had occurred. In but few of the cases were pathological or physical signs to be observed. They mimicked true disease. For example, in simulated convulsive seizures the movements were purposeful, differing from true epilepsy in which the movements were involuntary. Conditions of this character formerly were termed hysteria and they really were forms of hysteria simulating all kinds of disability. The war was not responsible for the initiation of these conditions but had greatly aggravated them by arousing inherent instincts. The treatment should consist in repressing the usurping instinct and stimulating the higher control to perform the duties of their office in their usual normal manner.

Dr. J. H. Elliott of Toronto in the interim between the reading of this paper and the reading of the next paper read a list of the graduates and undergraduates of Canadian universities who had given their lives for their country and for liberty in the war and delivered an eloquent eulogy on their services. While the audience stood with bowed heads Dr. Elliott recited Dr. John McCrae's immortal poem, "In Flanders Fields."

Col. J. H. Cameron, C. A. M. C., of Toronto read a paper on general surgical observations with special reference to orthopedics. He discussed chiefly the history of orthopedics, particularly making mention of the men who had shone in the branch of surgery from remote times to the present time. He also made reference to a number of interesting and peculiar surgical cases, particularly among soldiers, that had come within his experience.

Lieut. Col. Hadley Williams gave an address on the surgery of nerve injury. His paper dealt solely with the surgical treatment of the divided nerve. The majority of the cases he discussed were nerve injuries he had witnessed at the front, caused chiefly by bullets and shrapnel wounds. He emphasized the necessity of rendering the wound aseptic before attempting to repair the nerve.

The place of physiotherapy in the treatment of the invalided soldier was the subject of a paper read by Lieut. Col. Robert Wilson, C.A.M.C. He related some of his experiences in the overseas hospitals while tending the wounded and in Canada when engaged in the work of fitting the returned men to take useful civilian positions. He discussed mainly the subject of organic nerve lesions and the success of physiotherapy in relieving and curing them. He stated that in a short time a course would be instituted in Toronto University in this important branch of medical treatment for the purpose of training medical officers.

Dr. Thaddeus Hoyt Ames of New York read a paper on the prevention of war neuroses or shell shock. Although Dr. Ames had not been to the front he had had considerable experience so far as observing cases of war neuroses was concerned. He had visited frequently hospitals in Montreal and Toronto in which such cases were being treated and had conversed often with medical officers who had been at the front. Therefore, he had gained a great deal of information on the subject and considered himself competent to express definite views with regard to the causation, the prevalence and treatment of war neuroses. He stated, as a fact, that shell shock did not occur in some regiments, nor in men who suffer from organic disease. Discipline was an important factor in keeping away shell shock, the routine of discipline so dominating the mind that there was little time for introspection. But discipline alone was not a sufficient preventive. In the first instance, when men were being medically examined for the army, those should be at once eliminated who were obviously of unstable nervous temperament, and equally as a matter of course those who were mentally defective or insane. Theoretically, discipline was an efficient means of preventing shell shock, but although it did a great deal in this direction, it was not all powerful. Traumatic hysteria was practically a thing of the past due largely to the teachings of Pearce Bailey. Much of the shell shock which had occurred at the front would have been avoided had the men been told by one who understood and in whom they had faith that fear was nothing to be ashamed of. Ames emphasized the fact that neuroses were unknown in some regiments, and this absence of shell shock was largely due to medical and junior officers. Some men were able to exert control over soldiers and authorities declared that shell shock was avoidable if the men in the ranks were properly taken care of. The line officers and the medical officers could keep away shell shock. They should assume responsibility for the welfare of the men and take a personal interest in them. The lieutenants and non-commissioned officers are most closely in touch with the men, and they should make it their business as far as possible to know all about them and treat them as human beings and not merely as cogs in

the machine. Change in the behavior of a man should be reported immediately. The line officers rather than the medical officers had the best opportunities for first noticing such a change. As soon as it was observed, the man should be given some other duty or employment to interest him and every possible means should be taken to distract his thoughts from himself. Reprimanding sharply so as to cause a reaction was sometimes effective. Chatting with some, joking with others and severely criticising others all answered the purpose. The officers must be keen judges of human nature and must use whatever means they deemed suitable to the temperament of the individual. The prevention of neurosis in a regiment depended almost wholly upon the officers. The confidence of the men must be gained and they must be encouraged. The officer's object should be to induce the man to get his troubles off his mind and he should speak to him in a friendly brotherly way. Medical officers had not the opportunities of the line and non-commissioned officers for gaining the men's confidence. In a limited way they had exceptional opportunities; at sick call for example, they had the opportunity of becoming acquainted with the inward workings of the human mind. A person sick is extremely open to suggestion, and the sick soldier is peculiarly so. Moreover he believes firmly in the medical officers.

Training the body and mind kept up morale. War tended to the unleashing of the primitive conditions, and the training of the soldier was of great value in holding these conditions in check and especially the condition of fear. Soldiers could be trained to control fear in the same way that they could be trained to restrain sex emotion. They could be taught that discipline was for the good of the State as well as for their own good. Soldiers should know the cause and origin of neurosis and should be instructed by medical officers that fear is a healthy normal reaction in the presence of danger.

Dr. A. W. MacCallum of Baltimore dealt with the question of the pneumonia of army camps. He said in part, that the epidemic form of pneumonia which had been prevalent in army camps differed from the ordinary types of pneumonia. In San Antonio, Texas, the disease had been studied. Also at Camp Upton and Camp Dodge, Iowa. The disease was not lobar pneumonia, but was caused by a hemolytic streptococcus, was of bronchial form, and gave rise to empyema. It was very deadly and epidemic. The pneumococcus of lobar pneumonia was now being very closely studied. There were other types of pneumococcus in the different parts of the world notably the Rand pneumococcus. Little had been learned concerning the clinical side of streptococcal pneumonia. The condition came on often after cold, frequently after measles, which had been very common, and also after scarlet fever. Exposure to cold was a predisposing cause. It ran a rapid course, marked by sore throat, swelling of the larynx, voice affected after deep ulceration of the vocal cords, dyspnea was present, and a great difficulty in gaining breath. There were râles everywhere and tubular breathing but not very distinct. The lungs became compressed with accumulation of fluid, flatness of the chest appeared. The fluid was slightly turbid of a straw-like color,

which became brown and later purulent and thick. Treatment was by means of aspiration or by resection of ribs and washing out with Dakin's solution. All cases ended in a high mortality. No really reliable statistics were available with regard to streptococcal pneumonia but MacCallum thought the death rate was higher than the figures indicated.

At autopsy there were several distinctive physical features which clearly differentiated it from lobar pneumonia. On section of lung large nodules were found which could be felt and which resembled miliary tubercles, and, indeed, had been mistaken for them. Sometimes these nodules grew as large as peas and were firm and quite hard. Fluid accumulated rapidly, adhesions often imprisoned fluid which made aspiration difficult. After evacuation, remnants of pus and abscesses became confluent and spread widely. Induration took place, thickening of the frame work of the lungs. The rapid infiltration of the tissues suggested to MacCallum the name of interstitial bronchopneumonia. The disease has been known for some time but the idea of connecting a hemolytic streptococcus with it was new. Most extensive experimental investigations with regard to the malady had been made. Careful bacteriological studies made at autopsies had revealed the fact that in all cases one organism had been found which was recognized as a hemolytic streptococcus. The results of research as regards the streptococci had been most meagre, they were most perverse organisms to work with. They grew in long chains matted together, agglutinated spontaneously.

In the course of the disease occasionally pericarditis was present, and abscesses but no septicemia. This statement had been contradicted, for other observers had found streptococci in the blood. Interstitial bronchopneumonia was a severe infection readily transmitted by personal contact, droplet infection, or spray from nose, mouth, or throat. Sterilization did not appear to stay its spread, while mechanical sanitation was almost impossible. Other forms of prophylaxis must be referred to with caution, vaccine had been made with which to fight it, but had not been applied because the disease was on the wane and therefore the test would not be satisfactory. MacCallum said that it was not only a serious disease but would demonstrate its epidemic nature and violence among the civil population.

In the discussion that followed the reading of the paper Dr. John McCrae of Philadelphia referred to its association with measles, and said that one man associated it with measles and another stated that he had never seen the disease in association. He suggested that milk might be a source of infection because hemolytic streptococci had been found in milk. It had been suggested by Rosenan that cheese might be an agency in conveying infection. MacCallum had had butter and cheese examined with the result that no streptococci had been found. In answer to a question by Dr. McPhedran as to the possibility of establishing immunity, the speaker said that efforts had been made in this direction in South Africa and had not been a complete success because the proper strains had not been used. Experiments made at Camp Upton seemed to indicate the establishment of immunity and held out the chief hope of preventing the dis-

ease. It was conceivable that an antitoxin might be produced but, in his opinion, the greatest hope lay in a vaccine. Probably a satisfactory degree of immunity would be produced, but intense work was needed to bring this about. MacCallum again referred to the futility of using vaccine when the epidemic was on the wane. It should be applied in the autumn when the recruits were coming into winter quarters. He believed firmly that the disease was spread by personal contact, for infection increased when men were huddled together in barracks. The disease commenced at Camp Dodge among negroes, and the greater number of cases among white men occurred in the barracks adjacent to the negroes. Concentration of men and personal contact were the main causes of the spread of interstitial bronchial pneumonia.

Army Death Rate Decreases.—An announcement from Washington, under date of June 13, states that the health conditions in army camps and cantonments continue satisfactory. A slight increase in the number of cases of pneumonia and meningitis is noted, with a decrease in measles, scarlet fever, and dysentery. Deaths for the week numbered 94, against 113 for the preceding week.

New American Red Cross Hospitals in France.—On May 30 two new Red Cross hospitals were opened in France. One, known as No. 5, had 200 patients on its opening day and at the time of writing had 600, which was the limit of its capacity. The other has 350 beds and all the Americans in a certain sector will pass through it on the way to American base hospitals. The Red Cross has now more than twenty hospitals in France.

Hospital for Our Navy in London.—Mrs. Edward Frederick Guest, the wife of one of the members of the British Parliament, has turned over to the American Red Cross her residence in Park Lane, known as Alford House, to be used as a hospital for the men of the United States Navy. Mrs. Guest was formerly Miss Amy Phipps of Pittsburgh.

New Military Hospitals in New York.—The War Department has taken over the ten-story building at the northwest corner of Lexington Avenue and Twenty-second Street, just completed by the city for the Manhattan Trade School for Girls, to be used as a war hospital. The building has a large housing capacity, having been built at a cost of \$700,000. The New York Homeopathic and Flower Hospital has plans for converting the adjoining six-story factory building which it recently purchased, into a hospital for wounded soldiers. It is estimated that the changes in the building and the equipment will cost \$100,000, and that when completed accommodations will be provided for 300 soldiers. Ground was broken, on June 10, for the McDonough Hospital, at 18 West 133rd Street, which will be used exclusively for negro troops. It will be a regulation hospital and contain 200 beds. Dr. Charles N. Dowd of the Roosevelt Hospital will head the surgical department. Dr. Howard C. Taylor and Dr. William Healy will be on the staff temporarily. All the nurses will be negroes.

Reopen Summer Home for War Hospital.—Mrs. Katherine Flower Kip of South Orange has opened her summer home at Leek Island, Canada, as a

hospital for returned wounded soldiers of the Dominion. Dr. Medford Runyon of South Orange will continue as head surgeon.

Expenditures on Army Hospitals.—A report from Washington shows that during the past six months \$25,173,417 has been spent by the Government on additions and improvements to the various hospitals of the army. Five hundred bed additions have been built to the hospitals of Camp Dodge and Camp Gordon at a cost of \$550,000. Additional two-story ward convalescent barracks are being provided at National Army and National Guard base hospitals, adding from 300 to 900 beds to each hospital. The total estimated cost of this construction is \$9,179,000. At each National Army cantonment two regimental infirmaries have been erected at an estimated cost of \$334,000. A dental infirmary operating building has been erected at each of the National Guard and National Army cantonments. Eye, ear, nose, and throat clinics have also been erected at each cantonment at a total cost of \$139,000. An additional 1,500 bed-hospital is now nearing completion at Camp Merritt, which will cost \$1,115,000. The engineer's training camp at Belvoir, Va., will soon have a 500-bed hospital, costing \$1,125,000. Construction in progress at the United States Army General Hospitals includes the following: Additional buildings at the Walter Reed Memorial Hospital at Washington, to cost \$773,400; a 1,000-bed tuberculosis hospital at Denver, Col., costing \$1,720,000; a 1,000-bed tuberculosis hospital at Azalea, N. C., costing approximately \$1,325,000; a 120-bed hospital at the Norfolk Quartermaster Terminal, costing \$205,000; a 1,500-bed hospital has been erected at Colonia, N. J., costing approximately \$1,612,000. At the United States General Hospital No. 6, at Fort McPherson, Ga., additional two-story quarters for nurses, accommodating 150, are being erected at a cost of \$88,700. A hospital for the care and education of blind soldiers is being erected at Hospital No. 7, at Roland Park, Md. A new tuberculosis hospital is under construction at Otisville, N. Y., which will accommodate 650 patients and which will cost approximately \$957,000. The Hospital at Fox Hills, N. Y., which is nearing completion, will accommodate 1,762 patients. At General Hospital, No. 14, at Fort Oglethorpe, Ga., two-story convalescent barracks are being erected which will give additional accommodation for 1,000 men. Nurses' quarters are in process of construction at all the army camps which will cost approximately \$1,000,000. This does not include all of the hospital construction work that is under way.

Dr. Henry Keller of New York has sailed for the Orient with the Palestine Medical Unit.

Austrian Red Cross Nurses Unfed.—Red Cross nurses attached to the hospital at Kirchendorff have informed the Austrian military authorities that the hospital will be closed unless the nurses are given adequate food, according to reports printed in Austrian newspapers and forwarded from Amsterdam by the Exchange Telegraph Company. The nurses, it is added, have been obliged to steal the rations intended for their patients in order to live. Some of them were caught and imprisoned for their thefts. The military authorities have promised relief.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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ETIOLOGY OF SCARLET FEVER.

FROM time to time articles appear in medical literature on the etiology of scarlet fever, our knowledge of which has not been materially advanced in two decades. Owing to the widespread distribution of the disease and the frequently severe complications which accompany it, scarlet fever has been the object of extensive investigation by many eminent authorities, but very little information has accrued in regard to the exact nature of the *materies morbi*. Up to the present time no specific bacterium or demonstrable virus has been isolated which will satisfy all of Koch's original postulates. Early researches in this direction soon brought to light the fact that the streptococcus was an organism found with remarkable constancy in the throats of those afflicted with the infection. This soon led to the belief that some form of streptococcus was the actual cause, an idea that gained some measure of support when this organism was found in the blood stream of malignant scarlet fever cases. Subsequent work proved, however, that the streptococcus *per se* is not the inciting factor, but it does play an important role in the production of complicating conditions such as otitis media, swollen glands, heart and kidney involvement and other lesions of an acute inflammatory character. The streptococci isolated from scarlatinal anginas are not different from those obtained from many other sources, so far as cultural and morphological peculiarities are concerned.

In 1904 Mallory discovered in the skin of individuals dying from scarlet fever a rosette-like body which he was inclined to regard as protozoan in nature. Duval working along the same lines was able to find similar bodies in five cases which he examined. Since this time no adequate explanation of the significance of these bodies has been given. Two years ago Mallory and Medlar described a bacillus which they found in the bronchial mucosa, crypts of the tonsils, and on the soft palate, and to which they gave the name of *Bacillus scarlatinæ*. They were also able to culture from the tonsils and throats of scarlet fever patients a bacillus morphologically resembling the one they found in post-mortem material. Their description of the organism suggests a resemblance to the diphtheroid group of bacilli.

As yet no work has appeared establishing the etiological relation of such an organism to the disease. The great obstacle encountered is the production of the human homologue in animals.

Recently the subject was revived by Pryer and Kelly (*Jour. Lab. and Clin. Medicine*, Feb., 1918) who became interested in the problem from the standpoint of blood bacteriology. Once more the diphtheroid bacillus is incriminated, for the authors state that they were able to isolate from the blood a bacillus belonging to this heterogeneous group, in 79 per cent. of the cases of scarlet fever studied by them. What is more illuminating is the fact that they obtained presumably the same organism from the blood in one case of measles, two cases of diphtheria, and in six normal persons whom they used as controls. This bacillus was found to be non-pathogenic for the usual laboratory animals. In one fatal case of scarlatina, a coccobacillus was obtained from the blood, which possessed weak pathogenic powers, killing mice after four days. The authors are shrewd enough not to claim to have discovered the cause of the disease in this protean bacterium. It is evident that the status and distribution of the diphtheroid group are not definitely settled. By some workers these bacilli are regarded as saprophytic in their biological relationship to human tissues; by others they are considered as rank contaminations and of no pathological significance. In this connection one is reminded of the canard that was foisted upon an unsuspecting medical public a few years ago when it was announced that tubercle bacilli could be found in the blood of a large percentage of individuals infected with tuberculosis. An attitude of scientific scepticism should be adopted nowadays toward any organism purporting to be the specific cause of a disease of obscure etiology unless it will stand the acid test. In view of what we already know of the biology of the diphtheroid bacilli it would seem highly improbable that any member of the group could be the etiological agent of scarlet fever. It may be possible in the near future to place the infection among those caused by filterable viruses. At any rate this phase of the problem has not been so assiduously cultivated as the more tangible domain of pure bacteriology.

EVOLUTION OF OUR KNOWLEDGE OF VERRUGA PERUANA.

DR. ARCE, professor of tropical diseases in the University of Lima, writes on this theme in the *Anales de la Facultad de Medicina*, for January-February: The epidemic which attacked Pizarro and his followers is no longer believed to have been the disease in question despite a few points of similarity. The best evidence in favor of dualism is the silence of all records on verruga peruana up to 1764, when Bueno first alludes to it as a local malady "not always benign." In 1815 Unanue, the founder of the medical school in Lima, gave a short account of "las berugan" as a malady epidemic in certain regions of

Peru. In 1845 Tschudi, the traveler, termed it a fatal malady believed to be due, like goiter, to the use of certain mountain springs. So far it was evident that two separate clinical entities, benign and malignant, were known by a common name. In 1852, a student, Malo, wrote his thesis on the subject. It was an excellent first hand study. The author had never seen an example of contagion and showed that the disease could end in recovery or death.

Articles appeared at somewhat long intervals on the cause and nature of the disease concerning which numerous opinions obtained. In 1870 the construction of a railway from Lima to Oroya was responsible for an epidemic incidence and diffusion of the disease to new localities, and thus "Oroya fever" came into use as a designation, and the identity with the epidemic verrugas was lost for the time. Foreigners seem to have been attacked for the first time and the mortality was high, hundreds dying monthly. A commission appointed by the Government reported that a pernicious form of malaria was largely at the bottom of the epidemic despite its eruptive manifestations. Individual qualified observers insisted that the epidemic was one of verrugas. There is no doubt that Oroya fever possessed analogies with both pernicious malaria and the eruptive disease, verrugas, and a common cause was evoked for two maladies of widely differing clinical manifestations.

The situation remained confused until 1885 when Carrion, a medical student hero, inoculated himself with the discharge from a lesion of verrugas, and proved that the disease was identical with Oroya fever by dying of the latter in 18 days after the inoculation. Ten years before Pancoros had upheld the inoculability and identity of the two diseases, but without proofs.

In 1889 Patron advanced the view that the epidemic of verrugas which attacked Pizarro's band was Oroya fever, but the arguments were not convincing even if somewhat plausible. In 1899 Tamayo succeeded in transmitting the disease from man to the dog and in the same year Hercelles attributed transmission to the human race to mosquito carriers. Opinions as to the actual germ and the histological status of the specific lesions differed notably. The association of a granulomatous or neoplastic process with a special blood state was noted. Anemia was characteristic of the disease.

A vast amount of work now appeared on the subject from savants of all countries interested in tropical medicine. As a result the mosquito carrier theory seems to have been proven, but the alleged parasitic causes—notably the *Bartonella*—have not been fully shown to be such. The identity of benign endemic eruptive verrugas with Oroya fever has been firmly upheld.

MOBILIZATION PSYCHOSES IN THE SWISS ARMY.

UHLMAN refers to the well-known fact that at the outbreak of a war there is a general alteration in

the psyche of the entire community and an increase of psychic morbidity in both the military and civilian population. A contingent of psychoses also follows mobilization of an army even in peace times. The Swiss troops were mobilized at the outbreak of the present war and the author by communicating with the heads of the insane asylums obtained data as to the number of psychoses during and for several months following mobilization which were the direct result of the latter. There is of course no one cause for war psychoses but the content tends to have a military coloring and the type of the mental alteration is severe. Fear effects are common—a man fears that he will be thought a spy or traitor or deserter and expects to be shot.

In the first ten days of August about 250,000 troops were called out and 32 were evacuated to insane asylums. From August 1 to December 31 the total number of such evacuations was 151. In other words, the reaction due to mobilization was soon followed by equilibrium. Monthly figures show a steady decline and a curve for the five months' period shows a sharp rise which culminates August 10 and is followed by a short sudden and a long gradual fall. Among the mobilization psychoses those due to alcohol are always well represented and of the 151 cases 35 were of this origin. The proportion is especially high in the older men of the landwehr and landsturm—12 cases out of 39. The proportion of alcohol psychoses in the marching troops was 20 per cent. It would, however, be unfair to regard all such cases as examples of delirium tremens for subjects with endogenous psychoses may drink to excess. It is almost certain that some of these cases should be credited to dementia precox. All of these alcohol psychoses were chronic. The author has no single classification of dementia precox and follows the asylum diagnoses, which evidently are not patterned throughout on Kraepelin's classification. We find 61 cases of dementia variously termed katonie, hallucinatory, paranoid, and hebephrenic, which doubtless jointly answer to dementia precox, and adding the 35 alcoholics obtain a figure that represents two-thirds of all the mobilization psychoses. Others are as follows: Manic depressive insanity, 7; melancholia, 3; exhaustion psychoses, 2; paranoia, 1; progressive paresis, 1. In addition to psychoses proper there were 8 imbeciles and a number of psychopathic and psychoneurotic subjects, comprising 16 with the simple diagnosis of psychopathy, 8 cases of hysteria exclusive of 2 somnambulists and 6 epileptics. There were 2 deaths exclusive of suicides. There were from 25 to 30 suicides during the five months' period but the relationship of insanity is not made clear. In about a third of the 151 cases there was an hereditary taint.

GLANDERS IN THE WILD FELIDÆ.

OF more than veterinary interest is the alleged incidence of disease due to the *Bacillus mallei* in captive lions and tigers, as well as in the domestic cat. An article on this subject is contributed by Carpano

to the *Annali d'Igiene* for February 28. The author, a veterinary pathologist received for examination last June a piece of lung tissue from the body of a tiger which had just died in the Rome Zoological Garden. The illness had been very brief, the only symptom having been anorexia, constipation, and extreme prostration. The author readily isolated from the specimen a germ known to cause hemorrhagic sepsis. A lioness in the same zoo which had been seriously ill for five days was found to have a superficial lesion a biopsy of which revealed the existence of acute glanders complicated with a pasteurellosis. Cases of glanders in lions, tigers, and leopards are by no means unknown and the disease is known to have been transmitted from the horse to the lion. Melvin in the United States has recently recognized by serodiagnosis a case in a lion belonging to a traveling menagerie. The animal presented ulcers in the nose and on the face, back, legs and feet. Twelve other lions had previously suffered from the disease. The felidæ in general, including the domestic cat, are evidently very susceptible to this contagion and laboratory cats have often been successfully inoculated. The epidemic in the Roman Zoo was traced back to 1912. The first victims were a twin lion and lioness, the parents of which were from Abyssinia. The lioness succumbed and the lion was placed in a cage with two other females and later in a separate compartment where he fell ill. At the same time a tiger and tigress fell ill and all three animals died. The infection also spread to the lionesses already exposed and then seemed to have been extinguished. The pathological report is unfinished but the author announces in the opening paragraphs that the infection was at least in part a mixed one of *Bacillus mallei* and the *B. felisepticus*.

EPIDEMIOLOGY OF 1917.

FROM a partial report in the *Office International d'Hygiène Publique* for February it appears that cholera has prevailed since January 1, 1917, in British India, the Dutch East Indies, Indo-China, Siam, the Straits Settlements, Asiatic Turkey, and the Philippines; bubonic plague in Brazil, Peru, Ceylon, China, British India, the Dutch East Indies, Indo-China, Siam, the Straits Settlements, Hawaii, and New Caledonia; and yellow fever in the Belgian Congo, Dahomey, Nigeria, Brazil, Ecuador, Mexico, and Venezuela. Quite recently the plague has also appeared in Egypt and Senegal. The chief morbidity from cholera was in Bengal, Assam, and the United Provinces, with 55,000 deaths, while in the Philippines there were 8,770 cases with 5,587 deaths. There were also many deaths in the Punjab and Burmah. In no other localities were four figures reached. The morbidity from plague was also highest in British India, reaching 590,000 cases, with 362,000 deaths. The largest contingents came from Bombay and Sind, the United Provinces, the Central Provinces, Hyderabad, and Rajputana, in which areas the figures ranged from 147,000 to 28,000. There were also many in Madras, Mysore, and Central India. There were 64 deaths in Brazil, and several hundred cases in Peru. There was but a single case reported in Hawaii. The entire morbidity of yellow fever did not exceed 150 cases, of which over half occurred in Guayaquil, in Ecuador.

News of the Week.

Epidemic in Spain Passing.—The epidemic of mysterious disease resembling grippe which recently swept over Spain is steadily subsiding, according to a recent dispatch.

Smallpox in Germany.—A recent report from The Hague quotes a neutral who has arrived there from Germany as stating that an epidemic of black smallpox is raging among the workmen of the Krupp plant at Essen with four or five fatal cases occurring daily.

Funds Needed to Care for Paralysis Patients.—The New York Committee for the After Care of Infantile Paralysis is making an appeal for \$100,000 with which to continue its work during the year 1918. The Rockefeller Foundation some time ago contributed \$41,000 toward this fund and now announces that it will give an additional \$16,000 toward the executive expenses of the committee, exclusive of treatment, transportation, and the purchase of braces. Since the epidemic of 1916 the committee has cared for 8,013 cases and 1,992 have been reported as cured. There are 4,897 cases still under treatment.

Milk for Babies and Soldiers.—Nathan Straus has planned to open five additional milk stations where milk will be sold for infants at a nominal cost and given free to soldiers.

Malnutrition in Babies.—On one day recently at the New York Diet Kitchen Association, of 66 babies examined 50 per cent. were found to be suffering from malnutrition and at least 50 per cent. had enlarged tonsils and adenoids. To remedy the conditions found at the various examination centers a house-to-house canvass of the 600,000 children under five years of age in New York City is to be undertaken. When abnormalities are found the parents will be directed with reference to having them remedied.

New York Clinic for Speech Defects.—Though only opened a few months ago, the New York Clinic for Speech Defects already has an active service embracing over 300 cases. This is the first free medical clinic to be licensed by the State Board of Charities devoted solely to the cure of defective voice and speech conditions. The clinic has as its object the cure of all forms of speech and voice disorders and the care of defective teeth, mouth or jaw conditions when such conditions are a causative factor of defective speech. It also takes care of nervous and mental conditions when such conditions are causative or associated with defective speech. In addition to the clinical work, a Central Bureau of Information is maintained which serves as a clearing house for speech and voice disorders.

Dr. Pozzi Killed.—Dr. Samuel Pozzi, the well known surgeon of Paris, was shot and killed on Thursday of last week by a former patient. The man had been operated upon by Pozzi last winter and complained that the operation had not cured him. After killing the surgeon the assassin shot himself.

James E. McBride, president of the Municipal Civil Service Commission, who was recently active in the prosecution of the abortive campaign against the Health Department initiated by Mayor

Hylan, has resigned his position in the Civil Service Commission.

Instruction in Health Work for Volunteer Workers.—In cooperation with the People's Institute, the Federation for Child Study, and the Bellevue Social Service, a course in war time training for volunteers in health work for children of school age is being conducted by Teachers' College under the auspices of the Nutritional Committee.

Hospitals Lose Bequests.—The Syracuse Hospital and the House of Rest for Consumptives will each lose a bequest of \$5,000 and the New York Association for the Blind will lose \$10,000 bequeathed by the will of Mrs. Mary Elizabeth Turnure, because the will was not admitted to probate, owing to the fact that the testator was said to be incapable of making a will at the time, the signature was said to be illegible, and the witnesses, it was believed, were not present at the time of the signature.

Society Elections.—THE FRANKLIN COUNTY MEDICAL SOCIETY (VT.), at its meeting in St. Albans, on May 29, elected the following officers: *President*, Dr. H. L. Pierce; *Vice-President*, Dr. A. O. Marton; *Secretary-Treasurer*, Dr. E. A. Hyatt.

THE FLORIDA STATE MEDICAL ASSOCIATION, at its annual meeting at Miami, on May 20, elected the following officers: *President*, Dr. F. J. Walters of Daytona; *First Vice-President*, Dr. W. P. Adamson of Tampa; *Second Vice-President*, Dr. E. Mason Smith of Chattahoochee; *Third Vice-President*, Dr. W. H. Coffee of Winter Haven; *Secretary-Treasurer*, Dr. W. R. Warren of Key West.

Obituary Notes.—Dr. JOHN MERRITT, a graduate of the Long Island Medical College and Hospital, in 1875, died at his home in Brooklyn on June 9, aged 72 years.

Dr. ERNEST V. SCRIBNER died at the Worcester State Hospital, Massachusetts, of which he had been superintendent six years, on June 14, aged 63 years. He was graduated from Bowdoin College Medical School in 1881, and was connected with the work of the Grafton and Worcester State Hospitals for many years.

Dr. STEPHEN W. GERROW, a graduate of the Castleton Medical College, in 1856, died at his home in New Paltz, N. Y., on June 10, aged 83 years.

Correspondence.

WARBURG'S TINCTURE IN MALARIA.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Dr. Beverley Robinson recently took occasion in your columns to extol the efficacy of Warburg's tincture in the treatment of malaria. His article has prompted Dr. H. Rabinowitsch to reply that its therapeutic value is due entirely to the quinine which it contains. This assertion is quite erroneous, for we all know that the proportion of quinine contained in the preparation—about one grain to each fluid dram—is far short of sufficient by itself to effect the desired result.

Experience has taught us that it is not so much the quinine as the manner of its combination with the various stomachics and carminatives that make Warburg's tincture a powerful antimalarial agent.

In the realm of therapeutics you will find a number of instances of a drug's potency being increased by properly combining it with others. For instance, a large dose of calomel is not nearly so good a purgative as a small dose triturated with bicarbonate of soda. I have always found Warburg's tincture, with its little quinine and with much of other ingredients, to be an unfailing specific for all stubborn malarial conditions.

MORRIS ZUCKER, M.D.

706 SIXTH STREET, NEW YORK.

OUR LONDON LETTER.

(From Our Own Correspondent.)

MEDICAL PRACTITIONERS AND THE ARMY RESERVE—BRITISH DELEGATES TO THE AMERICAN MEDICAL MEETINGS—TREATMENT OF WAR NEUROSES—THE PRIMARY EXAMINATION FOR THE FELLOWSHIP OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND—THE DISABLED SOLDIER AND SAILOR.

LONDON, May 24, 1918.

THE Military Service Acts of various dates in 1916, 1917 and 1918 made various calls upon and some concessions to members of the medical profession of military age, and Sir Auckland Geddes, the Director General of National Service, has now issued definite directions regulating the whole position. It was time that some such public announcement was made, for many medical men had ceased, in the kaleidoscope of official pronouncements, to recognize their place in the pattern. Sir Auckland Geddes' memorandum states that every duly qualified medical practitioner who was born after April, 1862, and who is a reservist, either by virtue of the Military Service Acts [1916-1918] or by an act of voluntary attestation, must report himself for medical examination on receipt of the usual notice in use under the Reserve Forces Acts. Such a report being required by the ministry and delivered by the doctor, the doctor will be under the usual penalties to join the colors under a calling-up notice, but need do nothing until such notice is received. The interesting point for medical practitioners of military age who are reservists—and practically all of them by this time belong to the Army Reserve, either by presumption or enlistment under one act, or by transference under another, or by voluntary attestation—is that they will receive individual notice to present themselves for medical examination. This regulation shows that it is intended to exercise care and discretion in the use of the now distinctly attenuated line of medical defense, and may be taken as an indication of the value of having, where medical matters are in question, a person in authority who has a practical knowledge of the medical profession. It must be remembered that Sir Auckland Geddes is a medical man, Professor of Anatomy in McGill University, Montreal, and lately assistant professor in the same subject in the University of Edinburgh. He is, therefore, considerably familiar with all the problems of medical life, and knows that in many cases doctors of equal age, attainment, and physique, may be very unequally placed as far as professional circumstances count. Under the new regulations no practitioner need present himself for medical examination until he receives his notice, and no practitioner will be called up until he has received a further notice from the Bureau of National Service,

giving information how to apply for any certificate of exemption which he may desire to obtain.

Sir James Mackenzie, the well-known heart specialist, Sir W. Arbuthnot Lane, and Colonel Henry Bruce of the Canadian Army Medical Corps, representing very aptly scientific medicine, progressive surgery, and medical administration, have left for New York as the British delegates to the American Medical Conferences. American leaders of medical thought will find them as ready to absorb information as to impart it, and that is a good quality for a delegate to possess.

The treatment of sailors and soldiers suffering from war neuroses, shell shock, alleged shell shock, and the allied conditions, is becoming a matter of increasing importance, and it is good to see that this fact is being recognized by naval, military, and civil authorities in the right manner. How serious the position would be if precautions were not taken to mitigate it is intimated by the estimate that of the whole of the unwounded soldiers discharged from the army one-third fall under the heading of functional neurosis. Now undoubtedly this mass of men are suffering from conditions whose result can be cured by suitable treatment, but only if the treatment is based on correct diagnosis and is administered at a fairly early date in the pathological condition. "Hysteria," using the word as conveniently inclusive, and not as strictly scientific, if treated promptly, can be readily eradicated, but the diagnosis calls for great care. If to be fooled by a pretender or a semi-pretender is a reproach to a medical man, it must be remembered that to class as an impostor a genuine sufferer is a far greater reproach. At the present moment a large number of discharged soldiers and some discharged sailors are receiving pensions, while their different palsies and contractures were undoubtedly hysterical at the commencement, and Dr. Christopher Addison, the Minister of Reconstruction, has inaugurated a movement to prevent this wrongful expenditure of public money. Here again we see the importance of having as a responsible minister one who is acquainted with the ordinary problems of professional life when medical affairs are on the tapis, for Dr. Addison, like Sir Auckland Geddes, was until recently attached to the teaching department of a large medical school. As head of the anatomy department of St. Bartholomew's Hospital, Dr. Addison was in touch with things medical for many years, and the knowledge thus gained has been exemplified in his attitude toward the medical profession throughout the stress of war. The step which is now being taken by the Minister of Reconstruction to obviate the abuse caused by regarding the functional disabilities of crowds of men as incurable has been to lay down a method of instruction for doctors, whether serving in the army, or civilians, by which they may recognize among the patients who come before them those who are suffering from uncured neurosis or neurotic relapses brought on by emotional worry. It is inevitable that this war, long-lasting, and attended with every circumstance that is calculated to try the nervous stability of all classes, should leave for a considerable time a widespread emotivity in the population. This is the sort of feeling which alike flourishes under undeserving sympathy and is inspired by the idea of a

life pension. It has now been decided by Dr. Addison, who has been in communication on the subject with Surgeon-General Goodwin, Director General of the Army Medical Service, to institute at the Maudsley Hospital a course of instruction to a limited number of medical men, civilian as well as military. The plan of the course has been laid down; it consists of lectures and practical instruction in the causation, diagnosis, prognosis and treatment of all the functional conditions of the nervous system which have so far come under medical and surgical supervision as being attributable to the war or war conditions, and the whole curriculum will be under the direction of Colonel F. W. Mott, who finds himself established, without effort and without challenge, and, since the beginning of the war, in the position of the leading neurologist of the country. It is a coincidence that the will of the late Dr. Henry Maudsley should have been proved this week, for in that will is registered his munificent donation of £10,000 toward the foundation of a hospital for the treatment of mental disease; that is to say, of the very institution where war neurosis is now to be considered scientifically.

Sir William Osler is definitely recognized in England as the most broadminded authority on medical education whom the country possesses. He appeals to the judgment of his profession, here and abroad, in a double capacity. If the academic side of medicine is considered, what can be more academic, what, indeed, more picturesquely medieval, than to hold one of the four great and ancient chairs in the University of Oxford? If the practical side of the medical profession is in question, Sir William Osler's work, first at the McGill University, and later, with added importance at the Johns Hopkins University, acclaims him as progressive in the best sense of the word. It is generally felt that when he advocates a departure he does so in the belief that along the course which he indicates the wisdom of the past can be best applied to the needs of the present and to the promise of the future. Therefore when Sir William Osler speaks he receives attention. He has lately published in the columns of *The Lancet* an open letter to the president of the Royal College of Surgeons of England calling attention to the fact that the figures just published in the journal with regard to the Primary Examination for the Fellowship of the College present much food for reflection. The figures showed that out of thirty-four candidates for the pass twenty-seven had been rejected, and Sir William Osler maintains that the system of examination must be at fault when such wholesale destruction is dealt out to what are presumably the pick of the medical schools. Surgeon-General Sir George Makins, the president of the college, has replied, acknowledging that experience of the result of the Primary Examination for the Fellowship had been for some time a source of grave concern alike to the council which manages the affairs of the College and the Board of Examiners who are themselves immediately responsible for the wholesale rejections. But Sir George Makins, senior surgeon to St. Thomas' Hospital, to which institution there is affiliated a very sound medical school, makes a shrewd point when he indicates that the institution of special

classes at the various medical schools for those students who intend to compete for the Fellowship had contributed to the fact that more unfit students nowadays than heretofore were presenting themselves for these honor examinations. For "horror" examinations those for the English Fellowship undoubtedly are, though conducted on "pass" principles. The implication is that while the examiners try to broaden the issues and to discover by their questions whether the candidate is, generally speaking, sufficiently well equipped to receive a diploma which has a very high standing, the teachers in the special classes are pinning the attention of their particular students down to details which may or may not be required of them in the course of the examination. This means that if the examination runs along the same lines as those traversed by the coach the candidate will probably get through, but if the examination departs from those lines he will probably be rejected. Sir George Makins does not say or even imply this, but that is the situation which arises definitely out of his suggestion that the "Fellowship class at medical schools is responsible for the perplexing figures over which discussion has been aroused," and many medical schools, when medical education is in the reshaping, may take this hint to heart. Sir Henry Morris, a late President of the College, who, as representative of the Corporation on the General Medical Council, made many forceful contributions to educational debates, evidently believes that far more of the blame attaches to the students than either to the system of examination or to the teachers. He suggests that a large percentage of the candidates for the First Fellowship are senior men, not working under the eye of any teacher attached to a medical school, but entering for the examination, having received the necessary certificates of attendance, at their own will and on their own responsibility. This forms a third class of candidates, as such men are of course not undergoing the ordinary instruction of any school, and are not suffering from the meticulous and disturbing instructions of a Fellowship class, and it is obvious that Sir William Osler has started an investigation that may be of considerable practical value in respect of a really complicated situation. In one direction investigation will be difficult, and yet it is a direction in which it might be fruitful. The value of passing the Primary Fellowship Examination of the Royal College of Surgeons of England is very great to a young man. Without the primary examination he cannot, of course, go in for the final examination, and without possessing the diploma of Fellow some of the higher avenues in pure surgical work will be closed to him. The temptation, therefore, to "take a shot" is very strong. In every examination the element of chance enters. Professor Edgeworth of Oxford, using the figures and replies of a difficult examination for posts in the British Civil Service as his material, has made the following deductions. Of a given number of candidates there will always be a percentage who, in the absence of momentary aberration, cannot fail; and a percentage who in the absence of phenomenal good luck cannot pass; and, somewhere between these extremes, there will be a

number of candidates so near the just acceptable line that those of them who had failed, on being re-examined immediately, would pass, and *vice versa*, those of them who had passed, on re-examination would fail. Professor Edgeworth's views have never been disputed, and the probability is that a good number of candidates for the Primary Fellowship of the Royal College of Surgeons of England enter themselves for the test on what they would call a sporting chance. Such candidates do not deserve any more sympathy than does the gambler who puts his money on an outsider; in either case if they win they cannot suggest that they have deserved their fortune; nor can they allot any blame if they lose.

The second Inter-Allied Conference on the Care of Disabled Sailors and Soldiers was opened this week by the Duke of Connaught. For the delegates Dr. Bourrillon, President of the French Committee for the care of the disabled ex-service man, spoke with great eloquence, being supported by Lieutenant-General Mélis, who represented Belgium, and Prof. Enrico Burci, who represented Italy. A well arranged and instructive exhibition in connection with the Conference was also declared open by the Duke of Connaught. The aim of the exhibition is to illustrate the work done at various military hospitals in France, Italy, Belgium, Serbia, Great Britain and her dependencies, in order to educate the sailors and soldiers whom the war has thrown back on their respective states in various plights of disablement. The problems presented and their methods of solution deserve the attention of all the allied belligerent states.

OUR LETTER FROM PARIS.

(From Our Own Correspondent.)

AIR RAIDS—RED CROSS FEEDING THE SCHOOL CHILDREN —THE FRONT LINE CANTEN

PARIS, May 8, 1918.

THE Germans are believed to have organized to bombard Paris from the air systematically and they gave us a sample of what they could do twice during the first week in March and many times since. The Paris government has built concrete walls and piled sandbags about the most prominent of the public monuments and particularly those of marble figures, impossible to restore or replace. The American Red Cross has established fixed stations and assigned ambulances which proceed to their stations at the first alarm and remain to hunt out and care for the wounded during the continuance of all raids and are rendering a service which is highly appreciated by the Government. Our men are alert, willing, and fearless and not only here but everywhere are holding to the best traditions. During a prolonged and destructive air raid (the worst since October 17 last) the men of the A. R. C. Transport Service at Nancy were able to render efficient assistance in picking up the wounded, going out soon after the first bombs fell early in the evening and continuing the work until 2 a. m.

Another item worthy of special note concerns Lieutenant William H. Sperry of the Civil Affairs Department. He, with five American soldiers, went to the freight yard and while the bombard-

ment continued they moved more than eighty cars away from the raging fire and thereby saved no end of merchandise. They moved the cars both by hand and with an engine they found deserted and which one of their number was able to run. The French authorities are very appreciative of this voluntary and prompt assistance on the part of our men. The soldiers who assisted Sperry were Corporal Thomas G. Henderson, Eugene Hufeld, Harry Tomas, Jack Campbell, and Robert Nesbitt.

Twenty-one hundred poor, under-nourished school children of the Fourteenth arrondissement of Paris, received Friday afternoon their first taste of American Red Cross food in the shape of a scientifically prepared sweetened roll made of wheat flour and rice and a bar of chocolate, replacing the 4 o'clock "goûter," discontinued since the war. Every day the "goûter" will carry a message of allied friendship and the work of supplementing the food in the school canteens will be extended to the most needy districts of the city.

Throughout Paris the Children's Bureau of the American Red Cross has established free dispensaries for the medical care of the poor children of the districts; in these clinics it was found that the children were not so much ill as badly nourished—they were not underfed, but they were not being fed the proper kind of food. The children have been forced since the war to take more and more meals outside the home because their mothers, obliged to become wage-earners for the family, cannot give their accustomed time and attention to the household. The children naturally turned to the canteens of the schools. Upon investigation it was found that the menus in these canteens, although not greatly changed since the war, were considerably decreased in quantity, and the diet—wholly insufficient—no flour, little milk, and no sugar. It is these foods, so necessary to the nourishment of the child, that the Red Cross is aiming to provide.

The first distribution of the Red Cross contribution in the Fourteenth Arrondissement was attended by much ceremony. A delegation from the Children's Bureau was conducted by M. Ferdinand Brunot, mayor of the district, the well-known philologist of the Sorbonne, to the different schools of the arrondissement, where the ladies of the delegation distributed the "goûter." In each school the children trooped down to their assembly rooms and were addressed by Mr. Brunot, who explained most graciously the motive of the gift as an expression of Allied solidarity. He told the children what the American Red Cross was and explained to the tiny ones who had not been initiated into the mysteries of geography that the food came from people who lived "away, away off, on the other side of a great big sea." At the last school he made a brief speech in English of appreciation of the work of the American Red Cross. In every instance the assembly rooms were decorated, some more elaborately than others, but all with a nice feeling for the spirit of the American alliance and in each school a reception had been prepared for the American visitors. A group of little girls in one school sang "The Star Spangled Banner" in French transla-

tion with extraordinary ability, and at the same school two small standard bearers, one with the French colors, the other with the Stars and Stripes, made speeches of welcome and allegiance. In another school a large class of girls sang "The Star Spangled Banner" in excellent English; one of the pupils made a speech of appreciation also in English, and a large poster, designed, drawn, and colored by one of the pupils, which bore the words "Merci à la Croix-Rouge Américaine," was presented to the Children's Bureau.

A front line canteen service for American soldiers will be inaugurated by the American Red Cross this week. This morning two Red Cross workers will leave Paris to establish the first hot-drink station with the American troops on the fighting front. A point was selected a few days ago by the colonel and chief surgeon of the division of the American troops who are holding the trenches a few kilometers away. Naturally the point cannot be named, but the men who are going to work there know what they are in for. One of them has served six months in the Red Cross front service with the French troops and won an enviable record. The work done for the French had only one object in view—to aid the friend "poilu," but it happens that it was the best possible preparation now that the time has come to help our own boys in the trenches.

Hot drink station No. 1 for the American troops is placed at a central point behind the American artillery, within walking distance of the communicating trenches, within firing distance of the German guns, and within gas-mask distance of the German gas. It is the last point where the soldiers halt going into the trenches and the first coming out. Here, in a little kitchen tucked beneath unobtrusive walls of sandbags and cement, the Red Cross workers will serve steaming drinks to the mud-stained tired fighters. And at a telephoned word from the trenches big Norwegian heaters will be filled with hot bouillon, and two men carrying a heater on a pole will go forward past the artillery, through the communicating trenches into the front lines.

With the French the American Red Cross has had twenty-five such stations. Sometimes the workers lived in dug-outs, often they wore gas masks. One has a dented helmet which make clear how near he came to "going West." To the poilus more than a million hot rations have been served by the Red Cross front service. The work is hard and long and the hours ungodly. It is a splendid service for any man not in the army, a man with nerve, energy, and intelligence. There is no finer. All preparations have been made to add nine new front kitchens to Station No. 1, and as fast as they are called for and as fast as the kind of men needed for the work are obtained the service will grow. There is no longer any reason for a man who cannot get into the army to sigh for action. He can get all he wants in the Red Cross front line service.

Two Americans, Mr. Herbert M. Sears and Mr. J. S. Stevens, who have been working with the canteen service on the French front, have been recommended for decorations. Another American worker has been made an honorary Chasseur

by the members of that magnificent French fighting unit. Only American citizens who are over military age or otherwise unacceptable for the army, are eligible for the Rolling Canteen Service, as it has been named. The work, however, is not easy and is full of risk and danger. The conveyors are usually kept near the front line trenches and often within rifle fire distances. It is part of their daily work to go up into the first-line trenches and distribute soup, coffee, tea, and chocolate to the brave but mud-spattered and weary "poilus."

The work with the French and American armies is under the joint direction of Mr. Barrett Fithian of California and Mr. Sanford D. Pomeroy of New York. The work will be expanded within a short time and it is expected that a number of so-called hot-drink canteens will very soon be established at a number of different points on the American front.

146, AVENUE DES CHAMPS ELYSEES.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

June 6, 1918.

1. Congenital Pyloric Stenosis. W. E. Ladd.
2. A Clinical Study of 150 Cases of Bronchial Asthma. Francis M. Rackemann.
3. The Control of Communicable Diseases. D. M. Lewis.
4. Idiopathic Epilepsy a Sympathicopathy. Edward A. Tracy.

1. Congenital Pyloric Stenosis.—W. E. Ladd advocates pylorotomy rather than the more formidable operation of gastro-enterostomy in cases of pyloric tumor. He believes that such tumors are congenital in origin and in support of this view refers to the finding by Dent and others of a pyloric tumor in the fetus. The indications for operation are: the typical story, the physical findings, loss of weight and failure to improve under medical treatment. In doubtful cases the x-ray will often settle the question. It is important of course that the medical treatment should not be continued until the baby becomes so weakened as to be a poor surgical risk. In performing the muscle-splitting operation, or pylorotomy, the muscle fibers must be thoroughly separated from the stomach to the duodenum, as otherwise a constriction will be left; and the mucous membrane must be allowed to come up to the level of the serous surface to avoid the muscle falling together again. At the duodenal end, care must be taken that the thin mucous membrane is not perforated. In true pyloric stenosis, the pylorus is hard, inelastic, and when cut scarcely bleeds at all, the cut surface being white and appearing almost like cartilage. In the milder type, which Ladd would classify as pylorospasm and in which the tumor is soft, elastic, and when cut bleeds freely, the muscular and mucous layers not separating easily, the muscle-splitting operation should not be done; indeed, Ladd believes that such cases should not be operated on at all. He sums up the result of his experience by saying that since adopting the muscle-splitting operation he has obtained a more definite picture of the characteristics of the pyloric tumor, which he believes to be congenital in origin. He recommends operation without delay in cases in which obstruction is nearly complete and considers that in doubtful cases the x-ray is valuable in deciding the advisability of operation. In his experience the use of the x-ray has been followed by no bad results. The mortality has been much lower following the operation of pylorotomy than that of gastroenterostomy, and for that reason he considers pylorotomy the operation of choice. He adds that he hopes that with less delay in operating on the cases that should be operated on, and not operating on those that should not be operated on, the results in future will be more gratifying than they have been during the last three years.

New York Medical Journal.

June 8, 1918.

1. Pneumonia and its Treatment. Solomon Solis-Cohen.
2. Self Treatment. E. E. Smith.
3. The Treatment of the Feeble-minded. William Burgess Cornell.
4. Acute Infectious Jaundice (Spirochetosis Icterohemorrhagica). Charles Herrman.
5. Antitoxin Dose in Diphtheria. Alfred J. M. Treacy.
6. Fluoroscopy in the Diagnosis of Chest Conditions. Arthur Fenwick Holding and Max Greenwald.
7. Transplantation of the Mucous Membrane of the Mouth for Various Diseases and Burns of the Cornea. Rudolf C. R. Denig.
8. A Plea for the Modified Sluder Operation. I. Grushlaw.
9. Bloodless Tonsillectomy. Paul V. Winslow.
10. Surgical Treatment of Penetrating Wound of the Thorax. H. M. W. Gray.
11. Rehabilitation of the Rejected. William Hills Sheldon.
12. Some of My Observations in France. Major W. A. Garrett.
13. Wounds of the Spine and Cord. Charles Greene Cumston.

4. Acute Infectious Jaundice (Spirochetosis Icterohemorrhagica).—Charles Herrman believes that the so-called catarrhal jaundice, epidemic jaundice, Weil's disease or Spirochetosis icterohemorrhagica, probably represent a closely related group. Clinically they are similar, the difference in the majority of cases in each group lying solely in the degree of severity. Mild, moderate, and severe or fatal cases are met with in each group. He points out that the infectious material probably enters the body through the nasopharynx, is then taken up in the circulating blood, and has a selective affinity for the bile ducts of the liver. It is probably a primary infection of the liver, not an ascending infection from the duodenum. The disease, he believes, is not due to indiscretions in diet; nor is there any conclusive evidence that the infectious material is conveyed by food or water. One type of infectious jaundice, Weil's disease or Spirochetosis icterohemorrhagica, has been shown to be due to a specific spirochete and it is not unlikely that sporadic and epidemic jaundice of the so-called catarrhal type is due to a related organism. Herrman believes that infection usually takes place by direct contact but adds that it is not unlikely that, occasionally, the infection may occur indirectly, through infected urine or fecal matter. The disease is only slightly communicable, for apparently most individuals enjoy a natural immunity. One attack renders the patient immune to future attacks. In civil life, sporadic and epidemic jaundice is somewhat more common in children, probably because they are more susceptible and have not been immunized by a previous attack. In camps the disease is most common among recruits from rural districts, because a certain number of nonimmune or susceptible individuals are brought into close contact.

Journal of the American Medical Association.

June 8, 1918.

1. The Effect of Phosphorus on Growing Normal and Diseased Bones. D. B. Phenister.
2. A Consideration of Some Dried Vegetables, with Special Reference to their Nitrogen and Calcium Content. Maurice H. Givens.
3. Intratracheal Anesthetic Machine. A. W. Adson and G. G. Little.
4. The Potency of Antipneumococcic Serum. N. E. Wayson and G. W. McCoy.
5. Feeding in Hyperemesis Gravidarum. Charles S. Bacon.
6. A Study of Four Hundred Postmortem Wassermann Reactions: Supplementary Report. Stuart Graves.
7. The Agglutination of Human Red Blood Corpuscles by Horse Serum. Herbert U. Williams and Harold A. Patterson.
8. The Urea Index as a Test for Kidney Function in a War Hospital. Reginald Fitz.
9. The Streptococcus Epidemic at Camp Zachary Taylor, Ky.: A Survey. Herbert Fox and Walter W. Hamburger.
10. A Study in War Nephritis, a New Condition Associated with Hemorrhages in the Bladder Wall and Urinary Symptoms: Preliminary Report. John P. Peters, Jr., and A. Raymond Stevens.
11. Paraffin Paper as a Surgical Dressing. Charles M. Harpster.

1. The Effect of Phosphorus on Growing Normal and Diseased Bones.—D. B. Phenister refers to the experimental work of Wegner and later observers on the effect of phosphorus on growing bones, and gives a number of roentgenographic studies of cases in which phosphorus was administered, with a description of the changes brought about by its use. He found that phosphorus affected the normal bones of children in much

the same way as described by Wegner in the case of experimental animals. The effects on enchondral bone growth were especially well marked. No definite increased transverse growth could be made out, but this, if slight, might easily escape detection by means of the roentgen ray. We noted that for some time after the use of phosphorus was stopped there was continued but less marked overproduction of bone in the juxta-epiphyseal region of the shaft, due probably either to the cumulative effect of the phosphorus or the stimulating influence of the excessive stores of calcium salts in the neighboring bone. The diseased bones showed certain variations. In osteogenesis imperfecta, the transverse growth was as strikingly affected as the longitudinal. All fractures occurring during the period of observation healed except one at the middle of the left humerus, which occurred during the period of interruption of phosphorus, an inactive stage of non-union being established before renewal of the drug. Phemister concludes that, if given early in fractures during the active period of repair, phosphorus should stimulate callus formation and ossification; in nonunion, however, when the natural reparative impulses have been exhausted, little should be expected from its use. Roentgen-ray studies of bones during the administration of the phosphorus show that, given alone, it has a marked stimulating effect on bone production and calcium accumulation in the normal zones of growth, and speak against the assertions of Schabad relative to calcium metabolism in healthy children. In the florid stage of rickets, however, phosphorus is unable to restore the power of depositing lime salts lost by the bony tissues and no appreciable effect from its administration would be detectable by the roentgen ray, although such administration may increase the amount of osteoid tissue formed. During the healing stage, phosphorus would stimulate the formation of osteoid tissue and consequently increase the amount of bony tissue formed. It must be remembered that during the healing stage of rickets, from the rapid ossification of osteoid tissue piled up in the metaphysis during the florid stage, a condition forms which roentgenologically resembles the phosphorus changes in normal bones, and that phosphorus administration would intensify this condition.

The Lancet.

May 11, 1918.

1. The Millroy Lectures (Abstracts of) on the Teaching and Training in Hygiene: Some Criticisms and Suggestions. H. R. Kenwood.
2. Tachycardia: Observations upon its Occurrence in the Enteric and other Fevers. Major H. Fairley Marris.
3. Splints for Use in Arm, Ankle and Leg Injuries, with Some Observations on Treatment. Major William Pearson.
4. Liquid-Tight Closure and the Treatment of Wounds. Captains Walter Herbert Taylor and Norman Burke Taylor.
5. On Bladder Drainage and Irrigation. James MacMunn.
6. Fistula in Ano. Why is Operative Interference so Often Ineffectual? F. Swinford Edwards.

2. Tachycardia: Observations Upon Its Occurrence in the Enteric and Other Fevers.—Major H. Fairley Marris gives the results of observation of a large number of cases belonging to the enteric group of fevers, in which he has paid particular attention to the symptom tachycardia. In some cases the tachycardia developed gradually during convalescence, in others its onset was abrupt, and others again—the minority—were conspicuous by the presence of rapid heart action throughout the disease. The method of investigation adopted by Major Marris comprised observations by polygraphic records and the study of the cardiovascular mechanism and its response to various changes. He noted the effects of sleep on the disordered pulse-rate, the length of time for which respiration could be voluntarily suspended, and the effect of changes of posture, as well as the presence or absence of signs and symptoms of heart failure. On the basis of these observations he has divided the cases into four classes and he gives a short description of a typical case of each type. In case 1 the tachycardia was observed to arise in a permanently damaged heart and was therefore cardiac in origin. This case was one of true typhoid in which the following points were noticed: occurrence of valvular disease and

of necessity a damaged myocardium; rapid heart rate throughout illness; rapid pulse rate during sleep; breathlessness always present, the maximum period of voluntary arrest of respiration never exceeding 12 seconds, whereas in healthy controls the breath could be held for from 20 to 60 seconds. The second case was one of severe paratyphoid B, in which rapid heart action and respiration were observed for four weeks; a rate of 144 per minute alternated with a slower rate of 96 per minute. This type is described by Major Marris as "phasic." In the early stages the tachycardia was observed both in waking and sleeping states and the arrest of respiration was unduly curtailed. This case Major Marris regards as of toxic origin, due to poisoning of the heart muscle by toxins generated by the infection. As convalescence was established the heart rate both during waking and sleeping states and also in the erect posture was that seen in healthy hearts, the cardiovascular system having completely recovered. The third case, of moderately severe paratyphoid A, is described as one of vasomotor tachycardia, although Major Marris states that its interpretation is uncertain. In this type the tachycardia is not cardiac in origin, the sleeping pulse, the effects of posture, and the period of arrest of respiration all being normal. In the early stages there was some dilatation of the heart due to poisoning, but the tachycardia developed during convalescence, together with sweats, tremor, cold and clammy extremities with dermatographia. The fourth case, a moderately severe case of paratyphoid B, was characterized by considerable abdominal distension during acute stages. In the early days of the disease the heart showed evidence of dilatation similar to that in case 3. The tachycardia developed when the patient got up from bed for the first time but was relieved by the application of a tight abdominal bandage, the pulse rate falling from 150 to 120 per minute—and on resuming the recumbent position the rate fell to 90 per minute. The heart itself was normal in size, sound and rhythm and the pulse rate was always slow during sleep. This type Major Marris describes as the postural or atonic, induced by the temporary dilatation of the great abdominal veins. Marris finally classifies these cases into three groups, placing types 2 and 4 in the same group—the postural or atonic. These groups are—(1) those due to cardiac lesions; (2) postural or atonic cases; (3) those due to general instability of the vasomotor nervous system. Similar observations were carried out in other febrile disorders. In the fatal cases, such as diphtheria, scarlet fever, cerebrospinal meningitis, military tuberculosis, the tachycardia was of cardiac origin, the majority of non-fatal cases belonged to the vasomotor group, and a few of the postural variety were encountered in obscure febrile disorders. As to treatment, Major Marris recommends that the first class, those of cardiac origin, should be treated as heart cases; in the vasomotor group the patients should not be put to bed but given a gradually increasing amount of exercise and massage, and in such cases the use of ammonium bromide appeared to hasten convalescence; nor should cases of the postural or atonic type be confined to bed, tonics and massage should be given, and the application of an abdominal binder was found to be of benefit in some of them. Marris then adds a description of a few cases of the vasomotor variety of tachycardia which he observed during the first few weeks after inoculation against the enteric fevers, and from which he concluded that an emulsion of dead bacilli may give rise of vasomotor tachycardia. He points out that such cases should not be regarded too lightly or returned to duty entailing arduous and sustained effort until the vasomotor mechanism has had time to regain its normal tone.

British Medical Journal.

May 11, 1918.

1. The Prophylactic Use of Quinine in Malaria: With Special Reference to Experiences in Macedonia. Captain C. H. Threadgold.
2. Interlobular Empyema and Other Surgical Complications of the Thorax. Major Walter Broadbent.
3. Cholechole-enterostomy for Construction of the Common Bile Duct following a Perforated Duodenal Ulcer. W. A. Sneath.
4. A Case of Hematidrosis. Charles T. Scott.

5. Intermittent Hematemesis following on an Injury to the Chest. Captain A. H. D. Smith.
6. The Phagocytic Response to the Introduction of Bacteria into Clean Wounds. Brevet Major W. James Wilson.
7. Perforating Wound of the Heart: Death on the Fifth Day. C. F. Wightman.
8. Loss of Head in Aeroplane Accidents. Captain J. Eaton Lascelles.
9. A Case of Syphilitic Reinfection. P. N. Pantou and A. Malcolm Simpson.
10. The Effect of Ultra-violet Rays on the Skin and Eyes. Frederick A. Johns.

1. **The Prophylactic Use of Quinine in Malaria, with Special Reference to Experiences in Macedonia.**—Captain C. H. Threadgold discusses the prevalence of malarial infection in Macedonia, both among the French and British troops, and considers the effect of the administration of prophylactic quinine both in the prevention of illness and on the general course of the disease. He shows that, other things being equal, the natives of malarial districts derive more benefit from quinine prophylaxis than do immigrants from non-malarial countries. From a study of available statistics it appears that some of the men who were exposed to infection in Macedonia escaped because they were never bitten by infected mosquitoes; or because, although infected, their powers of resistance were equal to the occasion, and no clinical symptoms ensued. Evidence points to the fact that the number of cases in which the natural resistance was reinforced by taking quinine was very limited. Captain Threadgold also states that he has come across no evidence which leads him to suppose that quinine is any more efficient in preventing relapse than it is in aborting the initial attack. As to the variably clinical results obtained from the administration of quinine, Captain Threadgold states that the key to the problem undoubtedly lies in the constitution of the patient and in his state of health at the time of infection and subsequently. Under good social conditions intermittent malaria tends to cure itself, whether quinine be given or not; but in a patient whose natural resistance is low, no marked benefit will result from the administration of the drug. Examples taken from the literature would seem to indicate that quinine may have an adverse effect on the general course of malaria, and so far as the allied armies in Macedonia are concerned, there is every reason to suppose that quinine taken daily over periods of many months has increased the severity and chronicity of the disease in a certain proportion of cases. Taking one thing with another, the available evidence indicates that in Macedonia, at any rate, the disadvantages of quinine prophylaxis outweigh the advantages. Captain Threadgold therefore concludes that small doses of prophylactic quinine—not too long continued—are of proved utility to the natives of malarial countries, both in the absence of antimosquito measures and when such measures are incomplete; and that quinine may be given with advantage to immigrants under the following conditions: (a) During short journeys when conditions with regard to mosquito prophylaxis are less favorable than usual; (b) an occasional dose after an unusually tiring day; (c) an occasional course as an additional precaution in spite of efficient mosquito prophylaxis in the case of nervous people. Speaking generally, however, it may be stated that quinine prophylaxis is usually a bad investment for immigrants in the absence of protection against mosquito bites. Captain Threadgold adds that in non-immune armies operating in highly malarial countries, although the difficulties may be great, the failure of quinine prophylaxis shows that more serious efforts must be made in the way of efficient mosquito prophylaxis and gives a few methods of procedure with a brief discussion of their value.

The British Medical Journal.

May 18, 1918.

1. Intravenous Injection in Wound Shock. W. M. Bayliss.
2. A Collective Investigation of Ten Thousand Recruits with Doubtful Heart Conditions. Preliminary Report, compiled by S. Russell Wells.
3. Epidemic Poliomyelitis (So-called Epidemic Botulism). Charles H. Melland.
4. Nephelometric Estimation of Quinine in Blood and Urine. I. J. Lipkin and W. Ramsden.
5. Sterilization of the Skin and Other Surfaces with a Mixture of Crystal Violet and Brilliant Green. Victor Bonney and C. H. Browning.

6. Myopia and Myopic Astigmatism in Relation to the Glare of Mesopotamia. Captain P. G. Doyne.
7. Padding Thomas Extension Splints by Paraffin Wax. Lt.-Col. R. Lane Joynt.
8. Recurrence of Biliary Obstruction by Gall Stone after Removal by Operation: Acute Pancreatitis: Death. John A. C. Macewen.
9. A Case of Adenoma of the Umbilicus. C. Hamilton Whiteford.

1. **Intravenous Injection in Wound Shock.**—Professor W. M. Bayliss prefers to use Captain Cowell's term "Wound Shock" rather than "traumatic" or "surgical" shock. Referring briefly to primary shock, he shows that this tends to lessen hemorrhage and that, if the patient is kept warm and quiet, the blood pressure may return to normal. Partial recovery, however, may be followed by secondary shock, to which Professor Bayliss devotes more particular attention. The actual nature of wound shock and the immediate cause of low blood pressure are still obscure. The following conditions, however, may be excluded: Yandell Henderson's acapnia; Crile's adrenal exhaustion, because adrenalin is present in excess at the onset of shock; exhaustion of the nerve centers, inasmuch as the reflexes are not diminished to any important degree except when the blood pressure has been low so long that the centers are paralyzed from oxygen want; cardiac failure; and paralysis of the arterioles or veins, especially of the abdomen, because direct observation during laparotomies fails to show any abnormal vascular distention. The explanation most in favor is an accumulation and stasis of blood in the capillaries so that it is as effectively removed from currency as it would be by bleeding—Cannon's exemia. With this deficiency of the circulating blood the blood pressure is naturally low, and as a result the tissues suffer from oxygen starvation, the vasomotor and respiratory centers begin to fail, and being directly dependent on the blood pressure, the excretion of urine and of acid and toxic products is diminished. After a careful consideration of the question of "acidosis" Bayliss concludes that it is not a serious factor in shock and that alkaline injections are not indicated. The existence of decreased bicarbonate blood content, however, is a sign of defective oxygen supply. Injections of alkaline solutions are of small and temporary value only, and the slight effect they have may well be the result of the volume of fluid introduced. Should the use of bicarbonate be thought necessary, it should be given by the stomach or rectum; it has, however, not yet been demonstrated that the symptoms relieved by bicarbonate would not be more definitely cured by raising the blood pressure. In principle it would seem to be a mistake to reduce the slight acidity in the blood, since this is of value in stimulating the respiratory center, and there is no evidence that the slight increase of hydrogen ion concentration which is present in some cases of acidosis, but not in all, is in any degree harmful in itself. The main factor in the successful treatment of shock is to ensure an adequate supply of blood—that is oxygen—to vital organs, especially of the nerve centers. Vasoconstrictor drugs cut off the access of blood to the tissues and are therefore inadvisable. It has naturally been assumed that the best means of raising the volume of the circulating blood is by means of transfusion, but, contrary to expectation, experiment has shown that a solution of gum arabic injected intravenously in most cases is not inferior to blood. The explanation of this appears to be that in ordinary conditions there is a sufficient reserve of hemoglobin to keep the tissues provided with oxygen, even with a diluted blood, provided the blood pressure is not too low and the patient is kept at rest. The nature and composition of the substitute for blood are important factors—Ringer's solution leaves the vessels in half an hour or so, and as the blood pressure then falls to its former level or even lower it is useless; hypertonic salt solutions also are of temporary value only and are liable to be followed by a greater fall in blood pressure; and the addition of calcium salts to Ringer's solution has been found to be of no advantage. A colloid with an osmotic pressure is required, and this is provided by a 6 per cent. solution of gum arabic with 0.9 per cent. of common salt. This does not leave the blood vessels or produce any bad effects, such as hemolysis, agglutination, thrombosis or anaphylaxis; it maintains the blood pressure indefinitely, and

has the advantage of easy preparation. Its value is most strikingly demonstrated after hemorrhage, and the cases reported by Captains Cowell, Drummond, and Taylor have shown its utility also in other forms of shock. It is not to be expected that it will be of avail when the bulbar centers have lost their excitability; even blood is useless in such cases. In cases where grave hemorrhage has occurred Professor Bayliss considers that transfusion of blood is the procedure to be adopted whenever possible.

Berliner klinische Wochenschrift.

March 25, 1918.

The Presence of Spirochetes in the Cecum in a Case of Multiple Sclerosis.—E. Siemerling refers to the researches of Kuhn and Steiner, who were able to transmit an inoculable disease in series to rabbits and guinea pigs. The benighted reviewer, however, prefers transfusion characterized by paralysis. An examination of the blood from the portal vein showed the presence of the spirocheta in every examination. The virus was derived from a patient afflicted with multiple sclerosis. The infective etiology of the affection is corroborated by the observations of Spittler and Dürck, who were able to incriminate malaria in some instances. The patient studied by Siemerling offered the characteristic signs of the affection, viz.: paraplegia, strabismus, disturbances of speech, intentional tremor and absence of the abdominal reflexes. He died from facial erysipelas. At autopsy numerous small foci were found in the cortex and white matter. Only two of the preparations examined in the dark chamber contained living spirochetæ. On the other hand, preparations stained with collargol or van Giesma did not reveal the organism.

Strangulated Diaphragmatic Hernia Following a Thoraco-Abdominal Wound.—Posner and Langer report the case of a soldier who recovered from a bullet wound of the thorax and abdomen. There had been a perforation of the diaphragm and a tangential wound of the spleen, followed by a pneumothorax. After this the subject was able to serve for seven months in an infantry regiment. Then, after an aspiration of the thoracic cavity, the splenic angle of the colon passed through the diaphragmatic aperture. This resulted in phenomena of intestinal occlusion, preceded by a phase of abdominal pain, although the abdominal parietes remained soft. The patient died on the operating table. In such cases the writers suggest besides radiography, which was not resorted to in their case, that it is well to take into consideration the dyspnea which accompanies the abdominal symptoms from the viewpoint of diagnosis. [The French surgeons have operated on a fairly large number of diaphragmatic herniæ from bullet wounds, and have pointed out the *rarity* of thoracic symptoms.]

Münchener medizinische Wochenschrift.

March 26, 1918.

True and False Sporadic Scorbatus.—Morawitz in the first place shows the reality of sporadic scorbatus arising in certain conditions which certainly speak against the infectious origin of the affection and are in favor of an alimentary origin. On the other hand, certain cases of purpura of the Werlhof type may be likened to scorbatus and simulate it, even so far as to include the changes in the gums. It is just to such a similarity that is due the idea of the infectious nature of scorbatus. A distinction is easy to make, however, given the case history, the clinical manifestations (therometric curve, fever being the exception in scorbatus) and the good effects or failure of suitable food. The writer has noted that the changes in the gums in scorbatus are not as constant as is generally supposed, while from the standpoint of the increase of the affection on account of circumstances arising from war conditions he declares that food restrictions have not had any marked effect. The writer has noted that scorbatus is absolutely exceptional on the occidental front [the reason for which he omits to state, and for good reason, as it would be only one more proof of plunder and ravage of the German army], while on the oriental

front the disease was quite extensive among the civil population, particularly during springtime and the beginning of summer, and he goes on to say that again in this instance the condition was not that of an epidemic, but the result of food conditions, both potatoes and beets being scanty on the oriental front after the Austro-German troops had cleaned out the country they invaded. This article concludes with the statement that canned vegetables do not prevent scorbutus on account of the necessarily high temperature required for their sterilization (one hour at 100° C. and one hour at 120° C.), which destroys the antiscorbutic ingredients, as has been demonstrated for experimental scorbutus in the guinea-pig.

Two Cases of Defibrinated Blood Transfusion.—Teske collects the blood in a heated recipient, floating on heated water. The blood is then deprived of its fibrin and injected (transplanted) intravenously. The writer advises this treatment in traumatic shock, even when loss of blood was not excessive, although he apparently has had no experience in the matter. The cases in which Teske has used it have been a post-traumatic suppurating arthritis of the knee with general mental depression and a case of serious nephritis with pulmonary edema. In the latter case the patient was better for the treatment, at least Teske thinks so, but we would add that the amelioration was only transitory.

Deutsche medizinische Wochenschrift.

March 28, 1918.

The Treatment of Tuberculosis with Friedmann's Remedy.—Strauch and Bingel are extremely skeptic as to the efficacy of this medicament. Of the thirty-nine cases of tuberculosis submitted to Friedmann for treatment only those which were considered by Friedmann to be too far advanced for his treatment showed some improvement! One other case which was treated by Friedmann showed some improvement on the day that an abscess, which had developed at the site of the injection, was incised, thus giving exit to the medicament!

The Classification of Pulmonary Tuberculoses into Categories.—Two papers are offered on this subject, the first being by H. Ribbert, who, in a pathological study, considers especially the primary localization of the tubercles in the ordinary forms of tuberculosis. The bacilli become fixed, in the first place, in the alveolæ and bronchiolæ and there produce an exudation. This is in turn replaced by granulation tissue or may even pass to the caseous state. In both the latter processes the processus extends to the surrounding alveolæ without, however, involving an entire acinous territory. The processus has a tendency to surround a bronchiolus. The writer maintains these findings in opposition to the description given by Nicol and Aschoff, who uphold the tuberculous processus has a peri-acinous localization. As conclusions, Ribbert proposes to classify the tuberculoses into: (1) Cirrhotic and cicatrizing; (2) granulo-exudative, and (3) exudative. The prognosis depends upon the diagnosis of either one of the above three classes. The writer then offers up the prayer that radioscopy may be so improved upon that one may be able to distinguish the indurating processes from those of a caseous nature. The second paper on the same subject emanates from A. Baumeister, who comes to diametrically opposite conclusions. He points out that pathological observations never satisfy the clinician, who follows the general evolution of the disease and not the description of a momentary phase. He then outlines a general plan for the classification of tuberculous patients, such for example as: (1) Indurating tuberculosis of the right median lobe with a latent tendency, or (2) pneumonic tuberculosis opening into the upper left lobe, with a progressive tendency, etc., etc.

Wiener medizinische Wochenschrift.

April 13, 1918.

The Vitamines and Their Relation to Metabolism.—R. Kleissl, referring to the considerations in his paper in the previous issue, exposes the mechanism of the destruction of the albumins during cell activity and

the part played by certain intermediary products in life in general as well as in the rather more special activity of the endocrine organs. Tyrosin, whose affinity with the thyroid and suprarenal capsule is well known, appears more especially as the most indispensable amine acids. To its absence is due the clinical picture of the "avitaminoses."

How to Recognize Old Diseases of the Ears.—M. Falta, from the viewpoint of military examination, indicates the various lesions for detecting the length of time that a lesion of hearing has been present. They are as follows: (1) Bone cicatrices of the mastoid; (2) contraction of the auditive canal, without acute inflammation; (3) red color of the tympanum, particularly behind the incus; (4) thickening or thinning of the tympanum, with calcareous deposits; (5) immobility of the ossicles; (6) dry perforation, with epithelization of the tympanic cavity; (7) cicatrized minute perforations; (8) adhesion of the tympanum to the internal wall of the cavity; (9) polypi growing in the tympanic cavity; (10) chronic rhinopharyngitides and adenoid vegetations.

Nederlandsch Tijdschrift von Geneeskunde

February 9, 1918.

Acclimatization.—De Langen and Shut of the Dutch East Indies speak first of the initial period of malaise which follows removal to the tropics. The reserves of the individual are drawn upon during the process of acclimatization. The latter must not be confounded with mastery of tropical hygiene for this is active and voluntary and is considered fully by the temporary sojourner. When things go wrong it is bad hygiene, not want of acclimatization which is most at fault. Naturally it is hygiene to guard against some of the perils incidental to acclimatization. Thus if the actinic rays are an obstacle to the latter there are means by which the danger is minimisable. In the temperate zones a man does no less—he does not expose himself directly to the noontide summer sun. In the tropics it may be necessary to remind him that his exposure to these rays is greater and more constant. This is hygiene, not a seasoning process. The pulse beat increases in frequency at the outset, but gradually becomes normal—this is a true seasoning process but of no special significance. It may remain high in the individual case and the temperature is higher by 0.7°-0.8° C than that of the native. The bloodpressure is said to be increased in the emigrant after he lands but while it is notably higher than in the native it is not high by European averages. The cholesterine of the blood seems to fall below the European standard some 50 per cent. or at least this is true of the natives. Conversely the latter have more oxidizing substances in the blood and this is true of the emigrant after acclimatisation.

Correspondenz-Blatt für Schweizer Aerzte.

February 23, 1918.

Post Operative Psychoses.—Tramer refers to the great infrequency of this condition which justifies the publication of a case. He has seen two examples during two years' service in an insane asylum. The first was in a laborer's wife with history of nervous manifestations with implication of the psyche. The latest of these had reference to an excess of religiosity during her last confinement, about seven weeks before the operation for appendicitis. Psychosis on fifth post operative day just after removal of sutures. The attack was acute, requiring incarceration. She tore away the wound dressings and had to be fed forcibly. Within a week she had to be sent to the asylum. The leading symptoms on admission were marked motor unrest, lively hallucinations with religious content, marked disorientation, sudden change of temper. These symptoms persisted for six weeks, with periods of euphoria and transitory Katatonic phenomena. At this period the content of the hallucinations became less religious and the sensorium became clearer until complete insight resulted. She was discharged cured and when seen eight months later had remained in ex-

cellent mental health despite severe exertion and an attack of jaundice. The case is summed up as follows: hereditary taint slight and probably negligible. Nervous system metastabile, presenting episodes characterized chiefly by confusion. The determination to religiosity came apparently from religious sisters who attended her during her last puerperium. The post-operative attack was perhaps traceable to the stage of excitation of the ether anesthesia for the appendix operation. She was also very anxious before operation. Her last labor, already mentioned, had been unusually severe and she had nursed her child up to the time of operation. The outbreak of the psychosis was attended with fever, the wound up to that time having been sterile. Later infection was super-added. The type of psychosis was very largely exogenous, ranging itself in part with the febrile and toxic infectious types. The second patient, also a laborer's wife, had a frank hereditary taint—in fact the unsound among her immediate kin outnumbered the sane members. She herself, however, remained intact mentally up to the time of an operation for goitre, although she had been subjected to exhaustive physical labor. Before operation she had been extremely anxious. The psychosis perhaps began at once after the intervention but did not become evident to the surgeon until the sixth day. The symptoms at first comprised catatonic excitation. The author thinks a post-operative bronchopneumonia was not the determining factor. The secondary symptoms were those of a defective mental state with prognosis fair.

Hygeia.

February 16, 1918.

Congenital Bronchiectasis with Tubercle Bacilli in the Sputum.—Bergstrand relates an autopsy case in a woman aged 24. The histological picture comprised purulent bronchitis, bronchiectasis, broncho pneumoniae abscesses with attempts at repair alongside of alveolar emphysema. The elastic tissue showed such a degree of atrophy that it could not be explained by the presence of a chronic, inflammatory process. In the lung tissue were many pin head sized, intercommunicating cavities of cystic character, the walls of which contained concentrically arranged smooth muscle fibres and were lined with cuboidal epithelium. These cavities communicated with the alveoli but not directly with the bronchi. The author believes that these spaces were of congenital origin and denies that they could be due to a chronic inflammatory process in an emphysematous lung or an acquired bronchiectasis. A prenatal (syphilitic ?) inflammatory process would account for the condition and there was moreover a suspicious lesion in an upper lobe of the lung—a coagulation necrosis resembling a gumma. Congenital lack of elastic tissue would also help to explain the occurrence of a fetal bronchiectasis. The inferiority of the lung parenchyma may also have led to a compensatory dilatation of the bronchioles. In the cadaveric sputum there were masses of acid fast organisms which were apparently tubercle bacilli. The clinical diagnosis had been pulmonary tuberculosis. These were also found throughout the lung tissue. Further studies of this germ threw doubts upon its nature. The tinctorial qualities underwent a change. They were not pathogenic to guinea pigs and the author suggests that they were perhaps only a species of streptothrix. Numerous other flora were found in the bronchi—the spirochetes and fusiform bacilli of Vincent, staphylococci, and blastomyces.

On the Significance of the Canaliculi in the Mechanism of Lacrymation.—Frieberg gives a condensation of an article written by him last year for the *Zeitschrift für Augenheilkunde*. In 1878 Krehbiel stated that fluid dropped in an eye which remained open disappeared but slowly. In the absence of winking it was simply aspirated into the canaliculi. The author takes up this claim that the latter exert a pumplike action but is undecided as to whether the role of the lacrymal sac is active or passive. He also shows that the action of winking activates the propulsive power of the tear passages.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

*Sixty-ninth Annual Meeting, Held in Chicago,
June 10-14, 1918.*

(Special Report to the MEDICAL RECORD.)

(Continued from page 1066.)

SECTION ON DISEASES OF CHILDREN.

First Day, Wednesday, June 12.

DR. LAURENCE R. DEBUYS OF NEW ORLEANS IN THE CHAIR.

Chairman's Address: Conservation of Child Life, a National Responsibility.—Dr. LAURENCE R. DEBUYS delivered this address, in which he said that a point they were very likely to forget was that they all had been babies themselves at one time, at least he felt that the medical profession forgot it, judging from the lack of interest that they evinced in the infant. The medical profession must interest itself in saving the lives of our babies because it was upon the babies that the future life of our country depended. The medical profession and the pediatricist must be the advisers of the lay public. Naturally the members of the medical profession liked to become officers in the Medical Reserve Corps and to know that they were serving their country, but the medical men who were pediatricians and engaged in child welfare work should feel that they were rendering as great a service to the country as though they were serving in the Medical Reserve Corps. We should benefit by the experience of the European countries that now recognized the necessity of keeping the birth rate as far above the death rate as possible. In order that any work might be successful the value of a proper foundation was recognized. This was equally true in the building of the nation. The large loss of life from prematurity, death *in utero*, infant mortality, and the finding of 25 or 30 per cent. of the drafted men physically unfit in some respect had centered attention on the necessity of looking to the foundation of our nation, its children. Each period of the infant's life should be looked to, the prenatal, even the pre-conceptional, the parturitional, the period of infancy, the pre-school age, the school age, and the adolescent period. That this might be done effectively, the cooperation of the lay public and its various organizations was essential, but it was equally important that their efforts should be guided by those specially skilled in caring for mothers and children. It should be understood that the physicians who give this advice and guidance should be recognized as doing a special war work. The nation lost annually, according to the most reliable statistics obtainable, 540,000 infant lives. Of these deaths it was estimated that 250,000 were preventable. We were going to try to save 100,000 of these babies. There was nothing that we could do for our soldiers at the front that would help them more than to have them feel that their wives and families at home were well cared for. Dr. DeBuys presented statistics to show that the saving of 150,000 lives would mean in twenty years an equivalent of \$3,014,000,500, according to the value placed on the life of a human being by the estimate of Dr. Irving Fisher. Later this saving would be further increased because the children saved would later become parents. Dr. DeBuys urged a uniform registration law for births and deaths which should be under Federal control. Experiences with the selective draft had brought out more strongly than ever before the need of a complete birth registration. In the child welfare work that was to be done the great responsibility lay on the pediatricians. They should openly recognize this responsibility, not as a way of disposing of the matter, but for the purpose of placing themselves in a position to take an active part in the work.

Infant Mortality Campaign in France.—Dr. PAUL ARMAND-DELILLE of France presented this communication, in which he reviewed the history of child welfare work to show that before the war in France, as in all countries, infant welfare work was being carried on in an extensive way, and that infant mortality had con-

tinued to decrease until the time of the war. Since the beginning of the war they had again noted an increase in their infant mortality rates. Not only had France long taken an interest in infant welfare work, but since 1846 it had taken an interest in prenatal work. In the above named year a great philanthropist of Mulhouse, in Alsace, founded the Association for Pregnant Women, which gave an indemnity during the period of confinement and nursing to the working women of the manufactories. The women gave a small amount of money annually which was increased by charitable gifts and this formed a fund which permitted of all the participants having at the moment of accouchement the services of a physician and of a midwife, and also the receipt of an allocation which permitted the woman to remain at rest for some weeks after confinement. This measure had caused a decrease in infant mortality. France possessed two laws destined for the protection of early childhood. The first, the Loi Roussel, aimed to protect children placed by their parents in nursing homes. Every child confided to a wet nurse, to an ordinary nurse, or to another woman for care, came automatically under Government supervision. A second law, that of Senator Paul Strauss, was adopted shortly before the war, in June, 1913, with the addition of certain amendments in June, 1914. This law had to do with the protection of the mother during her pregnancy and with the mother and child during the first four weeks after birth. It permitted the mother to have complete rest and to begin the nursing of her child under the best circumstances. The Government also provided a certain allocation for mothers during the first four weeks preceding and following confinement. There also existed a law for the aid of large families. Dr. Delille also described the Consultations de Nourisson, founded by Paul Budin, which had now become very popular throughout France. Only three things were necessary for the creation of a consultation de nourisson, a balance, or scales, a milk sterilizing apparatus, and a physician. There was generally one other essential factor, and that was the visiting nurse. Since the beginning of the war "Chambres d'Allaitement," or "Rooms for Nursing," had been established in the munition factories and were made obligatory. In each factory there were set aside one or more rooms, well aired and kept perfectly clean, where the women brought their children in the morning and where they went to nurse them during the day. There was also added a room for the sterilization of milk and a play room for the older children. In connection with this there were dining rooms for mothers and for the children where a meal could be procured at very slight cost and where suitable menus for mothers and for children were served. There was also an isolation room for children who were ill. After describing a number of institutions in different parts of France that were engaged in caring for infants and children, the essayist described the conditions that had come about since the war as the result of taking all the medical men between the ages of 25 and 50 years and of diverting much money that formerly went to child welfare work to immediate needs of war work. In 1917, they found themselves in particular difficulties in their reorganization of the fight against infant mortality. At that time the American Red Cross arrived in France, with its special department, the Children's Bureau. After having responded to the immediate needs at Toul, Nesle and Evian, the American Red Cross had organized the Infant Welfare Exhibit at Lyon. This had met most astonishing success. At the same time they had organized a course for the training of visiting nurses. The director of Public Hygiene, in the Ministry of the Interior, was entirely disposed to cooperate with the Red Cross. His administration would institute an investigation in order to establish not only the list of existing organizations interested in child welfare work, but would indicate the districts where the need was most urgent and would assist in the reorganization in the various departments, cities, and communities. Dr. Delille also told of the care that was being given the tuberculous in France and more particularly the provisions that were made for taking children from families in which there was open tuberculosis. The results of this work had been most encouraging. In a series of children investigated, of those left with tuberculous

parents 40 per cent. died and among those surviving the morbidity was 60 per cent., while among children removed from homes in which tuberculosis was present the mortality was only 0.02 and the morbidity 0.05. A number of institutions in which bone and joint tuberculosis were treated by the Rollier method were described.

A Report on Children in the War Zone.—Drs. JULIUS P. SEDGWICK and N. O. PEARCE presented this paper, which was read by Dr. Pearce, in which they told of their work among the refugees in France. Dr. Sedgwick had first been located in a Red Cross hospital at Toul where he had the care of 200 refugees. This they were forced to evacuate, as several of the children were victims of gas and they were under daily bombardment. The conditions under which the refugees were forced to live were described. Sometimes twenty-five or thirty women and children occupied one small, poorly ventilated room, and the food, though plentiful, was of poor quality. Of the first 200 cases they had handled, 93 per cent. of the fathers were in the Army, 13 per cent. of these fathers had been killed, and 5 per cent. were prisoners. Of these children 95 per cent. were breast fed. A comparison of these children with the averages for American children showed that the American children were taller. The French children had somewhat larger heads, probably due to slight rickets in early life. Forty-one per cent. were affected more or less severely with rickets, judged by American standards, and 46 per cent. were undernourished. Sixty-one and one-half per cent. had impetigo. It was interesting to observe that the French children were vaccinated against smallpox in three places, and 95 per cent. of the children gave a history of vaccination. The percentage affected with other conditions was as follows: Hydrocephalus, 1 per cent.; conjunctivitis, $7\frac{1}{2}$ per cent.; inflammation or discharging ear drums, $14\frac{1}{2}$ per cent.; defective teeth, $43\frac{1}{2}$ per cent.; enlarged tonsils, 47 per cent.; adenoids, 25 per cent.; enlarged cervical glands, 41 per cent.; enlarged epitrocler glands, 15 per cent.; Harrison groove, 50 per cent.; marked rosary, $8\frac{1}{2}$ per cent.; Despine's sign, $22\frac{1}{2}$ per cent.; hearts normal in outline, 100 per cent.; heart murmurs, 5 per cent.; scoliosis, 33 per cent. This was attributed to the fact that the children had to perform heavy tasks beyond their strength. In 32 per cent. there were exaggerated knee jerks. There was very little tuberculosis among these children, less than one-half of 1 per cent. This same percentage had been maintained among other groups of French children.

Children's Year Program for Child Conservation in War Time.—Dr. GRACE L. MEIGS of Washington, D. C., outlined the plans of the Children's Bureau. She said that the foreign countries, which had been at war for three and one-half years, had realized almost from the first that the preservation of the lives of babies, children, and their mothers was war work of the utmost importance. Effort along the lines that had proved successful in peace times had been redoubled during the war in most of these countries in spite of great difficulties encountered, the fact that so many physicians and nurses had been called into military service, and that popular interest had been diverted to war work which made a more dramatic appeal than did the child welfare work. After outlining the plan of organization by which the Children's Bureau was conducting the present campaign, Dr. Meigs stated that the first feature on the program, the weighing and measuring, had excited considerable interest, about 5,000,000 families having been enrolled. In many localities there had been an increase in the number of infant welfare stations. In closing Dr. Meigs said she believed that later on the infant welfare work would be considered one of the great lines of progress that had been developed from the war.

Medical Work Among the Civilian Population in France.—Dr. WILLIAM PALMER LUCAS described the work he had been engaged in in France and gave a lantern slide exhibition which brought out in a vivid way the condition of the people and the work that the American Red Cross was doing. They had first organized the Central Hospital Unit, where they had to begin with 50 children and later 200 hospital beds, of which 20 were for maternity cases. He had also been stationed at Evian, where the repatriates were returned to

France from the occupied territory of France and Belgium. They came around through Switzerland and were mostly old men and women and little children, or women with young children who were unable to work. All other women and men between the ages of fourteen and fifty-five were kept in by the enemy. At Evian Dr. Delille was responsible for the most wonderful organization in the world for protecting France from the introduction of contagious and infectious diseases by these refugees. They received steadily from 500 to 600 refugees daily, and all these were given a bath and had their clothing sterilized in an autoclave. They had a large isolation hospital for contagious diseases where they had had from 1,200 to 1,400 cases, and among these only 2 per cent. cross infections. The beds were separated merely by linen sheets. This spoke well for the efficiency of American nurses. At Evian, where the repatriates were coming in and being reunited to their families, the work was most dramatic, but Dr. Lucas said the most of the work he had been doing was the ordinary work that was to be done in a civilian population where the doctors had nearly all been taken away. The work among the civilian population was increased because of the war. For instance, in Lyons before the war the population was 450,000; it was now 800,000 and there were no new housing accommodations. Before the war there were 5,000 women in the munition works; to-day there were 800,000 women in the munition works. Dr. Lucas said he had been no more inspired and impressed by the men at the front than by the fine spirit shown by the women workers in these munition factories. They were determined and uncomplaining, and there was no discouragement shown. The result of these conditions, however, would be to still further decrease the birth rate of France. The birth rate was now 40 or 50 per cent. below normal. That meant that every baby saved was from 50 to 100 per cent. more important than before the war. One of the finest features of the work they were doing was the keeping of the most wonderful card index in the world which enabled them to keep track of every refugee and to give information regarding their families. Dr. Lucas described the clinics that had been started in the larger cities and the traveling dispensaries and traveling exhibits that were being sent to the smaller towns. He told of the great Child Welfare exhibit that had been given in Lyons in April and the enthusiasm with which it was received. At the opening representatives of the Church and State were present, and the French people were doing all they could to cooperate with the American Red Cross. Dr. Lucas showed the posters being used in the Child Welfare campaign in France, told of the interest that the American soldiers were taking in the French children and that some companies were assuming the responsibility for one or more French children. The Red Cross was doing a great work in sustaining the morale of the French people, and if it were doing nothing more than this, though as they all knew it was doing much more, it would amply pay for all effort and money expended in carrying on the work.

Dr. RAYMOND HOOBLER of Detroit said that if the war continued our women would have to go into the industries also and that we would be confronted with the same problems as France was now attempting to solve; it was therefore the part of wisdom to get to work at once and not wait until the load became too heavy before getting under it. He suggested that it would be a good idea if each of them would go home and see to it that in towns where there were factories the Board of Health took a census of all the women in the factories and would put the communities in which factories were located in a position to care for their women workers and their children. The crèches in connection with the munition factories that Dr. Delille had described were worthy of imitation.

Dr. EDGAR J. HUENEKENS of Minneapolis emphasized the importance of proceeding immediately to extend the child welfare work that we were now doing into the smaller towns and rural districts as well as in the larger cities.

Dr. LAWRENCE T. ROYSTER of Norfolk, Va., urged the taking of a census in every community of all the children and keeping records so that each child could be followed through infancy, the pre-school and school age.

Dr. CHRISTISON of St. Paul disapproved of the way in which the work was being carried on by the women's committees and stated that he knew of one place where an osteopathic woman physician was in charge of the work. He expressed his surprise that the Bureau at Washington had not been more energetic in seeking the assistance of recognized pediatric authorities and the cooperation of the local health boards.

Dr. MEIGS, in closing, said that the Bureau had sought the cooperation of the State Health Boards and the pediatricists, but the children's specialists thought the weighing and measuring was not accurate enough and had not encouraged it. She admitted that it was not all that they desired, but said that it served to focus public attention on child welfare work which was so vital at the present time. She did not think it was necessary for American women who had small children to go into munition factories at the present time, and urged that they remain at home and do a greater service for their country by giving their young children the care they required.

Dr. LUCAS said the conditions in France were such that the women had to go into the factories, that it was not a matter of choice with them but of grim necessity. He believed that the pediatricians should encourage this work that the Children's Bureau was doing and take more interest in the sociological and economic side of child welfare work.

Clinical Supervision of the Well Baby During Its First Year.—Dr. HENRY H. YERINGTON of San Francisco presented this paper, in which he called attention to the lack of constructive work in the ordinary clinic. He described the plan of organization of the clinic with which he was connected, the pediatric clinic of Stanford University, which permitted one man to follow the cases through their treatment. In commenting on the need of supervision for the well baby, the speaker stated that a few years ago in a foundling asylum in San Francisco the mortality was 59.7 per cent. They closed the institution and boarded the infants out, and the mortality dropped to 12.5 per cent. With more careful supervision they had reduced that mortality to 2.57 per cent., whereas the mortality for the city of San Francisco as a whole was 8.7 per cent. They had conducted the clinic for well babies since last September. The clinic included a prenatal clinic, maternity service, outpatient clinic, the hospital and the follow-up system. In this clinic there was a very close association of the prenatal and adolescent work. Complete records were kept by a social service worker, and careful supervision of the patients was carried out in reference to home surroundings, the milk supply, etc. The social service department during the time the clinic had been in operation had made 2,146 visits. Of 290 cases cared for in the maternity hospital 67.8 per cent. returned to the clinic for supervision of the babies. The babies were brought to the clinic once a week for the first three weeks, once every two weeks from the third to the sixth month, and once a month from the age of six months to one year. They had found their babies a little above the average weight at birth. In determining whether the mother's supply of milk was sufficient for the baby they had found that the examination of the breast milk was of slight value compared with the clinical signs of a diminished milk supply. Modified milk was given when breast feeding was impracticable, and cane sugar was used with either maltose or dextrose. A very generous diet was given and both the caloric and percentage methods taken advantage of in this work. They felt that they were organized for a big work in the campaign against infant mortality.

Dr. WAHRER of Madison, Iowa, said that a few years ago a clinic for well babies would have appeared foolish, for what could a well baby want with a clinic? What appeared foolish in one generation became a real necessity in the next. Thus it was that we progressed. He compared conditions at the present time when every mother was supposed to get care during the period of pregnancy with conditions thirty-five years ago, when the doctor seldom saw the woman until she was in the second stage of labor. When a man was called out in those times in a remote rural district he did not know whether he was going to find a broken leg or a confinement case. Fortunately those remote rural districts were becoming very rare, and the mothers were being

taught that they should seek advice early in pregnancy.

Dr. HERMAN SCHWARTZ of New York said that he had had a well baby clinic in New York for the past twelve years. During that time they had taken records of about 11,000 babies, and they had the actual social histories of about 10,000 families in New York. The histories of these 10,000 families had been collected by the same social worker and were essentially accurate. Interesting statistics in regard to this series of cases were cited which showed that of 20,000 pregnancies that occurred in these families 5,000 of the babies died, a loss of 25 per cent., as the result of miscarriage, still birth, and infant deaths. The rate of miscarriages was 80 per 1,000 pregnancies, and the infant death rate 126 per 1,000 births. From all causes there was a death rate of 178 per viable pregnancies.

Report of Three Years' Clinical Experience with the Feeding of S. M. A. (Synthetic Milk Adapted).—Dr. HENRY J. GERSTENBERGER of Cleveland presented this communication, in which he reported the practical and clinical results of feeding about 400 infants with S. M. A., an artificial food which was different from other previous artificial milks in that for the first time it represented an attempt to adapt the fat of the artificial milk to the fat of woman's milk. The synthetic milk consisted in a combination of skim milk, milk sugar, and homogenized cod liver oil. The children were under the supervision of several clinics of Cincinnati. Of these infants 74 were removed from the food before the sixth week of feeding for various reasons, such as because the mothers were not carrying out instructions or were able to nurse the babies again. A few discontinued the use of the food because it was claimed that it caused dyspepsia, but these children were not under the writer's observation, and he had never seen an instance where this food caused dyspepsia. There were 311 cases that received the S. M. A. for more than six weeks. Of these 11 died, but in all instances the cause of death had no relation to the food. The stools in approximately 80 to 85 per cent. were normal, and in 10 to 15 per cent. constipated. In other words, entirely different than the stools obtained by Bahrdt with Friedenthal milk and by Schloss with his adapted milk containing milk sugar. This observation proved that Schloss' assumption that the high lactose content of the food was responsible for the dyspeptic stools, the lack of appetite, and the vomiting, could not hold good. In 11 babies from 12 to 34 weeks on the S. M. A. the hemoglobin determination remained normal. The electrical excitability in every instance remained normal. The average gain in weight per week compared favorably with that of normal breast-fed infants. Charts presented showed the details in this respect. The measurements showed that the babies grew like normal breast-fed infants. It was possible to obtain perfect nutritional results as far as they knew to-day without the aid of butter fat in a food, if that food was similar to breast milk in its protein. The feeding was not accompanied by rickets, spasmophilia, or anemia. This milk pasteurized would produce scurvy unless an antiscorbutic was administered. A practical advantage of using the S. M. A. milk lay in the fact that it enormously simplified infant feeding, especially in prophylactic dispensaries and infant welfare stations, inasmuch as it required only a change in quantity, so that the physician really fed his infants as if he were feeding breast milk.

Dr. JOHN ZAHORSKY of St. Louis said that he had been working on the same problem, that of increasing the amount of fat in skim milk used for infant feeding. He recalled that he had read a preliminary report before the section in which he related his experience in using swine fat as a substitute for butter fat, but he had not used completely skimmed milk. He felt that if they had a good percentage of fats in the milk fed to infants they would not have to have so much carbohydrate. In feeding lard the vitamins were lacking and these had to be supplied. Dr. Zahorsky said he thought Dr. Gerstenberger's artificial milk was better than the one he had experimented with.

Dr. ISAAC ABT of Chicago asked why they should try to devise a milk of this kind when they were getting good results with the various milk modifications that they had now.

Dr. FELLMAN of Milwaukee asked the essayist if he

had considered what effect simply adding codliver oil to a regular milk formula would have. He had found that simply adding the codliver frequently caused the child to gain and that had been done without emulsifying the oil.

Dr. WAHRER said we must not be captious or hypercritical. A milk which would be as easily adapted to the needs of the infant as this one was said to be capable of doing was the thing they had all been seeking, and they had not hitherto found it. It sounded like a beautiful dream; now the only thing that was needed he thought was to standardize the babies. He feared that was where the trouble would be found to lie. That was where the great trouble had always lain; we did not know how to standardize babies.

Dr. HERMAN SCHWARTZ of New York said he would like to have Dr. Gerstenberg tell a little more definitely what the indications were for the use of this milk. It was easily made, the cost was trifling, and as a substitute food it would have certain economic advantages. He would also like to know how long it remained fresh, and what the clinical results were in dyspepsia and intoxication.

Dr. GERSTENBERGER, in closing, said that in reply to Dr. Abt's question he did not agree with him that the simple milk modifications were always applicable. There were many instances in which it was very difficult to find a suitable milk modification, and it was almost impossible to find a milk modification that infants under one month of age took well. Of the children fed on modified milk mixtures there were not 95 per cent. doing well. A goodly percentage of the children fed on those mixtures had slight rickets, and the results were not as good as in breast feeding, when the milk was modified. This preparation came the closest to breast milk of anything they had yet used. In reply to the question as to what a homogenizer would cost, Dr. Gerstenberger said the cost was about \$1,200, and the cost of the milk was less than that of certified milk. So far as the practical results were concerned, he had been using it for three years in practical dispensary work, and he thought he had collected enough evidence in favor of this food to feel safe in advising its use. The milk was made of about one-third skimmed milk, 7 per cent sugar, and 3 per cent. fat.

Digestion of Fat by Gastric and Intestinal Ferment.

—Dr. JAY I. DURAND of Seattle presented this communication. He briefly reviewed some of the literature in reference to the digestion of fat by the gastric and intestinal ferments and described the method which he used in making his experiments, a modification of the Trauber method. He concluded as follows: (1) Stomach lipase followed by pancreatic lipase gave an increased rate of splitting over that given by either alone or both simultaneously. (2) The pancreatic lipase was destroyed during the action or so combined that its rate of action was greatly retarded. (3) This fact rather than any preparatory change in the substrate by the action of the gastric lipase probably explained the finding. (4) The duodenal lipase action was retarded when in the presence of gastric juice. (5) Duodenal lipase in an equal quantity of duodenal juice was 250 to 500 times as active as the gastric lipase in an equal quantity of gastric contents, when taken by the method used in the experiments.

Lumbar Puncture in Meningeal Hemorrhage of New Born.—Dr. JULES M. BRADY of St. Louis read this paper, in which he reported three cases of a series of nine meningeal hemorrhages in which lumbar puncture as a therapeutic agent was employed. In one case the convulsions were temporarily abated but infant developed Little's disease and died at the ninth month. In the other two cases lumbar puncture brought about a cure. One child was now three years of age; the symptoms were so typical that no mistake could be made in the diagnosis. Thirty c.c. of pure blood were removed by the needle on lumbar puncture. The distentions of the fontanelle receded, the infant became quiet, and there was no return of the convulsions. Its development to date had been perfectly normal. The third infant was now one year of age, the symptoms were mainly respiratory, but there were no convulsions. Four lumbar punctures were made in as many consecutive days and 240 c.c. of bloody spinal fluid removed. The recovery of the infant was a matter of the greatest

wonderment to all who saw it. To-day there was no evidence of spasticity of the infant's extremities or any mental impairment. These two infants belonged to the type of infratentorial hemorrhage which was not amenable to craniotomy as the hemorrhage was not accessible. In all cases of suspected meningeal hemorrhage lumbar puncture should be performed, as even in the supratentorial type of hemorrhage some blood cells must be found which would assist in making the correct diagnosis. In the infratentorial type of hemorrhage not only would there be almost a certainty of clinching the diagnosis, but the measure might be of definite therapeutic value, even resulting sometimes in a perfect cure.

Dr. FRANK C. NEFF of Kansas City said it seemed to him that this paper had brought up an important subject in connection with their present efforts to reduce the number of preventable deaths among infants. Intracranial hemorrhage was not rare at all in the newborn, although as a rule the pediatricist was only called to see infants with this condition when it was too late, and as a consequence we often had idiocy, palsies, and other conditions that could not be remedied. In acute meningeal hemorrhage certainly a correct diagnosis was of great value at the time it occurred, and this served to emphasize what they all knew, namely, that the pediatrician should have the supervision of the baby from the time of birth. If a surgical procedure was to be employed, it was essential that the diagnosis should be made early. Lumbar puncture was of great importance as a diagnostic measure, and blood would be present in the spinal fluid or not according as to whether the hemorrhage was above or below the tentorium.

Dr. FOOTE of Boston said that, without wishing to slander any other members of the profession, he thought the causes of intracranial pressure were not well understood by the general practitioner. Some only looked for these hemorrhages after forceps operations. They occurred frequently, however, in two classes of cases, after a long labor in which there had been a great deal of pressure, and in a class of cases in which there was no special condition to account for the hemorrhage. He believed that not all cases were due to maternal causes, and there were cases in which the hemorrhage was not from the meningeal artery but was simply an oozing due to a great permeability of the blood vessels. There was no question that these cases were greatly helped by relieving the intracranial pressure, and that lumbar puncture was a great aid as a diagnostic measure. In these cases it did not harm to use a blood coagulant or even to resort to transfusion.

Dr. NEFF of Kansas City referred to the use of pituitary extract and its effect on the newborn. He said he personally had seen more than one death from meningeal hemorrhage in cases in which this substance was used, and he thought that it should be put down as a cause of intracranial hemorrhage.

Dr. LANGLEY PORTER of San Francisco emphasized the fact that pituitrin might be a cause of meningeal hemorrhage.

Dr. DAVIS of Dallas, Tex., said he had seen some six or seven cases of meningeal hemorrhage in the newborn, and some four or five had come to operation. They were opened through the suture. It was possible to have the hemorrhage above the tentorium and yet not have a bulging fontanelle.

Dr. LAWRENCE ROYSTER of Norfolk said that one could not rely upon the bulging of the fontanelle as an indication in meningeal hemorrhage in the newborn; there was a boardlike feel that was more common than the bulging, regardless of where the hemorrhage was.

Dr. BRADY, in closing the discussion, said there was no question that bulging of the fontanelle was frequently absent in meningeal hemorrhage, but when it was present it was a sign that made one feel very certain of his diagnosis. Sometimes the patient would lie listless and deathly pale. Nothing was said about lumbar puncture in the textbooks; if this procedure would cure some of these cases they should know about it. If one found only a few blood cells in the spinal fluid it would indicate that the hemorrhage was high up, and then the surgeon was rather in the dark as to how to proceed, but it seemed to him that an incision

through the coronal suture was better than the operation that Cushing advised.

The Significance of Infection of the Accessory Sinuses of the Nose in Infants and Children.—Dr. ALBERT H. BEIFELD of Iowa City presented this paper. He stated that there was a possibility that the tonsils and adenoids, as a source of infection, was overemphasized. In the course of clinical investigation in cases of chronic deforming peri-arthritis he had found that the removal of the tonsils and adenoids did not control the disease process, and the focus of infection was still to be sought. In a number of such cases the accessory sinuses had been found infected, and after the removal of the focus of infection in that locality the disease had been arrested. He believed that the frequency of sinus disease was greater than had hitherto been suspected, and that the possibility of this as a source of infection deserved more attention. The focus of infection had been found in a series of cases such as cyclic vomiting, infectious deforming peri-arthritis, asthma, persistent cough, occult temperature, chronic digestive disturbance, pyelitis, and poor general health. In order to arrive at a diagnosis in these cases an x-ray examination and exploratory puncture might be necessary. Personal environment might play a part in the infection. There were some families that might be designated as catarrhal families. He had just had an instance brought to his attention in which three members of a family had sinusitis within a very short time. The symptoms of accessory sinus disease most frequently present were chronic purulent nasal discharge, sneezing, nervous irritability, and headache. He would not advise surgical treatment until medical means had first been tried unless the condition of the patient demanded immediate surgical relief. The non-surgical treatment would bring them to a discussion of vaccines; this he would not enter upon.

Dr. ROY N. ANDREWS of Mankato said that they were not only liable to overlook sinusitis but it was possible to have ethmoid disease in children. He cited the case of a child whose tonsils and adenoids were removed but the child was not cured until the ethmoid trouble was taken care of. Unfortunately nose and throat work was done by too many people. Frequently the upper part of the tonsils were left and with them the focus of infection. Nose and throat work should be turned over to capable men, and the possibility of accessory sinus infection should be borne in mind.

Dr. JOHN ZAHORSKY of St. Louis said that in many babies and young children after the removal of the tonsils and adenoids there would be a purulent rhinitis and he would like to ask whether this was a primary sinusitis or whether it was the result of the operation.

Dr. BEIFELD said that in speaking of sinus disease he did not wish to take up any of the surgical phases. In many of the cases in which a discharge persisted after operation syphilis was present, or a secondary infection was the cause of the slow healing. Again the discharge might be caused by the fact that there was a greater congestion after the operation and this might dam back the secretions and lead to infection. In cases of respiratory infection it was always well to bear in mind the possibility of sinus infection.

SECTION ON OBSTETRICS, GYNECOLOGY, AND ABDOMINAL SURGERY.

DR. BROOKE M. ANSPACH OF PHILADELPHIA IN THE CHAIR.

First Day—Wednesday, June 12.

Enterostomy and Enterocolostomy in the Treatment of Intestinal Obstruction Following Pelvic Operations.—Dr. BROOKE M. ANSPACH of Philadelphia delivered this address. Intestinal obstruction after abdominal operation was a very distressing occurrence. Points for careful observation were: the peritonealization of raw surfaces and closure of all openings into which the viscera might slip; the avoidance of intestinal trauma by handling during operation; and care in drainage, thereby insuring avoidance of infection. Owing to deficiency in blood supply, adhesions were likely to occur and the wall of the gut thus to become peculiarly susceptible to bacterial invasion. Measures of prevention

could be summarized as embracing the most scrupulous asepsis, the avoidance of trauma, and omission of too early catharsis. If the condition were immediately recognized, a very large proportion of the cases would recover. Difficulty in this early recognition was occasioned by the fact that the symptoms were often simulated by other conditions. Such symptoms as tympanites, acetoneuria, and ether vomiting were common to many other states. Three stages could be noted: the onset, the obstruction, the toxemia. Pain, distress, and vomiting, not relieved by gastric lavage or by enemata, were diagnostic signs, and if these were present, the diagnosis should be promptly made and operation performed. The second stage showed gangrene of the bowel, and in the third stage, the toxemia was acute. Often the obstruction was allowed to go 24 hours before operation. In volvulus the lesion was similar, but the condition was localized to one loop. The high type of obstruction in the small bowel was found to be much more fatal than that in the lower bowel. The toxins found their way into the blood by means of injury to the lining of the intestine; the poisons might rise from the secretory activity of the digestive glands or from bacterial activity, but as long as the mucosa remained intact they were harmless. Often, however, after the removal of the obstruction these toxic products were loosed by the peristalsis and the patient died of the resulting toxemia. In advising the operation of enterocolostomy, it was thought that this would give the bowel a chance to recover itself. In some cases the small intestine above was joined to the large intestine below. When the anastomosis was made to the sigmoid, enterotomy was not needed, but it was necessary in the case of anastomosis to the cecum. Results of the operation showed that the exclusion of part of the intestinal tract had done no harm and that enterocolostomy had a definite place in the treatment of acute pelvic obstruction.

Clinical Observations and Results of the Newer Methods of Operations in Congenital Pyloric Stenosis and Gastric and Duodenal Ulcers.—Dr. ALFRED A. STRAUSS of Chicago read this paper. Sixty-six cases surgically treated and thirty-six medically treated were reviewed. Three deaths were recorded following operation. Pyloroplasty was the method of choice, in which operation the pathological pylorus was reconstructed into the normal one. The mucosa was found infolded and was unfolded; it was shelled out and the pyloric tumor split and spread out. With simplified technique the operation lasted 10 minutes and the mortality was found to be less than 4 per cent., as compared with 30 or more per cent. with other types of operation. Immediate relief was at once apparent from the operation. The size of the tumor was in direct proportion to the age of the patient. In a 12 weeks' old baby the tumor was of considerable size. No nausea or vomiting followed the shelling out of the tumor, and the child could shortly be fed per catheter, with mother's milk. By means of the fluoroscope the differentiation between the medical and the surgical cases could be definitely made. Bismuth was placed in a bottle with the mother's milk and the baby placed on its right side to allow of the peristaltic waves being seen. These were peculiarly snakelike and characteristic in appearance. When 70 per cent. of the milk passed through in 4 hours, the case was one that could be handled medically. As regards etiology, the occurrence of peristaltic waves during fetal life, probably caused the tumor, due to stimulation of the intrinsic and extrinsic nerves of the stomach.

Hypertrophic Pyloric Stenosis in Infancy.—Dr. WILLIAM D. HAGGARD of Nashville, Tenn., read this paper. Given a case of a lusty baby boy, breast fed by a healthy young mother, and the infant, two or three weeks after birth began to exhibit projectile vomiting and loss of weight, the case was almost surely one of pyloric stenosis. The operation of choice was pyloroplasty, instead of gastroenterostomy, local anesthesia being preferable. An olive-shaped tumor would be found, projecting into the pylorus, the latter being very thick, with dense mucosa. The symptoms of the condition were the projectile vomiting, emaciation, starvation stools, and diminution of urine. The child was frequently hungry, even after vomiting. Peristalsis

was visible, often being (as described by one writer) like two balls chasing each other over the abdomen. Occasionally a certain amount of food passed the pylorus, and when this was sufficient in amount, medical treatment might be employed. If there was no improvement, operation was indicated. With early diagnosis and improved technique, the mortality could be kept down to 10 per cent. In the infant, local anesthesia was more successful than in the adult, the infant having no psychic consciousness of pain or of fear. It was unwise to delay the use of surgery too long and to use it finally as a forlorn hope. Well meant but misguided efforts at too prolonged medical treatment often denied the patient any hope of recovery. The mortality of the Ramstedt operation compared with that of gastroenterostomy was stated to be as 18 to 33 per cent.

Dr. FRANK X. WALLS of Chicago said that the degree of gastric peristalsis seen in these cases gave the appearance of tumor masses the size of golf balls passing across the stomach. The disturbance was a common one in young children; it should be called "infantile pyloric stenosis." These cases often were seen after an interval following birth, in which the child was perfectly normal, and took its food in the normal way. There were normal bowel movements. Symptoms might begin in 10 days or two weeks. There was not definite atresia, because food did pass, more or less, into the gastrointestinal tract. Osler reported the case of a child that lived till 5 years of age, with pyloric stenosis. Such children suffered from insufficiency of food, marasmus, and very often died from some other condition than that of the stenosis. The cause of the disease was not definitely known. The tumor mass had been found to exist in utero, being found in the still-born. There were also cases of spasm of the pylorus, but the spasm itself did not lead to hypertrophy. The hypertrophic musculature was subject to the same stimuli as the normal muscle was.

Dr. WELLER VAN HOOK of Chicago said that the studies presented were very beautifully illustrated. As regards surgery, they had turned away from gastroenterostomy, which was, at best, but a temporizing procedure, although at times it had given brilliant results. The operation of Dr. Strauss, on the mucosa, made possible the passage of fluid, and it could be done through a small incision. Local anesthesia was a method that should be approved, but it could also be said that children stood general anesthesia remarkably well.

Dr. ISAAC ABT of Chicago said that these cases might be either medical or surgical. He remembered when medical treatment was the vogue. A number of cases then recovered functionally under various kinds of medical treatment. The mortality was, however, extremely high. The babies treated expectantly lost considerable weight, developed toxemia, and died. If the babies lost more than one-third of their weight, they were in grave danger. It was therefore a cause for thankfulness when the surgeons instituted gastroenterostomy; but even with operation there were difficulties with the baby and with the technic. In regard to statements about the use of the x-ray, he could subscribe to what Drs. Strauss and Haggard had said. It contributed nothing toward diagnosis. If the x-ray diagnosis was made by a competent technician, however, it gave almost invaluable evidence as to the functional capacity of the pylorus. It should be done in every case so that all of the facts could be ascertained. Cases had been operated upon where, after all, tumors had not been found. Some point should be remembered: babies stood long operations poorly, therefore the surgeon should operate as rapidly as possible. Attention to the closure of the wound should be careful, as an eventration had been known to occur because of hasty closure. In regard to local anesthesia, this would depend upon what local anesthetic was used. Schleich's solution had been used with disastrous results because of the morphine content. The babies went into coma. As a rule, he thought, babies stood general anesthesia well.

Dr. JOHN W. KEEFE of Providence, R. I., said he had been interested in this subject for more than 12 years. He was glad to find that Drs. Strauss and Haggard were advocating operation at the seat of the trouble. Gastrojejunostomy was never a practical

measure. If anything, Dr. Strauss did too much. A small incision could be made, the stomach and pylorus being grasped, and with the right hand the muscle could be cut, a crescentic portion being taken from each side, and a fold of omentum could be placed across and the pylorus dropped back. This did not take more than 4 minutes.

Dr. P. B. SALATICH of New Orleans asked if a Wasserman test had been made in all these cases and had Dr. Strauss saved a specimen of the section for examination under the microscope?

Dr. STRAUSS, in closing, said that he had had no occurrence of hernia, if the wound was properly closed. The use of local anesthesia would prevent shock. Pylorospasm differed from the snakelike spasm seen in this condition. In regard to cutting a piece of muscle from each side, as had been suggested, he believed it better to have complete reconstruction; the operation, as described, lasted only 10 minutes. With the other method, there might be a chance for hernia at the age of 20 or 25 years. The tumor tissue could be utilized to cover the incision.

Dr. HAGGARD, in closing, said that the local anesthetic used was novocaine, 1/10 of 1 per cent. It was surprisingly pleasing, easy, satisfactory, and efficient.

The Relation of Anomalies of the Bile Ducts and Blood-Vessels to Accidents in Biliary Surgery.—Dr. DANIEL N. EISENDRATH of Chicago presented this paper. In this matter, the text books had not kept pace with the experience gained by the surgeon. Recent articles had quoted many cases in which the hepatic ducts had been severed. The surgeon should review his anatomy of this subject and discover what he might encounter in regard to abnormalities of the ducts and arteries. Accidents to the arteries and ducts were not usually reported and thus no experience was gained by the mistakes of the surgeon. There were three reasons for such mistakes: (1) the views in regard to anatomy were out of date; (2) anomalies of the vessels were not known; (3) the normal landmarks were often obliterated. Rio Branco and Descomps, two Frenchmen, had written admirable works on this subject. According to them, the angular junction of the ducts was found in 75 per cent. of cases, but three other forms of union had been noted: (1) the parallel type, (2) the anterior spiral type, and (3) the posterior spiral type. The parallel type could be divided into: (a) short, (b) long. In regard to arteries the anomalies were divided into those in which the hepatic artery (1) crossed the hepatic duct; (2) ran parallel with the duct; (3) made a wide arch behind the duct. The cystic artery might (1) cross the hepatic artery; (2) occur in a double form; (3) cross the common duct. The gastroduodenal artery might cross the common duct. The occurrence of a double cystic artery in one case had led to an accidental hemorrhage as the second branch had been cut unwittingly, the first having been tied off. These anomalies of the vessels and ducts undoubtedly accounted for a large number of accidental hemorrhages which occurred in biliary surgery.

Dr. W. D. HAGGARD of Nashville, Tenn., said that these studies were of extreme importance. So many pathological conditions were encountered in the gall-bladder and ducts that abnormalities should be watched for. Injuries frequently occurred in the reconstruction of the common duct, and the reason was not always plain. In one gall-bladder a little bulging at the end was taken for the ampulla; it was opened and bile and stones escaped, it seemed to be among adhesions, which were wiped off and this disclosed the opening in the duodenum. Meantime the gall-bladder had been amputated. A large hepatic duct could be united to the cut ends of the hepatic branches.

Dr. E. E. MONTGOMERY of Philadelphia said that he had had one patient with the gall-bladder removed, and gallstones then formed in the stump of the cystic duct, thus demonstrating the importance of removing the duct close to the common duct and preventing the possibility of recurrence of the condition.

Dr. J. A. ATTRIDGE of Port Huron, Mich., asked if Dr. Eisendrath had ever seen a case with no gall-bladder. He had had a patient, a young man, who had symptoms of obstruction in the common duct. The stones were removed but no gall-bladder was found. Three such cases had been reported in the

literature. The young man recovered completely and was now in the army.

Dr. EISENDRATH, in closing, said that in these cases of parallel ducts, if there was a stone in the cystic duct, there might be pressure upon the common duct, giving symptoms simulating obstruction in the common duct, and the common duct might be opened in a case of that kind. There were statistics regarding absence of gall-bladder, but he did not know the figures. He had had a case of diverticulum of the gall-bladder in which there were five stones. Such cases were called cases of accessory hepatic ducts, but the stones were actually embedded in the gall-bladder itself.

Goiter in Pregnancy.—Dr. LEIGH F. WATSON of Chicago read this paper. Exophthalmic goiter in pregnancy was stated to be rare, on account of the restraining influence of the disease upon conception. Of the toxic goiters, 7 cases had been noted with exophthalmos, and nine without exophthalmos. Goiters had been supposed to be due to pregnancy, but more probably they were due to the beginning of hyperthyroidism. The subject could be divided into different parts: (1) experimental studies; (2) clinical observations; (3) treatment; (4) case records. In regard to the first division, it was found that thyroidectomized dogs produced pups with thyroids many times normal size. Pups of mothers with colloid goiters had normal thyroids. No mother with normal thyroid gave birth to goiterous pups. In sheep with athyrosis, giving of iodine restored the normal healthy condition. In regard to clinical observations, physiological enlargement of the thyroid in pregnancy was noted more in patients living in goitrous districts, but also in non-goitrous communities, more than generally supposed. In regard to treatment, that which stopped short of removing part of the hyperplastic gland would not cure the symptoms. Operation was more dangerous during pregnancy, and unless there was obstruction to breathing should not be undertaken. Organotherapy had a place in the treatment of goiter of pregnancy. Often it was necessary to administer thyroid continuously throughout pregnancy. Not infrequently it was advisable to deliver these women by cesarean section, induction of labor being too slow. Frequently the injection of quinine and urea hydrochloride into the enlarged lobe of the thyroid would relieve the patient and result in the gradual disappearance of the goiter. Cases were reported in which treatment had given gratifying results.

Dr. JAMES W. MARKOE of New York said he did not know any subject more important than that of thyroidism in pregnancy. It treated of the very vital elements of life, and covered the safety of the child afterward. Any complication of pregnancy that might occur must be met early in the period. In 1,586 cases the speaker said he had had 132 goiters, only 8 of which were toxic or true hyperthyroid types. In 28 years he had had under supervision one hundred thousand cases and had never heard of operative interference for hyperthyroidism at this time, except in one case, in which he operated personally. The woman was expecting her ninth child. She had previously had the right lobe of the thyroid removed. During this pregnancy she was really suffering from pressure of bands across the trachea. The left lobe of the thyroid was removed with complete relief of symptoms. The speaker said he did not think the pregnancy increased the symptoms of simple thyroidism. The hygienic surroundings and treatment of the patient played a large part. The patient should be put in the open air under as good conditions as possible, elimination should be attended to, and the best possible health maintained. In regard to quinine and urea injection, it was comparable to the Mayos' work with injection of boiling water, or to injection of water and carbolic acid by Ochsner. The result of this technique might be to produce edema in the tissues, to such an extent that there might be a fatal issue. This procedure should not be done at random. If operation were necessary, cesarean section might be indicated, but, with general hygienic control, the patient might be so improved that operation would not become necessary. A certain amount of shock did attend cesarean section and this should be avoided. If all these cases were more carefully watched and the symptoms noted, they would add considerably to our knowledge of this condition.

Dr. CHARLES S. MAYO of Rochester, Minn., said that this subject was very interesting to all from the point of view of the pregnant woman and from that of the thyroid. The thyroid would manufacture substances to fill the demands of the tissues for iodine. The large soft goiters meant that the thyroid was engaged in converting thyroidal iodine for the needs of the body. In some cases during pregnancy there was a wonderful relief of symptoms, but in others the women felt worse during pregnancy. If possible the pregnant woman with a goiter should be tidied through the period of pregnancy. Often after the birth of the child the goiter would have disappeared. Crile had used injections of quinine and urea in the surrounding tissues to block nerve shock from the central zone. It would seem more logical to inject the drug into the capsule of the gland itself. It would act better than boiling water, and as well as hot water. Three patients had died from injections of boiling water. The water need not be hot enough to coagulate albumin but enough to throw off the hormone of the gland more quickly. A great many cases had to be studied before one could make a definite statement as to results. Quantitative results should be studied and this body should make notes on all cases in order to determine definitely what cases should be the ones to receive any form of surgical treatment.

Dr. WATSON, in conclusion, said that 10 to 15 minims of quinine and urea hydrochloride was given at first and repeated at 1 to 5 day intervals, according to the condition of the patient. By destroying a small portion of the thyroid the danger of swelling and edema was minimized.

Secondary Tuberculous Peritonitis.—Dr. CHARLES S. MAYO read this paper, written by Dr. WM. J. MAYO (absent on military service). Tuberculous peritonitis was not a primary disease, but had its origin in local foci of infection. The focus might be (1) in the tubes in woman; (2) in the intestinal tract in woman or in man; (3) in the lymphatic glands in children. The primary focus must be the object of search. In tuberculosis, the tubes, contrary to the state in gonococcus infections, were open at their fimbriated extremities and the tuberculous process passed out into the peritoneum. Occasionally a laparotomy would cure the peritonitis, but this was in the ascitic forms of the disease, where the local focus could not be found. In the fibroplastic and adhesive types laparotomy was contraindicated. In some cases the fimbriated end of the tube became closed and a caseated mass became packed in and walled off, resulting in a "near cure." Whether the tuberculous process passed through the vagina and uterus to the tubes, or whether it gained entrance from the pelvis was an open question. Focal lesions elsewhere than the tube were difficult to locate. Often there was inflammation of the intestine and gall-bladder, but no tubercle bacilli were demonstrated in the gall-bladder, the removal of which, however, relieved the symptoms. In 47 per cent. of the cases there was said to be infection by bovine tuberculosis. This class of cases had a more favorable prognosis than that with human tuberculosis. Adhesions were often the result of mixed infections with tubercle bacilli and pyogenic bacteria; the latter, however, being shorter lived, disappeared and left the tubercle bacilli to be discovered at operation. The cases reported showed a preponderance of females over males, whereas autopsy records showed that more males than females had the disease. Pleurisy and pericarditis might be associated conditions, a polyserositis might be present or the whole abdominal cavity might be involved. The chronic proliferative form of peritonitis was never diagnosed until the abdomen was opened. This was frequently confused with the ascitic form where the cavity contained a large quantity of fluid. In local lesions, excellent results were obtained by radical surgical procedures.

Dr. R. T. MORRIS of New York thought that not enough had been said as to the follow-up treatment in surgical tuberculosis. Patients could be sent to places with 5000 feet elevation or to the sea, but should be treated so well that other people would want to get tuberculosis. Koch's O. T. should be frequently used in these cases. Dr. Morris said he had seen one case of a young woman who rather controverted the statement as to adhesive peritonitis without fluid. She was

supposed to have an abdominal tumor, malignant papilloma. As the case was apparently hopeless, they decided to let her have the comfort of Christian Science. Next year she was well, with rosy cheeks and in good health. The specimen was only then examined and tubercle bacilli were found. Another case was diagnosed as abdominal tumor but on examination of the specimen tuberculosis was found. The primary focus was never found in these cases, but under hygienic treatment the patient became perfectly strong and well.

Dr. C. A. L. REED of Cincinnati said that there was a remedy which stood in the same relation to tuberculosis that salvarsan did to syphilis. This had been used in tuberculous peritonitis with recovery in two cases. This remedy was the cyanide of copper, as used by Dr. Kogo of Japan. Results were striking in pulmonary tuberculosis. The classical symptoms subsided within 24 hours after an intravenous injection, the cough ceased, the pus disappeared from the sputum. Tuberculosis of the joints yielded in a manner equally satisfactory.

Dr. D. N. EISENDRATH of Chicago said that he felt the same way as Dr. Mayo, until four years ago in regard to removal of tuberculous tubes. He then began to doubt whether the tubes should be removed. He had a case of a young girl, 17 years, then unmarried. She had typical tuberculous tubes. A laparotomy was done and the tubes left in place. The girl married a year later and since then had had two successful pregnancies. Dr. Mayo had said that few tuberculous appendices occurred with tuberculous peritonitis, but that had not been his experience. The attacks were sometimes months apart, but often a patient would come in with tuberculous peritonitis having had the appendix removed some months previously, but evidently the specimen had not been carefully examined for tubercle bacilli. If properly examined, the appendix would show these organisms.

Dr. H. G. WETHERILL of Denver said that the experience in Colorado confirmed that of Dr. Eisenrath. Often peritonitis followed what appeared to be a primary lesion in the appendix. He agreed with Dr. Mayo that it was unwise to drain lesions in the pelvic cavity. The peritoneum had great power of resistance and could take care of itself. Drainage might produce adhesions and tuberculous fistulae in the intestine. It was better to take no risk whatever with the drainage tube.

Dr. MAYO, in conclusion, said that operation on the true adhesive type of peritonitis did no good to the individual. These people would ultimately develop tuberculosis in some other region. Tuberculosis of the appendix was more rare than other lesions, but it certainly existed. In woman the genital tract drained into the pelvis; in man this was not so, but he suffered equally from tuberculous epididymitis. In woman nature could take care of infection of the tubes, as of a caseated gland. Were this not so more women would die of tuberculosis, trying to absorb products of large caseating masses. He had had no experience with the cyanide of copper treatment. In regard to the intestine, the ileocecal valve could not be treated as a primary lesion. It should not be confused with the appendix. The types were different, and the location of the lesion should be separated. In opening the abdomen, if the patient could be kept quiet until the fever had disappeared, he would develop his own tuberculin. All patients recovering from infection developed their own antibodies if given opportunity to do so. The surgeon must learn to distinguish between the confluent lesion and the discrete lesion.

Abdominal Visceroplexy.—Dr. J. RIDDLE GOFFE of New York read this paper. Visceroplexy undoubtedly arose from careless habits of carriage of the body and from resulting lack of muscular tone. It was attended by many evils, such as localized pain and distress, interference of function, and constipation with consequent accumulation of toxins in the body and in the circulating blood. A neuropathic condition of the patient occurred as a result. Neurologists traced the course of events as arising from various toxic conditions, such as alcoholism, fright, infections, which caused circulatory changes; and then, through the action of toxins on the autonomic nerve centers, altera-

tions in the viscera came to pass. Various forms of treatment had been proposed for this disorder. The internists sought to eliminate toxins; the orthopedic men to relieve false positions; the neurologists to cure by psychic treatment. The broad-minded surgeon should consider all these means and should seek to carry the patient beyond the point where relapse might occur. In complete ptosis nothing but surgical means would be of any avail. Lantern slides were shown by Dr. Goffe, illustrating the technique of an original method of abdominal visceroplexy which had given excellent results. Four incisions were made, one above, one below, and one on each side of the umbilicus. This treatment was used in conditions where complications had occurred, such as ptosis of liver and kidneys. Many of the patients had been under previous treatment for years and were completely relieved by this operation.

Dr. C. A. L. REED of Cincinnati said that Dr. Goffe had raised important questions in this paper. There were cases in which trauma to the abdomen was the cause of visceroplexy. Heavy weights falling on the relaxed abdomen would give rise to this condition, and jars as when a heavy woman fell striking on the buttocks. Occupational conditions such as over-long standing, lifting of heavy weights, etc., were causative factors. The resources of the internist must be taxed in these cases, but where the problem was a purely mechanical one, valuable time should not be trifled away. Gymnastic and postural treatment were preoperative measures, as was the placing of the patient in the Trendelenburg position once or twice a day to relieve the mesenteric circulation. In regard to pathological changes in the ingesta, the bacterial toxins were absorbed and the blood plasma served as a receptacle for the anaphylotoxin elaborated during the condition of stasis in the mesenteric circulation. The blood from these big black veins, when put into a guinea pig would produce shock as a result of the accumulation of anaphylotoxin in the mesenteric blood.

Dr. ROSEWATER of Cleveland said that he had had wonderful results in these cases from abdominal supports properly applied. This would bring the organs into place and no operation was necessary.

Dr. REYNOLDS of Kansas City said he thought they had been much enlightened by the fluoroscopic methods in detecting positions of the ptosed organs. One was impressed with the fact that the virginal type of ptosis was a different thing from the maternal type. The type with kinks in the viscera would cause trouble. Belts no doubt had their place, but a very good point in treatment was, if possible, to get some fat on the abdomen.

Dr. AARON of Buffalo said that one point to be noted in these cases was the congenital lack of muscle tonus. A bandage might help where properly applied and the place should be studied fluoroscopically to see where the organs were. Often after the stomach had been sewn up it would be found to be as low as it was before. Some cases were medical before operation and were medical after operation.

Dr. GOFFE, in conclusion, said that he had spoken of gymnastic treatment as prophylactic, not curative. As for abdominal and kidney belts, it was often found that the kidney slipped down behind them and the patients were worse off than they were before. The kidney got strangled by being held down in malposition.

Extending the Care of Pregnancy.—Dr. IRA L. HILL of New York presented this paper. Formerly few women had attempted to place themselves in the hands of the physician early in pregnancy. This was especially true in rural communities. In the South, both white and colored women placed themselves in the care of untrained colored midwives. Attempts were now being made to put all women under prenatal supervision, regardless of whether they expected to be attended by a physician or not. In New York City zones were mapped out in which an intensive study had been organized, with house to house canvass for pregnancies, to secure early registration. All classes were included and progress was being made. Every year in the United States 15,000 women were lost in childbirth and many more were invalided. Tuberculosis alone claimed many women of the child-bearing age. In the present crisis, child conservation was becoming of more importance. With proper care there might be a

salvage of 75,000 lives. With an expenditure of 60 million dollars, a week's trained nursing for every woman could be secured. Sixty million dollars was not considered too much to spend on heavy artillery, why not let the government spend money on a national commission to conserve motherhood. Pre-maternity hospitals should be established where difficult cases could be treated. The profession would lose none of its dignity and obstetrics none of its importance if this knowledge were spread abroad. A demand would be created for higher efficiency in this art, and better obstetrics would be forthcoming.

Dr. WILMER KRUSEN of Philadelphia said that in Philadelphia the municipal authorities had been trying to have better child hygiene, but when one listened to the broad program outlined by Dr. Hill one realized that this was not a municipal, not a State problem, but an international one. The United States now held the fourteenth place among nations in regard to the mortality among mothers. They should strive to make it the first one on the list. They had been told that there were one hundred and forty-four thousand members of the medical profession in the United States, and for these men there was no work more important than this of life conservation, both of the infant and of the mother. This was an important link in the general work of conservation now being carried on.

Dr. CARSTENS of Detroit said this paper of Dr. Hill's was an excellent one. How should his suggestions be carried out? There were various ways. Better obstetrics could be taught, the students should be required to attend cases for themselves and learn the details of management of confinement. What could the doctor do? Often the patient did not come to him till the last moment, when some excited member of the family would come running and say, "Hurry up, the woman is in labor." Just here was where education of the public was needed, by means of boards of health, doctors, and nurses, so that the woman might know that, although the process was a physiological one, she should consult her physician early in order to have the right care. Education of the public called for a great deal of paraphernalia and the suggestion of Dr. Hill that Uncle Sam do the work was the right one. Every once in a while the profession should take congressmen by the neck and give them a good shake up and make them do something for the health of the community.

Dr. STEIN of Chicago said that at the Michael Reese Hospital they had made efforts to do what had been outlined. A prenatal clinic had been established twice a week, at which 30 to 70 patients attended. Blood pressures were taken; urinalyses made, and at the first visit a complete examination of the patient was recorded. The mothers were taught to have their teeth attended to, to wear abdominal support, to leave off tight strings, etc., and the willingness of the patients to be taken care of was gratifying.

Dr. HILL said that midwives, under this scheme, had been brought under proper supervision. Another interesting fact was that the tax levied to support the Bureau of Child Hygiene in the Department of Labor amounted to \$200,000 and represented a tax of one-third of one cent per year on each inhabitant, so that it could be seen that the Government could easily raise more money without working any injustice to the community.

Uterine Inertia.—Dr. PAUL TITUS of Pittsburgh presented this communication. It was doubtful whether inertia could be classed properly as "primary" or "secondary." The question of time entered into the estimate of the matter. A primipara with an average sized baby, and a multipara with a small baby, might have labor of equal length. It was not known why 280 days should elapse before labor occurred. This time did not seem to have direct bearing on fetal life. When labor was artificially induced after premature rupture of the sac there was always more or less inertia. This might be secondary to some primary condition. True inertia was probably some inherent fault in uterine muscles tone and secondary inertia was probably exhaustion from exertion against some force encountered. In the two states, treatment was different. In inertia little was to be done, but with exhaustion, due to contracted pelvis, face presentation, etc., there were certain forms of treatment. Individuals

below par faced the strain of labor poorly, had little patience, and made a great demonstration, which, unless the physician was sure of his ground, would constitute a complication. Dry labors were supposed to be troublesome, but some of these women did have strong labor pains, and those with late rupture of the sac often did not, so that inertia was a condition of itself and not dependent upon other phenomena. In all cases of inertia, rectal examination, rather than vaginal, was recommended, in order to avoid infection. At no stage of labor should pituitary extract be used, unless after the expulsion of the placenta. In conclusion it might be said that treatment in inertia was expectant, and in exhaustion prophylactic. Treatment of exhaustion in the first stage of labor was by uterine stimulants; in the second stage, by multiple incisions of the cervix, by forceps, or by vaginal cesarean section. Retention of placental material, with or without hourglass contraction of the uterus, might occur with this condition.

Dr. R. W. HOLMES of Chicago said that the views he had held were not always in consensus with the views of the profession. The time honored classification was that of primary and secondary inertia. The secondary inertia was due to exhaustion. The primary inertia might be due to faulty involution. In some cases there was abnormality of the muscles. After repeated pregnancies the muscles lost tone. Primary inertia was extremely rare, and very few men really saw the condition. It was not the fault of the uterus, but of the contributory factors. The inertia was the effect and not the cause. There were various causes for this, such as malpositions causing abnormally weak contractions; contracted pelvis with aberrant pains; fibroid conditions, prolapsed ovaries or kidneys. These conditions meant that the presenting part could not come down. A woman might go a week with abnormal contractions and then finally labor might be quite sudden. In regard to premature rupture of the membrane, this was of little significance, but what had caused the rupture was the important thing. This cause was malposition. In Chicago the doctrine of the obstetrical misfit was not taught. It was often found that tuberculous women had extremely normal labors. The uterine muscles stayed strong until the end. The recognition and treatment of the malposition was the important point. The woman should be kept quiet, allowed to rest. The family should be kept quiet. In time, when ready, the uterus would contract. Repeated vaginal examination was a menace to the woman. The administration of pituitrin was an egregious crime. In primary atony, with or without rupture of the membrane, the point to remember was to keep hands off, and it would be rarely necessary to have operative interference. Cesarean section might have to be done in obstruction, but with primary atony never.

Dr. TITUS, in closing, said that they had all seen cases start off with force and develop into secondary inertia. These were really exhaustion. Difference in treatment of inertia and exhaustion depended upon the underlying cause. With pendulous abdomen or malposition inertia was a secondary condition. Rupture of the membrane was not due to failure of engagement of the presenting part. Rupture often occurred when the presenting part was nicely engaged. This was seen in primiparæ. Often inertia was secondary to early rupture of the membrane.

The Use and Abuse of Pituitary Solution.—Dr. GEORGE W. KOSMAK of New York presented this subject. No addition to the obstetrical armamentarium had produced so much discussion as pituitary extract. In experimental animals the drug caused marked uterine contractions. The therapeutic use of the drug was based on this fact. It increased by leaps and bounds. Most preparations were made from the posterior lobe of the gland, but some of entire gland. The reliability of some preparations was greater than that of others and manufacturers had not standardized the hypophyseal extracts. This should be done. Great exploitation of the drug was attempted by high-sounding advertisements and its use was represented to be free from dangerous consequences. These statements should be modified. As with all endocrine preparations there was great variation of the drug. Its obstetrical use should be strictly limited to cases of inertia where no obstruction existed. If used in doubtful cases to stimulate

labor, laceration of the cervix, or rupture of the uterus might result. Unless the indications were specific, very grave dangers attended the use of the drug. Pituitrin might be used where the head was engaged, in order to stimulate the head to a lower level. Forceps was to be used when the head was not engaged. In checking hemorrhage, the results were only temporary. Dr. Kasmak said that he was less pessimistic about the drug than he was about getting the profession to use it properly. The drug had a certain limited use and should be tested in small doses of one-third of 1 c.c. More could be given if found safe. In menorrhagia of young girls and in fibroid cases of older women there were indications for the use of the drug.

Dr. J. B. DE LEE of Chicago said that he was one of the first to oppose the use of pituitary extract in labor. Further experience had confirmed the opinion. Rupture of the uterus and laceration of the cervix had followed improper use of the drug. Asphyxia of the new born had been caused and the endocrinal relationships of the fetus had been disturbed. As to the use of the drug in cases of cesarean section, it should not be given after the sutures were put in, as the sudden contraction might tear the sutures out, and peritonitis follow. In true primary inertia with or without rupture of the waters pituitrin might do good.

Dr. J. L. BUBIS of Cleveland said that during the past six years he had noted bad effects from large doses of pituitrin before the child was born. He had used very small doses. In post partem hemorrhage no drug would act so quickly. As a galactagogue it was not satisfactory. In retention of urine it did not give good results. Half an ounce of sterile glycerin introduced into the bladder did away with the use of the catheter.

Dr. LITZENBERGER of Minneapolis said that he was glad to hear Dr. Kosmak sound this warning. Rupture of the uterus had occurred in many cases. Another complication was hemorrhage of the brain of the fetus. This remedy was passing through the stages through which all new remedies passed, before finding their level: (1) neglect; (2) promiscuous use by everyone; (3) exploitation; (4) stage of reaction; (5) stage of rehabilitation. The reaction often went further than it should and the climb back to favor was often slow. The drug finally found its level of usefulness. Pituitary extract had now reached the fourth stage. It should never be given before the cervix was fully dilated, except in exceptional cases.

Dr. BACON of Chicago said that there was the medico-legal aspect to be considered. In one case a practitioner was blamed because he did not use the drug, for a forceps operation resulted unfortunately. That case was easily defended, but cases in which the drug was used and in which the baby was born dead, or in which there were serious results, could not be easily defended.

Dr. W. P. MANTON of Detroit said that he endorsed the remarks of Dr. Kosmak. He taught his students to avoid the drug. He hoped in this case that the stage of rehabilitation would never arrive.

Pus in the Female Pelvis.—Dr. JOHN Y. BROWN of St. Louis read this paper. He referred to the great controversy formerly raised by the views of Tait on pus tubes. He showed that many cases ended in complete recovery. These were not the cases seen by the specialist, and patients often went on to chronic invalidism. This matter must be studied on both sides. Peritonitis following salpingitis was of rare occurrence and many cases doubtless recovered without operation. Where acute exacerbations occurred it was wiser to defer operation. Simpson recommended putting the patients to bed for three weeks without operation. It was hard for the writer to believe that multiple abscesses could yield to this conservative treatment. Incomplete work was responsible for immense amount of suffering. It would be unnecessary to discuss the technical details of this condition because each case was a law unto itself and the surgeon must work out the individual problem. The question of drainage was highly important. The coffer dam drain was of value. The intestines were lifted out of the cul-de-sac and a gauze roll inserted, the end of the gauze being brought out through a thin rubber tube. Conclusions were that many cases might recover without operation; 98 per cent. of the cases became quiescent; operative work

should not be undertaken when in the acute stage; when undertaken, operative work should be radical in the extreme.

Rectal Surgery for Pelvic Abscess.—Dr. HARRY P. RITCHIE of St. Paul, Minn., read this paper. He had found this operative route very efficient in certain cases of peritonitis where vaginal section was unsuitable. In peritonitis resulting from appendicitis early intervention was called for and where lack of hospital care was present pelvic abscess might occur and necessitate drainage. Often a secondary operation became imperative, and in these cases so disturbing to the patient and to the surgeon it was often far easier to drain by the rectal route. The points of operation were dilation of the sphincter, the incision and the insertion of the rubber tube. Repeated observations were necessary as changes might occur in a few hours. In certain specially indicated cases this operation would solve the problem.

Dr. CARSTENS of Detroit said that in appendicitis an opening in the right inguinal region was much easier. (One should have a little more faith in nature; nature would wall off the abscess and plaster the omentum and there would be no trouble in draining it. In exceptional cases only, where the abscess developed between the pelvis and bladder, this operation might be indicated. Ninety-nine per cent of cases would recover if let alone; if, later, they showed symptoms, the necessary steps could be taken. The cofferdam drain was 20 years behind the times. He could not see why one did not drain downward and open the cul-de-sac, which gave natural drainage into the vagina.)

Dr. E. MONTGOMERY of Philadelphia said that patients suffering with gonorrheal infections with masses in the pelvis often declined operation; these were apt to recover and later give birth to children. Some recovered in spite of the methods of treatment formerly considered necessary. Surgical intervention at a late stage gave better results, for then the micro-organism had died and the pus had become sterile. Sometimes vaginal section was necessary to relieve acute symptoms by lessening the accumulation. He quite agreed that there should not be drainage through the abdominal wall, if avoidable, on account of the possibility of late hernia. Vaginal drainage was infinitely preferable.

Dr. GEORGE N. THOMAS of El Paso, Tex., said that he felt the question of nationality and type of patient entered into this matter of pelvic infection. At El Paso the patients were of a low class, mostly of the Mexican race, and altogether of a different type from the average American patient. Neisser infection was very common, probably all the infections being due to this type. He thought the infections in better classes of women occurred from undue coitus and were infections through the broad ligament. These went deeper and tended downward into the cul-de-sac. There was a stage where the temperature ran normal, but if there was a rise of temperature and marked bulging of the tube, surgical procedure was indicated. Vaginal drainage was best where there was a bulging into the cul-de-sac.

Dr. M. PFEIFFENBERGER of Alton, Ill., said that in an experience of 16 years he had seen results of both conservative and of radical procedures. A condition of "nervous wreck" frequently followed panhysterectomy. With proper drainage mortality could be reduced to a minimum. In regard to incision from the rectum, it was possible to leave one abscess entirely. There might be inflammation in both tubes and one would be left. In appendix conditions one could drain through the pelvic incision. The abdominal right hand drainage gave the safest and best results.

Dr. H. G. WETHERILL of Denver said it was hard to believe that the nationality of the patient could make much difference in the pathological process. It made little difference whether the infection were Neisser or not so nice. Abdominal operations should not be done in the acute stage of these infections. These things were more or less self-limited and frequently took care of themselves so that the patients might later even bear children. The infection was limited by the biological life of the organism involved. In the light infections where considerable degree of sterilization had taken place no drainage was necessary. The thick cheesy

material could be wiped out and the wound closed with good results. Drainage, when necessary, should be made through the right pelvic canal.

Dr. B. SALATICI of New Orleans said that he did not use vaginal drainage any more. He did not operate until the fourth or fifth week. The pendulum in the treatment of these cases was now swinging the other way in the direction of conservatism.

Dr. R. T. MORRIS of New York said that in these inflammatory processes of the pelvis there was a fight between the bacterial invaders and the patient. The best way of controlling the bacterial process must be considered. Nature in time walled off the area of infection. Morphine was the drug that aided most in the development of protective resources, but, at the same time, it was one which induced habit, so that the surgeon was between Scylla and Charybdis. When it was necessary to do something quickly for the patient, opium was the safest drug to use. One grain on the tongue would be sufficient. Alonzo Clark had said, "don't measure the amount of opium, measure the respirations of the patient." This was a maxim that should not be forgotten. In the chronic stage, there was much to be done in the way of conservatism and in saving the cervix. The fibriæ at the end of the tube could be saved and to make a closure of the tube. In one case where a matter of a million dollars hung upon the possibility of the birth of a male child the closure of the tube was effected by doubling up the end. The patient had subsequently given birth to a boy. There was no use in removing the uterus or the ovary. A lot of conservative work could be done. This was the time to use deliberate judgment.

Dr. BROWN, in conclusion, said that his paper dealt with descending inflammation of the pelvis, not that above the pelvic brim. The rule in ascending infection was to operate early. It was only in quiescent cases that late operation was of use. Ovary cases were a law unto themselves. In regard to drainage from above, he agreed that many cases could be closed up without drainage at all, but the coffer dam drain was used to prevent the small intestines falling back into the pelvis.

Dr. RITCHIE, in conclusion, said that the rectal operation was not offered as a substitute one; it was only justifiable under certain conditions. When the appendix was already out and when another laparotomy would appear to be advisable, this operation was a very good thing to do. Its application was only occasional, but, as an easy way out of a difficult situation, it had a distinct place.

Parotitis Following Induced Abortion in a Case of Pernicious Vomiting in Pregnancy.—Dr. W. P. MANTON of Detroit reported this case. The patient, 23 years of age, a primipara, had chronic pernicious vomiting. The uterus was emptied and shortly after the patient became delirious. The left parotid gland became inflamed and contained a large amount of pus. Altogether four abscesses were incised and drained. The meninges later became involved, then the nose, mouth, and finally the eyes became filled with purulent material. After 33 days of intense suffering the patient succumbed. This was evidently a case of septic infection. These cases had in early times been ascribed to the work of demons, later to the chastisement of Providence, and later still to an equally unknown quantity—"reflex phenomena." A considerable number of these instances had been reported, many following operations such as amputation of the thyroid, removal of hemorrhoids, etc. Specific parotitis was supposed to have some connection with the pelvic organs. The usual organism was a staphylococcus, but it was occasionally a streptococcus. One point to be noted was that the parotid, alone of the salivary glands, was connected with the lymphatic glands and infections might be communicated through Stensen's duct. The mouth contained flora, usually harmless, but which, after operation and lowered resistance, might become virulent. Perhaps this was caused by drying of the secretions during anesthesia. The infections in these cases might then be considered oral, rather than pelvic in origin.

Dr. E. E. MONTGOMERY of Philadelphia said that he had seen cases of parotid infection following various operative procedures. These cases were due to neglect

in technique or to defective secretion. The organism no doubt entered from the mouth, passed into the gland, and into the lymphatic circulation.

Dr. MARTIN E. KLINGER of Garrett, Ind., said he had a patient, 32 years of age, with right-sided lobar pneumonia. On the sixth day of the disease she aborted. On the 12th day a right-sided parotitis occurred. It did not form pus. A week later there was a right-sided hepatitis which did not form pus. On the 35th day there was an appendix abscess. The appendix was removed and the abscess drained. Finally on the 50th day a right-sided empyema occurred. These conditions appeared a chain of events in a generalized infective process.

Dr. S. E. TRACY of Philadelphia said he had seen parotitis following operation which had cleared up promptly. He was inclined to think it was an oral infection. He believed in these cases that more attention should be paid to the patient's mouth before operation. Soreness at the angle of the jaw might be something more serious than parotitis. In one patient who had complained of this symptom 8 days post operatively there was a fully developed tetanus. This warning should be kept in mind.

Dr. MANTON, in conclusion, said that this condition following emptying of the uterus was rare. Even up to the present time surgeons were apt to claim that these cases of infection of the parotid gland were due to sympathetic phenomena. He was not a believer in sympathy of that kind. Surgeons should be more on the look-out for infections which might occur orally in the first place and then be transmitted by way of Stensen's duct.

(To be continued.)

Books Received.

The MEDICAL RECORD is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.

HOW TO ENLIGHTEN OUR CHILDREN. By MARY SCHARLIEB, M.D., M.S. 192 pages. Price, \$1.00. Published by Fleming H. Revell Company, New York.

THE SURGICAL CLINICS OF CHICAGO. April, 1918. Vol. 11, No. 2. 435 pages. Illustrated. Price, \$10.00 per year. Published bi-monthly by W. B. Saunders Company, Philadelphia and London.

INTERPRETATION OF DENTAL AND MAXILLARY ROENTGENOGRAMS. By ROBERT H. IVY, M.D., D.D.S. 146 pages. Illustrated. Price, \$2.50. Published by C. V. Mosby Company, St. Louis.

ORAL SEPSIS IN ITS RELATIONSHIP TO SYSTEMIC DISEASE. By WILLIAM W. DUKE, M.D., Ph.B. 124 pages. Illustrated. Price, \$2.50. Published by C. V. Mosby Company, St. Louis.

SYPHILIS AND PUBLIC HEALTH. By EDWARD B. VEDDER, A.M., M.D. 315 pages. Price, \$2.25. Published by Lea & Febiger, Philadelphia and New York.

THE TECHNIQUE OF PSYCHOANALYSIS. By SMITH ELY JELLIFFE, M.D. 163 pages. Price, \$1.50. Published by Nervous and Mental Disease Publishing Company, New York and Washington, D. C.

X-RAY ATLAS OF THE SKULL. By A. RUSSELL GREEN, M.B., B.S. (Lond.), M.R.C.S. (Eng.). 27 pages. Illustrated. Price, \$3.50. Published by Longmans, Green & Co., London.

HEALTH SURVEY OF MIDDLETOWN, CONN. By DAVID GREENSBURG and IRA D. JOEL. 73 pages. Illustrated. Published by Department of Public Health, Yale School of Medicine.

SEVENTEENTH ANNUAL REPORT OF THE NEW YORK STATE HOSPITAL FOR THE CARE OF CRIPPLED AND DEFORMED CHILDREN. For the year ending June 30, 1917. 40 pages. Illustrated. Published by J. B. Lyon Company, Printers, Albany.

BLESSURES DE LA MOELLE ET DE LA QUEUE DE CHEVAL. Par G. ROUSSY et J. LHERMITTE. 202 pages. Illustrated. Price, 4 francs. Published by Masson et Cie., Editeurs, 120 Boulevard Saint-Germain, Paris.

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THE ORIGIN AND ORGANIZATION OF THE DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK.

By STEPHEN SMITH, M.D., LL.D.,
NEW YORK.

BAAS, the eminent historian of medicine, regards epochs as the essential features of history. He says: "An acquaintance with the views and knowledge of epochs already submerged in the shoreless ocean of time frees the mind from the fetters and currents of the day, with its often oppressive restraints, widens the horizon for a glance into the past, and insight into the present of human activities, deepens the view for a comprehension of the ideas which guided the earlier and more recent physicians, and gives, on the other hand, to our daily professional labor a high consecration."

The organization of the Metropolitan Board of Health in 1866, which is the present Department of Health of New York City, created an epoch in the history of preventive medicine. The recent investigation of that department shows that an "acquaintance with the views and knowledge" of that great epoch are already submerged in the shoreless ocean of time. It may, perhaps, prove instructive and useful to recall some of the incidents of the origin of that department which illustrate the ideas that guided the earlier and more recent physicians.

Prior to 1866, New York City had neither health laws nor administration of the slightest value. Its health ordinances were mere "scraps of paper," and its administrators were politicians of the lowest grade. Its Board of Health was the Aldermen called and commissioned by the Mayor to act in that capacity. Of the efficiency of that board we have the testimony of Mayor Fernando Wood, who was urged to call the Aldermen together as a Board of Health during an epidemic of cholera, but declined, stating that they would be more dangerous to the city than the epidemic. The "city inspector," a nondescript official, was the only public officer who exercised any health powers, and those consisted chiefly in the appointment of "health wardens," who were usually saloon keepers. The qualifications of these officials was put to the test by a legislative committee appointed to investigate the sanitary condition of the city. One was asked the meaning of the word "hygiene," and he replied, "the mist that rises from standing water." Another gave as the remedy for smallpox, burning sulphur in the patient's room. A third, asked what

he did when called to visit a case of contagious disease, said he never entered the house but gave directions from the street.

The unsanitary condition of the city prior to 1866 cannot be described so that an audience of to-day can fully appreciate the reality. Nuisances dangerous to life and detrimental to health existed everywhere. Large areas were undrained, giving rise to miasmatic fevers in the autumn; the cobblestone-paved streets were lined and littered with garbage; small butcher shops were in every section, requiring herds of cattle, sheep and hogs to be driven through the streets; the scavenger's cart, loaded with domestic filth, filled the night air with suffocating odors; the river fronts were lined with fat-melting and other offensive industries. Life in the streets, now made perilous by the automobile, was then even more endangered by stray cattle made furious by the hooting, chasing mob. It was not an uncommon event that the Texan steer in his mad career impaled a child or feeble pedestrian on his long, pointed horns.

The enormous tenement population lived in a nomadic style, and upward of 18,000 persons (Troglydites) lived in cellars, under every possible unsanitary condition. As a result of these conditions New York was rated as one of the most unhealthy cities of the world, its mortality rate varying from 35 to 45 per thousand population. Contagious diseases of every kind found here a congenial culture bed where their germs multiplied without "let or hindrance." Smallpox was epidemic every fifth year, miasmatic fevers appeared with "their usual severity," as the record states, every autumn; typhus fever came with the immigrants, and scourged the tenement-house and underground population; cholera reached the city at intervals and decimated the people with all the malignity it exhibited in the Ganges; the domestic pestilences, diphtheria, scarlet fever, measles, were always present.

It is surprising now to recall the entire indifference of the people of every class to the perilous conditions under which they lived. A woman living in a cellar where the only light was a candle, and her three children were tuberculous, made the universal reply when a dispensary physician remonstrated with her for living in a cellar: "I have always lived here. This is my home. I am contented and happy. Why should I leave my home?" The wealthy and intelligent residents who were appealed to in aid of efforts to secure reforms through legislation made, in effect, the reply that this condition had always existed, and refused to attempt reforms.

The climax was reached in the early sixties. I

was in charge of a typhus fever hospital, and noticed that a large number of patients came from one tenement house. On visiting it, I found a true "fever nest." The house was in a most unsanitary condition, and was crowded with immigrant families suffering from typhus, but without furniture or care of a janitor. In my efforts to have the house vacated, cleansed, and closed by the police, it was found that there was no law, ordinance, nor even authority, which could be employed to abate this nuisance dangerous to life and detrimental to health.

These facts were reported to the Citizens' Association, a powerful body recently organized to effect reforms in the city government, with Mr. Peter Cooper as president, and a membership of prominent citizens. This association adopted the suggestion of Mr. Cooper that it should undertake to secure a code of health laws. Two committees were established, one of hygiene and the other of law, and prominent members of the medical and legal professions were appointed on them respectively.

The joint committee first made a careful examination of existing conditions and the causes of failure of efforts hitherto to secure legislation. The conclusion was that there was no public interest adequate to sustain the movement, and that the first step to be taken by the association was the creation of a public sentiment which would support the proposed effort of the association.

This was the advice of Mr. Dorman B. Eaton, secretary of the law committee, who had recently, while in England, made a careful study of its public health service. The great success of its sanitary laws was attributed to the care of the authorities to educate the people by the wide circulation of the reports of the registrar general and leaflets written in plain language. By this means the people became so interested in sanitary measures that they even attended political meetings and greatly disturbed candidates for office by questioning them as to their position on current popular public-health subjects. It is stated that a prominent candidate was so disconcerted by these questions that he cried out, "*Sanitas sanitatum omnia sanitas.*"

Mr. Eaton was impressed with the great importance of a campaign of education as the foundation of the association's efforts, and he recommended its undertaking a complete and exhaustive sanitary survey of the city by medical inspectors. Accordingly, the association authorized the committee on hygiene to make such survey, and promised to finance the work. The committee appointed a sub-committee, of which I was chairman, to conduct the survey. The details of the work were very carefully prepared by the committee, and the summer of 1864 was devoted to its execution.

We divided the city into thirty-one inspection districts, and selected a physician for each, the salary being \$30 per month. At the close of the inspection, which was completed in about four months, the committee presented to the association seventeen folio volumes of reports which embodied accurate statements, with drawings, of the grounds, tenements, and their occupants, industries, etc.

This survey has been pronounced by high authority as the most perfect sanitary investigation of a municipality on record. At its conclusion the principal facts recorded were embodied in a volume by Dr. Elisha Harris of the committee, and was widely circulated among the people of the city and State, with the effect that a powerful public sentiment was created which subsequently sustained the efforts of the association.

The association authorized the two committees to prepare a bill, based on this survey, to be introduced into the Legislature. In consultation it was decided to create a metropolitan health district, coextensive with the metropolitan police district, in order to place the jurisdiction of the department in the State government rather than in the city government, then under the Tweed regime. The committee on hygiene were requested to make the first draft of the bill, and that duty was assigned to its sub-committee. On its completion it was referred to the committee on law, and perfected in its present form.

The association deputed Mr. Eaton and myself to appear at the hearing on the bill before a joint committee of the two houses of the Legislature, Senator Andrew D. White being chairman. The city inspector and his health wardens were present. The evidence which we presented of the dangerous unsanitary condition of the city and the homes of the tenement-house classes, as revealed by the survey recently made by physicians, was so overwhelming that after a few vain efforts to refute our reports the city inspector and his following withdrew.

The bill passed the Legislature of 1866, with an appropriation of \$50,000, and the board organized in March of that year. Several of the early sessions of the board were largely devoted to an informal consideration of the policies which the board should pursue. The field of future operations and the methods of procedure were new to the members, but they were of a receptive mind. In these discussions Mr. Eaton, who had been a close student of the administration of the public health laws of England, then the most advanced of any country, took a leading part.

He stated that there was a feature of the new law which the board should understand at the beginning of its work, for it was its most important feature, but was certain to be attacked in the courts. While the law embodied all the best features of English health laws, it had in addition a provision which rendered it unique, indeed—an anomaly in legislation. Under that provision no court or other official body could by any process interfere with the action of the Board of Health in abating any matter or thing declared under its rules to be a nuisance "dangerous to life and detrimental to health."

As he predicted, the constitutionality of the law was contested in the courts, and was finally decided by the Court of Appeals in favor of its constitutionality by a majority of one.

The value of that provision was put to the test when the board attempted to abate nuisances hoary with age and protected by political and vested interests, like the booths around Washington Market, the offensive trades and slaughter houses. They

resisted the orders of the board until it enforced them by abating them on its own initiative and charged the expense to the owners. The parties applied to the courts, but no protection was given. In one night Washington Market was made clean for all time by the removal of its booths to the public yard. An offensive fat-melting establishment on the riverside that had resisted every previous effort to abate it was summarily removed and the owner compelled to pay the costs of removal. These few exhibitions of the power of the board taught the people an invaluable lesson. Upward of fifty suits against the board pending in the courts were withdrawn, and thereafter its orders were executed with reasonable promptness.

Mr. Eaton was so impressed in England with the importance of having a strong public sentiment to sustain the initiation and enforcement of health laws that he advocated the education of the people in the practice of sanitation by the publication of the current work of the board in familiar form for the common reader. Accordingly, Dr. Elisha Harris, the registrar, a man eminently qualified for that duty, issued a circular regularly explaining the current operations of the board. It proved a surprise that from its first publication the circular was in great demand, and that it acquired a national reputation. It has been stated that it led to the organization of large numbers of health boards.

It would prove very instructive if the Health Department would, in its next publication, collect the interesting letters which this investigation has elicited from the health authorities of different localities protesting against the threatened disorganization of the department and acknowledging their constant indebtedness to its advanced teachings in the science and art of civic sanitation.

Another feature of popular education introduced by Mr. Eaton was the policy of requiring the owner of the matter or thing declared to be a nuisance to abate it, though the board had that power. He regarded the act of abatement as educational, and it proved true. In numberless instances, landlords who had been compelled to abate a nuisance afterward voluntarily performed similar acts, and even reported them to the board to prove their independence of its orders.

The plan of specializing its work for the purpose of securing expert inspectors in every branch was early undertaken, and has been carried to a high state of perfection in these later years. The engineers, Mr. Worthen and General Viele, planned and executed a system of deep drainage of the water courses to the rivers which forever banished miasmatic diseases from the list of what were known as indigenous affections. Prof. Charles F. Chandler of the Chemical Laboratory made an investigation of the "gas nuisance," and determined the remedial measures which relieved the citizens of that perpetual source of ill health and discomfort.

A striking example of the value of specializing to secure expert work was the creation of a corps of vaccinators, whose duty was to secure the vaccination of every new-born child. Previously, smallpox was epidemic in this city every five years, the daily number of cases often amounting to

three or four hundred. From the date of the separate corps of vaccinators, now nearly fifty years, there has been no epidemic of smallpox, and only occasional cases of that disease, which were for the most part brought here from the neighborhood.

The organization of a disinfecting service of skilled workers had the effect of controlling the spread of infectious epidemics. An epidemic of cholera began in this city soon after the organization of the board, attended with the usual flight of the wealthy classes to the country. So immediate and effectual was the work of the disinfecting corps when a case of cholera was reported that no two cases occurred in the same place, and the epidemic soon disappeared and has never gained a foothold since.

The cultivation of serotherapy by the department in the treatment of infectious diseases has already stricken diphtheria from the catalog of dangerous affections, and is destined, if persevered in, to render innocuous the whole brood of domestic pestilences.

The supreme test of the efficiency of a department of the city government must be the extent of its accomplishment of the purposes for which it was created. Judged by that standard, the Department of Health of this city stands unchallenged by its intelligent citizens and the admission of the health authorities of this continent in the first position. It was created to protect and promote the public health. The mortality and morbidity rates of 1866, compared with those of 1918, abundantly sustain the public judgment that it has amply fulfilled its mission. That comparison shows that the death rate has fallen from 38 to 40 to 12 to 15 per 1,000 population; that is, 23 persons in every 1,000 population are now annually saved who would have died if the death rate were the same now as it was prior to the year 1866, when the Health Department was organized as the Metropolitan Board of Health. Carried to its logical conclusion it follows that of its present population of 5,000,000 there is an annual saving of 115,000 lives. From a city ranked as among the most unhealthy of the great capitals of the world in 1866, New York contests the position of those cities claiming to be the healthiest.

Whatever may have been the motives of those who instigated the present investigation, the Health Department ought to be benefited, for it has placed on the public records the estimation in which it is held by the highest authorities, and will lead to the correction of defects in its present methods of administration. It may, indeed, prove the desirability and utility of requiring every incoming municipal administration to institute among its first acts an official inquiry into the operations of each department to determine its efficiency in accomplishing the purposes for which it was created. It is certainly gratifying to notice that the newly appointed commissioner is inspired by the same high ideals which governed the founders of the department, who, in 1866, laid its foundations so wisely that after a half century it stands unrivaled in accomplishing the objects for which it was created.

WHAT THE GENERAL PRACTITIONER SHOULD KNOW ABOUT ACUTE GONORRHEA IN THE MALE.*

By ABR. L. WOLBARST, M.D.,

NEW YORK.

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NOTWITHSTANDING the heroic efforts being made by the medical authorities in the army and navy, it must be evident that one of the great after-the-war problems will be the control and management of the venereal diseases, not the least among which must be considered gonorrhea. It is the purpose of this paper to consider the subject of acute gonorrhea in the male, from the aspect of the general practitioner, who is usually first consulted by the patient on the outbreak of this infection.

It is well to take stock, so to speak, of what we know of this perplexing subject of acute gonorrhea, in so far as it applies to the general practitioner, so that we may determine as briefly as possible what he should know about the disease and its treatment, and thereby come to a full realization of his capacities and his limitations.

Above all, he must know that gonorrhea is a disease which cannot always be cured by a syringe and a bottle of medicine. He has been accustomed to consider the infection as a purely local one, usually involving the anterior portion of the urethra, and ignoring entirely the fact that most if not all gonococcus infections of the urethra sooner or later involve the posterior portion of the canal as well as the anterior. If he will but bear this in mind he will be spared many disappointments from the standpoint of diagnosis and therapy.

Secondly, he should remember that an attack of gonorrhea, uncomplicated and properly treated, should be thoroughly cured within six to ten weeks. Therefore when an acute infection of the urethra has dragged along for eight, ten, or twelve weeks, with the end not yet in sight, there is something wrong somewhere, either with the diagnosis or the treatment, and the general practitioner has come to the end of his tether. He should know that he requires assistance.

Undoubtedly some cases remain uncured because of improper treatment; some because of insufficient treatment; but most cases, I believe, drag along because of excessive treatment. The prudent physician will often stop his local treatment for a time and watch the result; and he will be surprised at the sudden improvement in his patient.

On the other hand, a change in the treatment may be required. The injection solution may be too strong or too weak; it may possibly irritate the canal. Substituting another preparation for the one that has been used will often convert an angry, uncontrollable infection into a most docile and responsive one.

If these changes do not bring about the desired result there must be something wrong with the diagnosis. Probably the posterior urethra is involved; this must be determined. Possibly there is a more or less well defined stricture in the ure-

thra, a relic of some previous battle with the gonococcus; this must be determined and treated. There may be a glandular focus which is not reached by local medication; this must be found and the appropriate treatment administered.

The point I wish to make is that an uncomplicated case of gonorrhea has a well defined period of time in which it ought to be cured, and if this period is unduly delayed every effort must be made to seek the cause and apply the suitable remedy; and it is but justice to himself and to the patient for the practitioner to secure assistance as soon as it becomes evident that control of the infection is slipping from him.

Another important thing for him to know is that we have no specific remedy for gonorrhea. In a multiplicity of remedies there can be no specific. We have excellent remedies that will cure gonorrhea, but while any one of them might be surprisingly successful in nine cases, it may fail utterly in the tenth. We must therefore become acquainted with all of them; we must learn their respective virtues and faults. We must learn from experience when they may be used and when it is better not to use them; in what strengths and in what circumstances they are apt to produce the best results, and vice versa.

Without going into details as to their respective merits and faults, it must be recognized that our sheet anchor in the treatment of acute gonorrhea lies in three well-known preparations—argyrol, protargol, and permanganate of potassium—and if a practitioner finds that he cannot cure his case under the intelligent use of these three remedies, within a reasonable period of time, he must be convinced without further delay that the case calls for treatment at more experienced hands.

It is difficult to say how these remedies should be used; just as difficult as it would be to teach heart and lung sounds from text books. They must be learned only through actual experience. Experts differ as to their employment; some prefer strong solutions, others prefer them weak; some repeat injections three or four times daily, others consider this too often and give but one treatment per day.

All men do not get the same results with any particular remedy. It is almost impossible to sift the wheat from the chaff in all that has been written about the subject. Out of the mass of bewildering contradictions and diversity of opinions one must learn for himself how to use these remedies. He must learn for himself whether protargol is better in acute gonorrhea in $\frac{1}{2}$ per cent. or 2 per cent. strengths; whether argyrol is more effective in a 5 per cent. solution or a 10 or 15 per cent. strength. No one can give him this information. My own preference is for weak solutions at all times; I believe the inflamed urethra resents the injection of strong irritant solutions; on the other hand, a colleague whose opinions I respect highly, prefers strong solutions, often repeated. This is a matter that cannot be debated or arbitrated; the personal equation is a most important factor in determining a man's views. Every man must determine for himself what is best to be done and what will give him the best results.

Not for one moment should the practitioner for-

*Chronic gonorrhea in the male will be considered in a subsequent paper.

get that each patient must be studied and treated as a distinct individual, subject to peculiar idiosyncrasies and reactions. While one patient may respond beautifully to a certain local injection, another patient may be irritated and traumatized by a solution half as strong. The personal equation never must be lost sight of. One man's meat is another's poison. There can be no fixed rule for every case. Each case must be studied and treated according to its own merits. We shall therefore find that we must adjust our treatment according to the idiosyncrasies of our patients; and the practitioner will do well to study these idiosyncrasies, for the successful practitioner will be the one who can most quickly recognize them and adjust his treatment accordingly.

Another important fact worth remembering is that gonorrhea requires the personal attention of the physician to no less a degree than any other human ailment. What practitioner would think of prescribing for a patient with pneumonia on his first visit, and letting him go for a week without seeing him? Yet this is exactly what he does in his management of acute gonorrhea. He generally prescribes an injection, possibly an internal alkaline solution in addition, and tells the patient to come back in a week. The practitioner should know that this is bad practice; the patient should be seen every day, at least for two or three weeks, if this is at all possible, and the treatment should be administered by the physician himself. This is particularly urgent in the first few weeks of the infection, when a day is worth more than a month in the later stages. The practitioner has no assurance that the injection that he has prescribed is going to soothe the inflamed urethra or irritate it. The only way for him to know what effect his treatment is producing is to watch the case from day to day and modify the treatment in accord with the reaction which it produces.

On the other hand, the physician has no right to assume that his patient can inject himself without causing trauma or increasing the existing inflammation in the urethra. A syringe and a bottle of medicine in the hands of an inexperienced layman may become a dangerous weapon when applied to a urethral mucosa already the seat of a virulent infection.

In this connection it is useful to remember that the urethral inflammation is not a stationary thing—it is an active, variable condition, changing from day to day and moment to moment. It is evident that the treatment must be adjusted continually, so as to harmonize with the pathological changes that are going on in the urethra; and it is these changes that must be watched carefully and properly interpreted by the physician if he would bring about a successful termination of the case.

The first two or three weeks determine the entire aspect of the inflammation. If it can be kept under control during these weeks it is safe to predict that the disease will run its usual course and a cure will result in a reasonable time. If, on the other hand, the disease is getting the upper hand, it is a safe prediction that complications and tedious chronicity are inevitable.

I find it convenient to divide the course of acute gonorrhea into three stages: The first is the stage

of increasing inflammation, which lasts about two weeks; the second is the stationary stage, which lasts about three weeks; this is the stage of maximum intensity and severity; the third is the declining stage, which lasts from two to four weeks. In this stage the acute symptoms gradually subside and the case proceeds to complete recovery. If the case can be so managed that the maximum intensity and severity of the disease are reached in the second or third week, the prognosis as to cure in a reasonable time is excellent. If the second or stationary stage is delayed unduly we may expect a long siege and a tedious one. The secret of success in the treatment of acute gonorrhea lies in one's ability to control the inflammation to the end that it shall be confined to the anterior urethra and reach its maximum severity in the second or third week. A cure is practically certain if the disease can be confined to the anterior urethra; whereas any extension to the posterior urethra, prostate, and seminal vesicles is a sure guarantee of complications and chronicity.

It is therefore of the utmost importance for the physician to see his patient every day, at least during the first stage, so that he may familiarize himself with the progress of the inflammation, and that he may see for himself whether his treatment is helping his patient or hurting him. When he gives the patient a prescription and tells him to come back in a week, it is impossible for him to watch the progress of the case, and in all human probability during those seven days considerable irreparable damage has been done. The posterior urethra has become involved and with it the prostate and the adnexa, and the process may go on until it stops only because it has no further tissues to attack.

During this period of watchfulness it goes without saying that the most important duty of the physician is to study the discharge microscopically and the urine passed by the patient macroscopically, at frequent intervals. The urine should be examined in two glasses at every visit—that is, every day; as soon as the second glass becomes turbid, posterior infection has supervened and the treatment must be adjusted to meet the new invasion. I do not feel that it is necessary to examine the discharge microscopically every day. Once the gonococci have been found we may be certain of their being present as long as there is a visible discharge with cloudy urine; it is only when the discharge becomes mucoid or watery and the urine becomes somewhat clearer in appearance that the microscopic determination of the presence or absence of gonococci assumes importance.

This importance is of two kinds. First, from the prognostic standpoint, it is essential to know whether the gonococci are gradually disappearing or holding on. In the latter event, the prognosis is bad in so far as the indications will point to a persistence of the infection in a more or less chronic form. Secondly, the importance of the microscopic examination is found in the therapeutic field. The general practitioner must accept as a good working rule the dictum that so long as gonococci are demonstrable, astringents must never be used in the urethra. It is therefore important to know at what moment the gonococci can no longer be demonstrated, for at that moment it is good practice to

begin the use of astringent injections. I know of nothing so successful in perpetuating a gonococcus infection in the urethra as an astringent injection employed while gonococci can be found in the secretions. This is one of the things the general practitioner should learn to avoid.

In those cases in which an astringent injection has not been used, but in which nevertheless gonococci are found notwithstanding the subsidence of the inflammation, we have a distinct indication that there is a focal point somewhere which has not responded properly to treatment. This focus must be determined and completely eradicated. It is in these circumstances that the most brilliant results are obtained by the employment of the urethroscope and dilatation.

In this connection it is well to emphasize a fact which is often disregarded, namely, that the absence of a urethral discharge is no proof that the disease has been cured. The practitioner must always bear in mind the fact that a urethral discharge is merely a symptom of the disease and not the disease itself. It is therefore perfectly possible for a patient to harbor gonococci while passing urine that looks normal to the naked eye. These gonococci may be hidden in the many urethral follicles, far removed from the reach of the injections, but they may nevertheless exercise their potential powers and set up a recurrence of the inflammation at frequent intervals.

The absence of pus from the urine merely indicates that we have passed from the acute to the subacute or chronic stage, and that we are dealing with the terminal or chronic condition. If in this stage treatment is suspended for a few days the practitioner will be surprised to observe a return of the discharge and the cloudiness of the urine, and he is quite apt to shift the burden of responsibility for the new outbreak upon the shoulders of the patient by accusing him of having reinfected himself at the shrine of Venus. The truth of the matter is, however, that there are a number of infected glands in the urethra which are harboring bacterial life, and as soon as repressive measures in the form of local injections are suspended these bacteria come into their own and make their presence evident by the recurrence of the discharge and the turbid urine. Endoscopy often reveals these glandular foci; it is no uncommon thing to isolate one or more of these foci and obtain a minute drop of its contents by squeezing, and when this drop is examined under the microscope myriads of gonococci and other bacteria can be demonstrated. In addition to these foci the urethroscope may reveal a hard or soft infiltration, constituting a stricture, in cases with a history of previous gonococcus infection. By its presence in the urethra this infiltration maintains a low grade inflammation which may often be kept under control by the use of local injections. As soon as these injections are stopped for any length of time, however, the gonococci which have remained latent resume their activity and a specific discharge is the result. It is therefore expedient as well as prudent for the practitioner to think of latent gonococcal foci in the urethra before accusing his patient of having exposed himself to a new infection. The patient may be telling the truth when he denies such exposure.

What has thus far been said refers to anterior

urethritis, that is infection involving the anterior portion of the urethra. When, however, the infection has traveled backward and has involved the posterior portion, the practitioner must be quick to recognize what has occurred. He must at once recognize the great risk of complications involving not only the genital tract, but the entire body as well.

His entire method of treatment must be modified to meet the new conditions, and here again he is thrown on his resources to the limit of his experience and capacity. If the prostate is involved he must recognize that fact and so adjust his therapy as to prevent the further extension of the inflammatory process to the seminal vesicles, vasa deferentia, and epididymides.

With the advent of prostatic involvement a new chain of symptoms is presented by the patient. Pain and frequency of urination are perhaps the earliest and most persistent of these symptoms; these are soon followed by vesical tenesmus more or less severe in character, caused by the inflammation at the neck of the bladder. Painful and frequent erections, commonly known as chordee, soon appear to make life miserable for the Neisserian victim; and as the process extends we are soon brought face to face with the most painful of all these complications—acute epididymitis. Usually, the inflammatory process ends here, and the disease settles down to a respectable chronicity which generally takes months and even years to eradicate. In a minority of cases, fortunately, the infection becomes general in character and soon involves one or more joints or other portions of the body far removed from the original seat of the infection.

Now, in all of this painful chain of events the practitioner must be alive to what is going on and to the possibilities. Judging from the cases that come under my observation this is not always the case. In innumerable instances I have seen cases of acute prostatitis approaching abscess formation, with the vesicles also seriously involved, in which the practitioner has been treating the anterior urethra with hand injections, utterly oblivious of the fact that the deep urethra and adnexa have been seriously compromised, yet wondering why the patient does not respond to the treatment. In many instances the involvement of the posterior urethra was first brought to the physician's notice by the swelling in the epididymis.

Experts differ considerably as to the most satisfactory treatment of posterior urethritis and its extensions, and it would be beyond the scope of this paper to undertake even a brief consideration of this subject. It is sufficient to emphasize the point that excessive treatment is just as injurious in this part of the genital tract as it is in the anterior urethra. Irrigations of a mild antiseptic solution enjoy well-merited popularity in this condition; they should be combined with hot rectal recurrent irrigations, prostatic massage most gently administered, and anodyne rectal suppositories. The internal administration of alkaline salts combined with hyoscyamus and one of the santal oil preparations is also useful in alleviating the tenesmus and the chordee. When in spite of this treatment the acute symptoms persist, and there are chills and a rise in temperature, the practitioner may be sure that a prostatic abscess has formed and requires evacuation.

As to the seminal vesicles it may be said that they rarely, if ever, are separable in the inflammatory process from the prostate. All three organs are usually matted together in one hot, tender mass, and it is generally impossible to distinguish where the prostate ends and the vesicles begin.

When, however, the inflammatory process has passed through the ejaculatory ducts and involved the vas deferens and later on the epididymis, the diagnosis is simple enough. A hot, swollen, exquisitely tender epididymis, high temperature, and general prostration mark the climax of the infection, and the physician may indulge in the satisfaction of knowing that there are no further organs that can be involved in the genital region. And, curiously enough, as if to compensate the patient for his pains and loss of earnings, this inflammation of the epididymis occasionally results in a speedy clearing up of the urine and a complete cure of the original infection. Whether it is the high temperature, which inhibits the growth and the life of the gonococci, or whether it is because the inflammation has spent itself in reaching its climax in the epididymis, we are unable to say; but it is an undoubted fact that a speedy and complete cure has not infrequently followed the swelling in the epididymis and thus enhanced the reputation of the attending physician for skill and erudition in the treatment of gonorrhea. It is well, however, not to place too much reliance on this method of cure; for the epididymitis cannot, as a rule, be depended on to cure the gonorrhea. In most cases it is simply another complication that must be handled to the best ability of the physician, and nothing more.

Observation of many cases of this complication has convinced me that there is a distinct relationship between the therapy employed and the incidence of epididymitis. The attempt to force the cut-off muscle in the desire to irrigate the posterior urethra and the bladder, is, in my opinion, the most prolific cause of acute epididymitis; the second most frequent cause is the employment of strong irrigating solutions, principally strong permanganate of potassium. To be sure there are cases which would probably develop epididymitis and every other conceivable complication under any form of treatment, or under no treatment whatever; but these are exceptional. The average case of gonorrhea responds kindly to gentle treatment and represents in no uncertain terms the application of harsh measures, principal among which is the forcing of the cut-off muscle in the Janet or Valentine technique.

The treatment of this distressing condition is no secret. Rest in bed need not be urged upon the patient; he cannot do otherwise. Elevation of the scrotum, so as to eliminate the drag on the inflamed inguinal cord, is most welcome. Local applications of heat or cold have enjoyed a long-lived popularity, but no one can say which of the two is more soothing in any given case. Both must be tried. It is well to remember that this treatment is merely palliative at best; we hope to reduce the inflammation to the point that the patient may be able to get out of bed and return to his work, but the swelling remains for a long period, mute evidence of the inefficiency of our treatment. Incision into the pus focus, with drainage, is far more ef-

fective, from the standpoint of relieving the acute inflammation as well as that of the future functional effectiveness of the organ. Unfortunately this treatment looks more radical than the ice bag or the hot poultice, but in the long run it is by far the more conservative and effective.

A word as to serum and vaccines in acute gonorrhea. So far as my experience goes I have been unable to see any benefit resulting from their employment in any acute complication of gonorrhea except arthritis. In this condition they are undoubtedly of great value, and should be used freely. In acute epididymitis, prostatitis, and vesiculitis they seem to have no value whatever.

Finally, the practitioner should know that arthritis following gonorrhea may be due to the gonococcus infection, or may not. All swellings of the joints are not necessarily gonorrheal in character, even though they occur during an attack of gonorrhea. On the other hand, it is equally important to remember that gonorrheal arthritis may recur with each new attack of acute urethritis, even though the urethral attack be a mild one. There may be no apparent connection between the one and the other; nevertheless the tendency to recur during subsequent urethral involvements is worth remembering. In these cases it will be found that vaccines are far more effective than the salicylates.

113 EAST NINETEENTH STREET.

MELANODERMA ARSENICALE PRODUCED BY CACODYLATE OF IRON.

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MELANODERMA arsenicale, or arsenical pigmentation, is not caused by a deposit of the metal, as is argyria, but is due to an increase of the normal pigment of the skin. Brunettes are presumably, therefore, more inclined to this disfigurement than blondes, but I do not know that they really are so. It may occur when taking small doses of any form of arsenic, but it usually requires large doses continued through a considerable length of time for its development. It is slow in coming and as slow in disappearing, and causes no symptoms except the discoloration.

In giving arsenic internally for psoriasis or lichen planus, on the eruption clearing up, a pigmentation is occasionally left on its site. This, of course, is quite different from the instance under consideration, in which no such eruption was present.

An Irishman, over seventy years of age, whom I had treated a year previously with salvarsan and mercury for an old lues, was given the cacodylate of iron because of a profound anemia. He received nineteen doses of one grain each, given within twenty-five days, from May 11, to June 4, 1915, inclusive. At first his hemoglobin mounted quite rapidly, but came to a standstill while yet far below the normal. After taking the nineteenth dose, he said he was beginning to look very dirty, although he bathed frequently. On stripping he showed characteristic arsenical, dirty, reticulated pigmentation of the skin across the lower part of the abdomen, and on the temples and forehead. The mottling or reticulation was due to lighter areas, which

in some places were quite clear. The pigmentation slowly vanished on ceasing the administration of the drug. Subsequently, under the care of a friend, he was given a more rigorous course of this same drug, and developed both an alliaceous odor to his breath and characteristic cutaneous pigmentation, which again cleared up after stopping the use of the cacodylate.

There was no evident reason why the patient should be so susceptible to this particular arsenical reaction. He was anemic, he had always a trace of albumin and a few hyaline casts in his urine, and he suffered severely from sciatica. He was spare in build, active in habit, and had the pale skin usual with the northern European races, and in accordance with his age it was normally atrophic. Although the kidneys, as above shown, were not free from disease, yet they functionated well, and the cacodylate given either by me or subsequently produced no renal symptoms.

The above case also is interesting because a relatively non-toxic arsenical preparation, a cacodylate, had caused a marked and characteristic pigmentation of the skin in an unusually short time. The total quantity of the drug given, as before stated, was nineteen grains, or about 1.14 grams, divided into moderate doses of one grain, or 0.06 gram each, spread over a period of twenty-five days. That the pigmentation was due to the arsenic there was no doubt; it appeared during the administration of the drug; it disappeared on ceasing to administer it, and it reappeared on resuming this form of medication, to disappear again when the drug was discontinued.

When I first viewed the pigmentation I thought of the chloasma of anemia, because the patient was anemic, and also because chloasma occurs most frequently on the face, especially over the forehead and temples. This, however, did not account for the more marked pigmentation, definitely reticulated, over the lower part of the abdomen. Then I recurred to a possible cachectic pigmentation from tuberculosis or malignant disease of the abdomen or even Addison's disease. These possibilities were all the more immanent because the persistent and severe sciatica had led myself and others to a search for tumor pressure. Syphilis was another contingency, pertinent, because the man undoubtedly had, years before, acquired this disease.¹ The pigmentary syphilide, however, usually occurs in women, and about the neck, and is a consequence of a foregoing secondary eruption. Neither the sex, nor the situation, nor the time of this pigmentation, therefore, agreed in the present case with a possible syphilitic origin.

The Dosage of the Cacodylates.—That the above mentioned dose of 0.06 of cacodylate of iron is a moderate one may be seen by comparing it with the doses of cacodylate of sodium as formulated recently by Gougerot for subcutaneous injection.

Daily weak dose 0.06 to 0.08 gm.
Daily moderate dose 0.10 to 0.08 gm.
Bi-weekly strong dose 0.30 to 0.40 gm.
Weekly, exceptionally strong dose, 0.60 gm.²

Theoretically the formula for cacodylate of iron is $(\text{CH}_3)_2\text{AsO}_2$, Fe, and therefore contains three cacodyls to the cacodylate of sodium's one, but iron

is so much heavier than sodium that the amount of arsenic in each is about the same. According to the above formula the cacodylate of iron should contain 48.17% of the metal arsenic (As). How closely the cacodylate of iron found on the market corresponds to the theoretical formula is not known. Assuming, however, that the above is correct, this patient received nine and one-tenth grains of the metal arsenic (As) in twenty-five days.

Wm. A. Pusey has reported an instance in which a patient, seventy years of age, developed an intense pigmentation after taking, during one month, five hundred minims of Fowler's solution.⁴

This solution of potassium arsenite does not contain 1 per cent of potassium arsenite as generally assumed, but instead the amount of potassium arsenite equivalent to 1 gm. of arsenous acid (As_2O_3) in 100 cc. of the finished solution. On the basis of 1 gm. of As_2O_3 in 100 cc. of Fowler's solution, 100 cc. of Fowler's solution contains 0.757 gm. of the metal arsenic (As), and one minim of Fowler's solution contains 1/140 grain of the metal arsenic (As)³. Therefore five hundred minims, the quantity administered in Pusey's case, would contain 3 4/7 grains of the metal arsenic (As), an amount of the metal much less than in my case.

The two drugs, arsenite of potassium and the cacodylate of iron, cannot, however, be compared on the basis of their arsenic content alone. The metal in some of the organic combinations is not nearly so toxic as it is in the inorganic combinations, for instance, when bound with cacodyl, as in the cacodylates, or with the benzol rings, as in salvarsan. It is also now recognized that neither of these organic combinations is so active therapeutically in cutaneous diseases as the arsenite of potassium. The interest in the present case lies in the very active effect of the cacodylate of iron in producing a pigmentation of the skin.

Hyperpigmentation in Its Relation to Other By-Effects of Arsenic.—The by-effects of arsenic are: (1) A disagreeable granular feeling of the conjunctivæ, (2) Puffiness of the lower eyelids, (3) Congestion of the hands and feet, (4) Dryness of the throat, (5) Disturbances of the stomach, (6) Diarrhea, (7) Increase of the quantity of urine, (8) Urticarial eruptions, (9) Erythemas (for example the Jarisch-Herxheimer reaction), (10) Pigmentations of the skin, and (11) Hyperkeratosis, especially of the palms and soles.

Hyperpigmentation is not an infrequent consequence of the administration of arsenic when given in large doses and for considerable lengths of time. In my experience, however, it is not nearly so frequent as irritation of the conjunctivæ and puffiness of the lower lids. Borsellini says⁵ that it occurs nearly as often as congestion of the hands and feet, and much more frequently than keratoderma of the palms and soles. Its appearance varies in different cases in its topographical distribution, in the size of the patches, and also in its intensity. There may be only a few disseminated yellowish brown patches, or there may be all the grades between this and a generalized continuous melanoderma simulating Addison's disease, and only distinguishable from it by the lack of pigmentation of the mucous membranes.

All the above by-effects are exhibitions of the

physiological actions of the drug. Arsenic undoubtedly stimulates the epithelial covering of the oculo-respiratory, gastrointestinal, genitourinary and cutaneous systems, and the stimulation of such vast epithelial sheets, which are essentially gland fields spread out instead of being folded into tubes or bunched into lobuli, as in the acinous or lobulated glands, would account at least in part for the well known tonic effects of the drug.

This stimulation, however, does not occur equally in all cases neither as distributed throughout the vast areas above enumerated, nor in individual situations. For instance, I have observed repeatedly such a small dose as one-fiftieth of a grain of arsenite of potash or of arsenous acid given three times a day to cause most annoying irritation of the neck of the bladder. In the present instance reported, there was marked stimulation as far as could be ascertained, of only one function, the pigment forming function of the skin.

REFERENCES.

1. The arsenical melanoderma in one of Borsellini's cases resembled perfectly the melanotic syphilitic collar. *Arsenismus mit reticulärer melanodermie* von Dr. P. D. Borsellini. *Arch. f. Dermatologie u. Syphilis*, Aug. 1911, S. 37.
2. *La Syphilis en Clientèle* par H. Gougerot, 1917, p. 133.
3. Personal communication from the A. M. A., March 30, 1916.
4. Pusey: *Am. Dermatological Association*, Philadelphia, Pa., Meeting, June, 1909.
5. Borsellini: *Loc. cit.*
323 GEARY STREET.

NORMAL AND ABNORMAL PSYCHIATRY.

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NORMAL psychiatry or the normal mind is easily understood as the activity of the nerve cells. We know that nerve cells conduct, transmit, retain, and originate stimuli. The neurons are in close connection with the other cells of the body and almost constantly receive information from the whole body through the sense organs, also from outside the body; a good deal of this information is retained as symbols at the associated centers. For comparison, we may divide it into three parts: (1) sense organ where stimuli are received; (2) sense center where the stimuli from sense organ are brought to be registered and transmitted to; (3) associated centers, where the stimuli are again registered and compared with symbols of previous stimuli from the same and other sense organs and elaborated into an object.

For instance, waves of light will emanate from an object and will reach the cornea where they are refracted and an inverted image of the object will be formed on the sense organ of sight, the retina. From there the stimuli will be carried to the center of sight which is located in the occipital lobe where they will register and be carried to the associated centers where they will again be registered and compared with symbols of former stimuli from the same sense organ and also from other sense organs. Not only do we recognize the object as a different object but also the name of the object. If the object was a house we also know the name

house because we were once told the name of house, and the center of hearing has also registered it at the associated centers; and if the same has told us the house belongs to John Smith we will also recognize it because all centers of sense organs converge and symbolize in the associated centers and, besides, the special centers, the associated centers also receive information regarding the frame work, muscles, and viscera, which are known as muscle sense, bone sense, visceral sense, sense of position, pain, touch, heat, etc.; and the associated center will receive from the sensory nerves, in the cornea, the sizes and shape of the light waves; from the nerves of the eye muscles the amount of convergence necessary to see the house single; from the retinae, the sizes of the angle, the kind of color, etc., so the associated centers not only will recognize that it is John Smith's house but also the size and color of the house and the distance from the house to the person seeing it.

All this is due to the activity of the nerve cells or neurons. Physiologists have worked out well the mechanism of the neurons and we know now that a stimulus from the periphery has to transverse a number of neurons until it reaches the associated centers and pass again from the associated centers to the periphery.

The neuron has a cell body with numerous processes. At one end the processes are known as dendrites and at the other end as axons; in the bipolar cells one axon, in the multipolar cells several axons are present. The stimuli are received at the dendrites, transmitted to the body, and from the body to the axon. An axon of one neuron ends in close contact with a dendrite of another neuron but they are not continuous and the space between is known as synapsis. The dendrites have branches and so have the axons; the latter are known as collaterals.

Had psychiatrists, in the study of abnormal psychiatry, also studied the unit of the neurons or the cells, the difficulty, perhaps, would not have been so great; instead their studies have been more or less confined to psychoses; and while the classification of the different forms of psychoses were of value in prognosis (for instance, we know that a dementia precox psychosis has a poor prognosis and manic depressive is of good prognosis) still the causes of insanity, at least the functional ones, have not as yet been explained, while in the study of neurons we can find some explanations to the symptoms of insanity.

Why do stimuli travel from the dendrites to the bodies and from the bodies to the axons and to other neurons in a more or less uniform rate? There are no batteries and neither is there a closed circuit; in fact, the neurons are not continuous but there is always some space between them. Our answer must be that it is due to the intelligence or experience of the neurons themselves.

In the stages of evolution the neurons have specialized themselves in transmission of stimuli in a second direction and unit of time, also to recall, compare, and originate stimuli; and it is needless to say that in organic brain diseases, where there is an actual destruction of neurons, we may have any or all of these functions lost in a second part of the nervous system, and we may find that a normal person after a cerebral insult will show symptoms from a slight amnesia to profound idiocy.

But even where there is non-destruction of neurons, we can readily understand what may happen under abnormal conditions. First, the nervous system is not a closed circuit but there is always a small space between the axon of one neuron and the dendrite of another neuron, or the synapsis, and there are no batteries driving the stimuli from the dendrite to the body and from the body to the axon and to the next neuron, this being due to the effort and intelligence of the neurons that stimuli are so transmitted and the neurons may become fatigued from over-stimulation and not be able to transmit stimuli. In fact, it does happen when a person reads for a long time, that there comes a time when he cannot temporarily see the print or, when he writes a long time, he may, for a while, not be able to write. It is known that managers of corporations, when they write many checks, finally reach a point where they cannot sign their own name. Also, a person may become temporarily deaf from too much noise after an explosion, etc. Also abnormal substances circulating in the body or inherited tendencies of the neurons may retard or accelerate the transmission of stimuli, and we may have retardation of thought and movements with its accompanying depression, or flight of ideas with euphoria, or combined retardation of thought and acceleration of movements with its accompanying anxiety and restlessness. The cells may become poisoned and instead of transmitting the stimuli from the dendrites to the body and from the body to the axon, may allow the stimuli to travel either way and instead of a stimulus traveling from a center reaching the associated centers, making an impression and recalling symbols it may travel back and forth from the center to the associated centers and back to the center, and arouse old memory pictures or what we commonly call illusions, while the stimulus itself is not remembered. Also in the case of intoxication from infections or drugs, like alcohol, a person sees and hears imaginary objects with a partial or complete amnesia according to the number of stimuli retained during the period of intoxication. The neurons may be so poisoned that they are unable to transmit some or all stimuli, and the person will be partially or wholly unconscious. Under great over-stimulation the axon of a neuron may be deflected from its course and transmit its stimuli to a neighboring neuron instead of to the previous neuron and the stimuli may then reach the associated centers through a new channel and as such daze the person. We know that in the circulation, cases of engorgement of the vessels may twist themselves, and why cannot the same thing happen with the neurons? Of course, the blood vessels are continuous and the blood can flow in only one direction, but the neurons are not continuous and this is probably what happens after earthquakes, shell shots, etc., where, after recovering consciousness, the person still remains dazed and hallucinates with accompanying delusions for some time afterwards, although the special centers receive the stimuli as formerly, but through different channels.

The neurons through inherited or acquired weakness may misdirect or block stimuli, and this is probably what happens in that form of psychoses known as dementia precox. A stimulus originating in one organ may be misdirected to a center of another organ; for instance, a stimulus that origi-

nates in the stomach or skin may be misdirected and reach the center of hearing and the person will claim that someone in his stomach or leg talks to him; also a stimulus may be blocked and the person will be unable to do what he intended to do, or the stimulus may be misdirected from its origin in the periphery, and the person will do just the opposite of what was asked of him—negativism. Or the stimuli may be so completely blocked that the person may be unable to move even under danger, although the special centers receive stimuli, and the person sees, hears, etc.—catatonic stupor.

It is hardly necessary for me to mention that people with misdirected stimuli will misinterpret ordinary happenings and develop delusions. What are we to do for the insane? In those cases which are due to organic brain disease, we must prevent the organic brain disease. The majority are due to syphilis and to arteriosclerosis, and in their prevention the general practitioner is more capable than the psychiatrist, as he comes in contact with more homes. This is also true in intoxication psychoses. Those due to inherited or acquired weakness of the neurons I must leave to the obstetrician and pediatricist to advise the pregnant woman how to take care of herself during pregnancy and to advise parents how to raise their children, and to the social workers for them to help the poorer classes so they can carry out the physician's advice. All I can do is to say how to care for the actual insane. First of all is an early diagnosis because, when the proper treatment is instituted early by eliminating all sources of excessive irritation and especially of gastrointestinal origin with proper training, a good many of them may be cured; it must always be remembered that automatism or habit plays a great rôle in an individual's life. This is primarily due to nature's desire to economize, as it can be readily seen if we had to apply consciousness to every act in our daily life and symbolize every act, then the number of neurons or size of our brains would have been all out of proportion to our bodies; but by repeating things the neurons are capable of performing again the same thing without registering them into consciousness; this is not only a saving of extra neurons, but those existing are capable of doing it even better, by comparison with previous symbols.

In the treatment of the chronic insane, besides general treatment for bodily defects that may be present, the only methods that have proven of value are hydrotherapy and reeducation by finding the proper occupation for the individual patient.

For the following reason it is absolutely necessary for our hospitals for the insane to have a sufficiently trained medical staff to direct the proper occupation for the patients. Occupation for the insane is really a medical problem, and in accordance with the old saying, "in time of peace prepare for war," now is the time for hospitals for the insane to train men in this line of work, as insanity is bound to increase and we should have men capable of meeting it.

Nature of Rabies Virus.—Remlinger believes this to be a transition between a vegetable organism and an inorganic substance, the latter a colloid with diastasic properties.—*Le Progrès Médical*.

SOME MEDICAL ANTECEDENTS.

By J. A. HAGEMANN, M.D.,

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WHEN Solomon gave expression to his famous aphorism "there is no new thing under the sun" (Ecc. 1-9) he was possibly a bit blasé. It is conceivable that one so numerous polygamous might have run the gamut of human emotions, and that multifarious experience had made him sage. Perhaps he intended to convey the truism that matter does not come into existence *de novo*, each encountered form being but a transmutation of preceding syntheses. However that may be, it is an interesting circumstance that unequivocal innovations in the realm of medicine are rare. In corroboration of this statement some examples will be cited. The fundamental principles underlying our present conception of antitoxin production was probably elementarily and speculatively known to Arnold de Villeneuve, one of the Alchemists, who lived from A.D. 1245 to about A.D. 1311. According to "Mackay's Extraordinary Popular Delusions" (page 104), M. Harcouet attributed the following recipe for the prolongation of human life over several centuries to Villeneuve: "If he be of a sanguine temperament, he shall take sixteen chickens, if phlegmatic, twenty-five, and if melancholy, thirty, which he shall put into a yard where the air and the water are pure. Upon these he is to feed, eating one a day; but previously the chickens are to be fattened by a peculiar method, which will impregnate their flesh with the qualities that are to produce longevity in the eater. Being deprived of all other nourishment till they are almost dying of hunger, they are to be fed upon broth made of serpents and vinegar, which is to be thickened with wheat and bran. . . . They . . . are to be washed down with moderate quantities of good white wine or claret. This regimen is to be followed regularly every seven years, and anyone may live to be as old as Methuselah."

About 1675 Helvetius came from Holland to Paris to practise medicine. A drug merchant whom he had attended gave him as a fee a packet of *Ipecacuanha* root, imported from Brazil. Helvetius empirically discovered that the root had the virtue of healing dysentery. By curing that disease he accumulated no less than 100,000 crowns, and, in addition, became a favorite at the court of Louis XIV. In the journals of today one notes frequent reference to the use of emetine for counteracting the baneful effects of endamebae. That sounds different, but the interactions are identical, whereas modern compensations are much less princely.

Robert Hunt in his volume, "The Poetry of Science" (London, 1854), page 408, quotes Prof. Graham to the effect that "the permeation of any radiant body through fixed solid matter is entirely a question of conditions." Yet nothing was known of the x-rays until 1895.

In 1861 Paul Broca published the memoir wherein he propounded that aphasia is associated with injury to and consequent inaction of the posterior portion of the third frontal convolution

on the left side of the brain. This area is now universally known as Broca's space. Sir Francis Galton fruitlessly searched the archives of medicine for a single reference previous to Broca's publication of the circumstance that paralysis of the right side of the body is usually accompanied by loss of speech. Yet Dickens, in 1848, in *Domby and Son*, Chap. XXXVII, had capably described the last illness of Mrs. Skewton from just that affliction. His delineation of her speechless state, her staring at the ceiling, the making of inarticulate guttural sounds in answer to questions, well depict the symptom—complex of hemiplegia. The gradual recovery of some motion in the right hand, though not of speech, shows fidelity to nature in a remarkable degree, particularly admirable when emanating from the pen of a non-medical author.

In the former villa of Pope Julius III, in Rome, which is now used as an Etruscan museum, there is exhibited an excellent specimen of a gold dental bridge in proper position in a skull taken from an Etruscan tomb in *Civita Castellana*, a town in Etruria, situated upon the presumed site of Veji. The latter town was utterly destroyed before the time of Christ; so a conservative estimate would put the age of this dental bridge at over 2000 years.

John Timbs, F.S.A., in his book "Doctors and Patients" (London, 1876), page 341, cites the case of a Mr. Brunel, who, while juggling a coin to amuse his children, had the misfortune to have the half-crown drop into his windpipe. Mr. Brunel, being an engineer, had an apparatus constructed in the shape of a platform hinged in the center so that it could be tilted up or down. He had himself strapped upon this, and by inverting his body by means of the movable platform succeeded in displacing, though not expelling, the coin. This caused such violent coughing that further attempt at that time was postponed. Two days later, April 25, 1843, the operation of tracheotomy was performed by Sir Benjamin Brodie, he intending to extract the coin with a forceps, if possible. In this he was unsuccessful. The incision in the windpipe was kept open by inserting a quill or tube until May 13. Then his body was again inverted, his back struck gently, and the coin was expelled after having been in the right bronchus for six weeks. And all this took place seventy-five years ago! Verily, novelties are as rare as blue diamonds!

Hysterical obmutescence occurring in children and persisting with exasperating pertinacity is occasionally encountered. Herodotus, who was born about 484 B.C., narrates that "Cræsus had a son . . . who was in other respects proper enough, but dumb. . . . When the city was taken, one of the Persians, not knowing Cræsus, was about to kill him. Cræsus, though he saw him approach, from his present misfortune, took no heed of him, nor did he care about dying by the blow; but this speechless son of his, when he saw the Persian advancing against him, through dread and anguish burst into speech and said, "Man, kill not Cræsus!" These were the first words he ever uttered; but from that time he continued to speak during the remainder of his life." (From Henry Cary's translation, 1898, page 27.)

In Jeremiah 31-29, we read that "the fathers have eaten a sour grape, and the children's teeth are set on edge." During the past century Dr. Hutchinson made similar statements, but we will not charge him with plagiarism.

Further examples of medical foreshadowings might be adduced, but a sufficient number have been mustered to substantiate the sentiment so tritely expressed by Mademoiselle Bertin (milliner to Marie Antoinette), "There is nothing new except what is forgotten."

HIGHLAND BUILDING.

A NEW METHOD OF MORE ACCURATELY DETERMINING THE UPPER BORDER OF THE LIVER BY MEANS OF PERCUSSION.*

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WHILE investigating the accuracy of percussing the outlines of the heart as controlled by fluoroscopic examination, it was of course necessary to determine the upper border of the liver. In the first series of cases, in which this was done by the old method of percussing from above downward until liver dulness was reached, the results were very unsatisfactory. In fact it was found to be more difficult to percuss correctly the upper border of the liver than the heart dulness.

I finally devised the following method, which has given more accurate results.

I percuss from above downward in the mammillary line, laying the end phalanx of my index finger firmly on the chest wall parallel to the ribs and using a medium strong percussion stroke. At the first change of sound from clear pulmonary resonance to a somewhat duller sound a line is drawn on the chest wall. Then I place my finger over the liver dulness at the lower costal margin and percuss with the lightest possible percussion (threshold percussion, so light that over liver dulness hardly any sound is audible) upward until a slightly more resonant percussion sound is perceived (lower lung border). Another line is placed on the thorax at this point. The true upper liver border lies half way between these two lines.

In all I percussed 100 cases to determine the upper liver border, all of which were controlled fluoroscopically by Dr. Thomas Scholz, Roentgenologist to the Montefiore Hospital. The x-ray tube was placed at a distance of 1.5 meters from the patient and the border of liver marked by pliable wire fastened by adhesive plaster. Of these 100 patients 41 were examined by the old method. In the vast majority of these, the upper liver border was placed too high, sometimes as much as 5 or 6 cm. Fifty-nine cases were percussed by the new method and the results were found to be much more accurate, very frequently exact, and seldom varying more than 1 cm.

I claim for this method that it is not only more accurate, but that it is also much easier to learn

*From the Medical Wards of Montefiore Home and Hospital, New York City, N. Y.

than the old way. In teaching third year medical students I have had much less trouble in having them acquire proficiency in outlining the upper border of the liver than in percussing the borders of the heart.

The important point to remember is that in percussing from above downward one must use a medium strong percussion stroke, and note the very first change of percussion sound, and similarly when percussing from below upward employ only the very lightest, scarcely audible percussion.

129 EAST NINETY-FIRST STREET.

Medicolegal Notes.

Charitable Hospitals Liability to Physician for Negligence of its Servants.—Action was brought by a physician against a charitable hospital for personal injuries received under the following circumstances: The defendant conducts a hospital where medicine and surgery are practised. In one of the rooms there was an x-ray machine into which room the plaintiff, a practising physician, went with a patient, a little girl, to get a radiograph of the child's head. The child's father sat on a chair in front of the x-ray machine with his daughter on his lap. The plaintiff attempted to comply with a request of the operator of the machine to hold the child's head, the plaintiff's own head at the time being near the wires which carry the electric current to the x-ray tubes. After the electricity had been applied to the wires the plaintiff fell to the floor, breaking his left leg. The defendant was charged with negligence in placing the plaintiff where his body made a short-circuit for escaping electric currents; in failing to warn the plaintiff of the dangers of such close proximity to the wires; in failing to use an available appliance to keep the wires a safe distance from the plaintiff; in failing to place the x-ray machine where the dangerous wires would be vertical, thus keeping them at a safe distance; in failing to provide a competent and experienced x-ray operator. One of the defenses was that the hospital was an eleemosynary institution and that as such it was not pecuniarily liable for the negligence of its servants. This proposition was based on the following principle of law: "A charitable institution conducting a hospital solely for philanthropic and benevolent purposes is not liable to inmates for the negligence of nurses." *Duncan vs. Nebraska Sanitarium & Benevolent Assn.*, 92 Neb. 162, 137 N.W. 1125.

As to this the court said: "In the case cited immunity from liability is limited to 'inmates.' The rule thus announced has the support of precedent, but in a recent opinion of the Supreme Court of Virginia, after an extended analysis of the cases, it was held that the doctrine of nonliability to inmates did not extend to strangers, the modern theory being as follows: 'One who at the request of a patient about to enter a hospital accompanies him to render reasonably necessary assistance is an invitee of the hospital, to whom it owes the duty of exercising ordinary care to have the premises reasonably safe.' *Hospital of St. Vincent de Paul vs. Thompson*, 116 Va., 101, 81 S.E. 13, 51 L. R. A. (N.S.) 1025. In a recent article on hospitals it was said: 'The theories of the immunity of a hospital from liability on the ground of public policy and on the ground that the assets are a trust fund having been very generally rejected by the courts, and the doctrine of waiver by acceptance of benefits being applicable only to patients, the law has come to be that as to others not the recipient of the institution's charity the rule of responsibility for the negligence of its servants and agents is applied as in cases of the ordinary business corporation.' 13 R. C. L. 948, sec. 12. This view of the law conforms to correct standards of justice, and defeats the immunity pleaded in the answer of defendant." Judgment for the plaintiff was affirmed.—*Marble vs. Nicholas Lenn Hospital Assn. of Omaha*, Nebraska Supreme Court, 167 N.W. 208.

Military Medicine.

REHABILITATION OF THE DISABLED SOLDIER.

At the sixty-ninth annual meeting of the American Medical Association, held in Chicago, June 10-14, 1918, Thursday, June 13, was devoted to addresses and papers dealing with the rehabilitation of the disabled soldier.

Lt.-Col. FRANK BILLINGS of Chicago opened the session with a few words, saying that the huge audience, filling the Auditorium Theater, had met with the one aim, to combat the monstrosity on the other side and to give those men, who had given their all, the means of being restored to full economic and civil life.

SURGEON-GENERAL WILLIAM G. GORGAS, U. S. A., in his opening address said that the question of reconstruction was a new one to the U. S. Army, as it was to military life in general. It was a product of the present crisis. Formerly the whole aim of war was to defeat the enemy, and the wounded were neglected, being merely a drag on the fighting men. Doubtless, if necessary, the army to-day would do what its ancestors did—sacrifice the wounded, if this should become necessary for the defeat of the enemy. Savage tribes killed off the wounded who were unfit to march, but nowadays the great function of surgery is to put men back in the fighting line, if fit; and if not, to restore them to their own country with the least possible delay. Statistics of the Canadian Army gave a very good idea of what would have to be done in this country in the way of conservation of the wounded. In four years Canada had contributed 350,000 fighting men, and of these 10 per cent. had been returned for reconstruction work. The United States could expect about the same proportion of wounded men to be returned. This was the modern viewpoint of the duties of the military office, and the country undertook, as a debt that it owed to these men, to restore them to full civil efficiency and to the capacity to enjoy life in their own homes.

The National Program for the Reconstruction and Rehabilitation of the Disabled Soldiers.—Dr. FRANK BILLINGS of Chicago said that the complete program included the care of the soldier from the time that he fell in battle to the time he was restored to full civil and economic usefulness. Congress had recently passed a law which placed the wounded man under the jurisdiction of the Federal Board for Functional Reeducation. The maimed man was put as soon as possible in touch with reeducational work, the general hospitals being in part reconstructive and embracing facilities for prevocational training. Thus men very early in their disability were being established in new and gainful occupations. Hotels and institutions were established as hospitals in the sixteen military districts of the country and the enlisted man was sent to the center nearest his home. It was hoped in time that these general and reconstructive hospitals would become State institutions. The scope of the plan was very comprehensive. The hospitals included, besides the medical and surgical departments, wards, gymnasiums, laboratories, hydrotherapeutic and electrothermic departments, grounds for drill, exercise, and games. The British government had lent the services of Sir James McKenzie to standardize physiotherapeutic measures. Mr. James F. Russell, Dean of Teachers' College, New York, had been chosen to enroll all the technical and physical educators necessary.

Reconstruction and Rehabilitation Problems as Demonstrated by Experience in Foreign Countries.—Col. CASEY A. WOOD of Chicago said that Canada, with her democratic ideals and her sense of duty toward the disabled soldier, was the country to which the United States must look for help in the reconstruction problem. Canadians had early discovered that the hospitalized soldier developed a peculiar psychic state which was fatal to rehabilitation. Social service workers were then called upon to institute the "cheer-up program." They visited the wounded and kindly, but firmly, insisted on the doctrine of social reconstruction. The employment of films was found to be of the greatest service in showing the disabled what resources were still left to them. They were inspired by having thus graphically shown them what others had accomplished. Furloughs for the disabled were discounted, as a continuous uninterrupted effort was neces-

sary until the men were reinstated in civil life. Idleness and inertia were the greatest foes of the disabled soldier. A judicious mixture of work and play was the best medicine. The educational program aimed to reach three classes of citizens—medical officers and teachers, soldiers, and the public. The more the man's own family understood the scope of the plan the easier was the task of the government, therefore propaganda and publicity were essential to prepare the public mind. To this end the little magazine, *Carry On*, was being published and distributed from the Surgeon General's office. In this the experience of other nations was translated into the particular needs of American soldiers.

The Surgeon General's Plans for Receiving, Transporting, and Distributing of the Disabled from Overseas.—Col. R. E. NOBLE of Washington, D. C., read this paper. The wounded were tagged and graded according to their disability, from the time they left the fighting line. If not fitted to be returned to the front within six months, they were brought back to this country. A specially selected officer was detailed to receive the hospital ship at port, and to choose which hospital was to receive the cases. This officer was specially trained in transportation problems, and he indicated the type of coach and the number of coaches in which the men were to travel. Detachable unit cars, with a staff of doctors and nurses, were included in each train, and these could be sent to any part of the country with small numbers of wounded if necessary, instead of having to deal with trainloads of men. The trains themselves included every comfort for the sick; dining cars, kitchen cars, cars for the staff, and sleeping cars. The cars were to be unloaded actually at the doors of the hospitals, which were scattered about the United States according to the military districts. These hospitals were of the pavilion type; in one sense they were general, in one sense reconstructive.

Acute Surgery as Related to Reconstruction.—Col. G. SEELIG, M.C., U. S. A., presented this communication. The word reconstruction had physical, psychic, and functional significance. Acute surgery was part of its scope. The latter not only covered war traumata, but also acute surgical diseases occurring in camp. It began at home, although many new surgical principles had been evolved in actual warfare. It had, however, to meet greater demands than did civil surgery. Most men had spent nights in Gethsemane over the failure of well-meant surgical procedures. They had consoled themselves by the thought that they had done the best that could be done. Now, however, the army surgeon was engaged to return the man to civil life in such shape that he had no grounds for a claim as a pensioner. The soldier had to submit to operation to make him fit to fight, and when he was no longer fit the government had to give him surgery to make him as fit for civil life as possible. Much surgery would be done on home territory, but in the advanced zone the problem was seriously difficult and gravely depressing. The surgeon's judgment was harassed by the exigencies of transport, the rush of battle, the improvisations of warfare. Yet the fact of the man's future usefulness must not be lost sight of. The penalties of unnecessary operation were not mitigated by stress of battle. Neuroses, psychoses, asthenias were a direct result of front-line surgery for cranial lesions. Wrong surgical judgment at a critical time might produce spinal disturbances, bladder injuries, paralysis. Fistulae and collapse followed wounds of the lung; ischemia, the improper application of ligatures; extensive later operation would follow imperfect joint surgery. One could not, however, say where surgery ended and where reconstruction began. There was reciprocal relationship between the two branches. Both worked toward the one end—the future physical and economic well-being of the functionally compromised soldier.

Sir ARBUTHNOT LANE, referring to reconstruction work, said that the Red Cross Hospital in Kent was devoted especially to those extremely pathetic cases, patients with faces shattered or burned. These men were hideously disfigured and were removed from the sight of other patients until some reconstruction work could be done. To return them home, to the horror of their children, and perhaps fear from their wives, would be intolerable. Many surgeons were devoting their entire time to the reconstruction of these cases.

Dental surgeons first did plastic work, and later other specialists did reconstructive surgery. Twelve American surgeons were working there now, to their own great delight, and that of their British colleagues. Their experience would prove invaluable in the conditions arising in future in this country.

Lt.-Col. DAVID SILVER quoted Sir Robert Jones, who had said "the pathetic side of reconstruction was that of physical disabilities that ought never to have happened." This was not a criticism. Men were working under superhuman difficulties. The orthopedic surgeon had his special field in preventing later reconstruction work. In proportion as surgeons could employ primary suture of wounds did the cases of infection and adhesions diminish. Malunion and nonunion of fractures resulted from too frequent inspection and changes of methods of treatment. A committee on standardization of splints had therefore taken charge of this matter, to ensure uniform methods of treatment. Every man was to be trained in the fundamental mechanical principles of the brace. The levels of amputation, from the viewpoint of the artificial limb, were also standardized. Early application of the appliance was urged, as it had a distinct place in the mental rehabilitation of the patient.

War Neuroses.—Major W. HUTCHINS of Washington, D. C., presented this communication. The psychoneuroses of war differed from those of civil life only in that they were colored by incidents of battle. A heavy strain upon the nervous system was caused by the soldiers' life—the monotony, the constant exposure to danger, the sights of battle. Men who were mentally unstable were eliminated as far as possible, but those that did break down in the front line were treated in a different hospital from other patients. Their treatment was by actually stimulating work and wholesome recreation. They were always impressed with the fact that their case was hopeful and curable. Often they were able to gain increased efficiency and larger remuneration through the vocational training schools.

Sir JAMES MCKENZIE of London said that often when the soldier was nothing but rather "rattled" his disease was called "neurocirculatory asthenia." Medical men saw these patients often when they were merely overworked and needed a holiday. A simple interest in life and outdoor sports was the best cure. Games should play a large part in the reconstruction curriculum. The speaker had found that a little bit of a bet was sometimes a wonderful stimulus. Sport took these people out of themselves which was what they most needed. The question of heart murmurs in assessing the disability of the soldier would be a very difficult one. The common sense point of view was to consider, not the murmur, but the efficiency of the heart in its response to effort. Twenty years of watching these cases come and go, and grow up and grow old, had taught nothing but this rule. The younger men would do well to watch these cases for fifteen or twenty years, and at the end of that time they might be able to form a faint idea of what prognosis meant.

Re-education of the Deaf and the Speech Defective.—Major C. W. RICHARDSON of Washington, D. C., said that Hospital No. 11, Cape May, N. J., was selected as the Otolaryngological Center. The matron was to be one who had been head of one of the largest institutions for the training of the deaf. Sixty trained teachers for lip-reading had been selected. It was estimated that this work would require 1000 teachers per million cases of defects of hearing, and 500 teachers per million of defects of speech. War deafness was usually caused by shock concussion, affecting the labyrinthine structures, by detonation of high explosives. Progressive improvement occurred, and, after a time, recovery. Other cases, however, were caused by trauma to the auditory apparatus. Aphonias and voice changes were often due to nerve and muscle lesions with large loss of tissue. These cases were pitiful. They were looked upon with horror by the layman. No cases needed more aid than those with speech defects and facial mutilation, and great effort was needed to lift them out of the handicap class.

Reeducation of the War Blinded.—Col. JAMES BORDLEY of Baltimore spoke of this phase of the subject. One of the mistakes of the past, in not realizing the economic value of the blind, would now have to be recti-

fied. In this crisis, where every fraction of the brain and brawn of the nation was to be needed, the blind man must be placed where his economic value would tell. Professional and agricultural courses were to be opened to him. The hospital for the war blinded at Baltimore was so arranged that the blind man could be fitted to take a place in industry where he would be at no disadvantage. Not only he himself, but one member of his family, would be housed and educated free of charge, by the government, thus insuring that the families of the blind should learn the necessary attitude toward these people. Thus one of the most serious handicaps of the blind, the misplaced sympathy of the public, would be removed.

The Reconstruction of Canadian Crippled Soldiers and the Results.—Major J. L. TODD, Medical Officer of the Pension Commissioners of Canada, delivered this address, which he illustrated with a motion picture demonstration of the reconstruction work being done in Canada. In emphasizing the importance of reconstruction work he said that the success of this war was going to depend on what each one of us did here no less than on what our soldiers did over seas. If we were going to do what was right by our soldiers we must do it in the right way. It was natural for men and women to believe what the doctor told them and therefore the doctor should go about telling and teaching what reconstruction work for our soldiers meant. If they did this it would not be long until the doctor's opinion became the opinion of the general public. They had been taught that to waste at home was treason abroad and the object of construction was the conservation of our men. Actual knowledge was necessary on this subject if we were going to care for our soldiers properly. We all felt sentimental toward the disabled soldier or sailor just as we did toward an injured child, but to sympathize too much with either might be a bad thing. We might find it easier to coddle and pamper our disabled soldiers, but that was not the best thing for them; the best thing we could do for them was to put them back into some useful occupation. As an example of this, Sir William Osler recently went through a Canadian Hospital and found in one ward twenty men who had been gassed. After examining these men he said this was the worst case of hospitalization he had ever seen, for fifteen of the men were suffering from subjective symptoms alone, and, of the remaining five, three would be better off on their home farms than in the hospital. When the soldiers were in the Army they had everything done for them and, everything ordered, there was nothing left to their own initiative and it was bad for the men and bad for the country to allow them to continue in this way after their discharge from the Army. The country needed the fractional help that these disabled men could give, and the men must be made to feel this. The soldiers and the public must be made to feel that a pension was not a gift to make up for their lost capacity due to disablement. There was no doubt that after the Civil War in the United States the pensions were too small and later they had to be tinkered with, and the time came when these pensions were far greater than was justifiable. There should be but one authority in charge of the pension legislation and nothing should interfere with his responsibility. In Canada there was a committee that had charge of the pensions and there was no way of carrying things over the heads of that committee, and no one could get a pension unless it was rightly deserved. Major Todd showed pictures of the work being done at Hart House at the University of Toronto, where the men learned to use artificial limbs and other prosthetic appliances. The pictures showed how the limbs were made and repaired and the school room where re-educational work in certain lines was being carried on. In Canada the Government not only purchased the artificial limbs for the disabled men but kept them in repair, or, if worn out, replaced them. Their institution was of the type which the French called a reconstruction center, and there they also trained some who would go out and start other reconstruction centers as they were required. Through this work they would all come to regard the cripple very differently from what they had done in former years. They used to say: "There is a cripple, disabled in protecting our country; I owe

him much and I am supporting him." We would now say, "There is a cripple, disabled in the service of his country. I owe him much and he is able to support himself."

The Conservation and Reclamation of the Industrial Soldier; a War Measure.—Lieutenant Colonel HARRY E. MOCK delivered this address, in which he said, in part, that they had heard much the previous evening about brotherhood and brotherly love, and brotherhood was one of the things we were going to get out of the war. They had heard about the wonderful reconstruction work that was being done for the soldier and the sailor, and he wanted to speak of the work that should be done for the industrial soldiers who formed our second line of defense: these were just as necessary for the winning of the war as the military soldiers. When the industrial soldier was crippled he did not have the glory that came to the military soldier wounded on the battlefield, and he was not so well cared for. As to the relation of industry to the war, it had been said that in the beginning the war was a territorial war and then later it was a war of democracy, and now gradually, during this last year or two, it was becoming a war of social democracy. In Europe everything was being done to build up the industrial army to hasten the prosecution of the war. They had introduced everything for the protection of the industrial worker; they had built him comfortable and even beautiful homes, and they had given him shorter hours, and in many ways protected his health, because it had been found that when the industrial worker was living in a good environment and with shorter hours of work he did more work. This had led the workers to ask why if this policy was good in times of war it would not be a good one in times of peace. They would never go back to the old way after the war. The same would be true of this country, and, as this country was the first to stand for freedom, it must be the leader in this new democracy. The one thing we must think of first and foremost in connection with every question was whether it would help win the war. The industrial cripple was as much in need of reconstruction as the disabled soldier and sailor, and we must find some means of reclaiming the injured members of the industrial army. The speaker exhibited statistics showing that in the industrial army of 30,000,000 in the United States there was annually a far greater number of men needing reconstruction than there would be in the military army. A plan for such reconstruction work had been worked up. (See MEDICAL RECORD, April 13, 1918, page 654.)

The Selection of New Occupations for the Disabled.—Mr. T. B. KIDNER of the Department of Soldiers' Civil Re-establishment, Canada, spoke on this subject. He said that this problem was primarily medical and secondarily social and economic. In considering it, the condition of the labor market must always be taken into account. In choosing an occupation for a disabled man, three persons were involved, the medical specialist, an occupation counsellor, and the man himself. Such occupations must be selected as promised permanent employment and steady wages. The man's own choice was always consulted and he was always asked if he had a hobby, for that frequently gave an indication of the kind of employment into which he might be fitted. The man's intelligence was also noted and his previous industrial history taken. The possibility of giving him the opportunity of training for something higher than he had done before, as a profession, must be taken into account, if he showed the intelligence and desire for that. In the reconstruction school a record of each man's work was kept and report sent in each week, and if he did not fit in one place it was discovered and an effort made to place him in a more suitable vocation.

In Canada there were very few medical men who were trained in industrial medicine, but they were rapidly progressing in this respect and the American Industrial Physicians' and Surgeons' Association had done much during the past few years to stimulate an interest in health work among industrial workers. Another thing the National Office in Canada was doing was to keep follow-up records of every man who went through the reconstruction school. They kept in touch with these men, giving them advice and helping them to adjust themselves to their new occupation. They

felt that reconstruction work was worth while, not only from the point of view of the disabled man, but because it was a great saving to the Government in the long run.

The Results of Rehabilitation in Foreign Countries.—Mr. DOUGLAS C. MCMURTRIE of the Red Cross Institute for Cripples in New York delivered this address. He said that the subject of reconstruction had been so thoroughly covered by the previous speakers that it was becoming increasingly difficult to find a new phase of the subject upon which to discourse. The Red Cross Institute for Cripples in New York was founded because they had feared that the Government might be slower in starting this work, owing to the amount of red tape that was necessary in any governmental project, than a private agency would be. The school had been established from six to nine months and carried on various activities in the way of vocational training. It had already placed 600 men in employment and had carried on a research department which was going to be of great use. One of the first duties that confronted them was the collection of a library and the publication of a series of studies. It was felt that the only way to learn to deal with the cripple was to begin to deal with him, and that the industrial cripple needed reconstruction as much as the army cripple, so they began with him. This they had been doing, and though they had few army cripples they were ready for them. They would soon have a similar school in Chicago. The speaker then showed a motion picture film which was descriptive of the work done at the reconstruction school at Montpellier, France. There they taught cobbling, forging, coppersmithing, leather work, electrical work, and many other things. The manufacture of artificial limbs was an occupation carried on almost entirely by men who had lost one or more limbs. These men had a keen appreciation of the requirements of an artificial limb. They were also trained to repair artificial limbs, and this was a field of industry which would offer occupation to a good many men later on. Many men wanted to learn motor mechanics and automobile driving, but they discouraged them in this because the Army had now such a well-trained corps of motor drivers that would be looking for places after the war that they felt this field would be overcrowded. The important work to be done at the present time was to carry on an educational campaign to bring people to a sensible and intelligent knowledge of this work. For the past four or five months they had been trying to reach every one; they had sent folders to every minister and every physician, to chambers of commerce, and to employers of labor, so that the public generally might understand and assist in restoring the disabled both of the army and of industry to a life which would be as nearly normal as possible. They did not wish the employer to feel that he took these men and gave them work as an act of charity; they wanted the employer to know that these disabled men were being trained to give a labor value of one hundred cents on the dollar. In this work they were counting on the co-operation of the public and of the medical profession as well.

Colonel MOCK announced that he had just received a telegram from Washington informing him that the bill creating a Federal Board for the Reconstruction of Crippled Soldiers had been passed by Congress.

Mr. MONRO of Boston, the vice-president of the Federal Board of Vocational Rehabilitation, emphasized the need of changing the old attitude of the public which regarded the cripple as an object of charity and of no use except to be thrown on the scrap heap; instead of that, they wished to educate the public to regard the cripple as one of the economic pillars of society. The soldier's attitude when he woke up after his operation to find himself a cripple was one more or less of despair and hopelessness. Every soldier and sailor thus crippled would at first feel wretchedly discouraged and he would feel timid and sensitive in regard to his deformity. The first thing to be done was to inspire and hearten these men. Then the next thing was to overcome the skepticism of employers who it would be difficult, perhaps, to teach that the disabled men could be as useful from the economic standpoint as were the able-bodied men. The cripples must be saved from the

danger of being exploited as cheap labor. There would be hard times ahead after the speeding up demanded by the war was over and we should have to guard against the tendency to scrap the cripple first when the supply of labor became greater than the demand. All these things had to be overcome by educating the public. The schools and colleges of the countries and the industries themselves would have to take a part in this work of reconstruction. The crippled soldier was only incidentally a medical or a surgical problem; the final problem was that of making him not only physically a man, but socially and economically a man. Physical restoration of the disabled man was futile unless the man had the proper attitude toward society and industry and unless the industries were in a proper attitude toward these men. As soon as possible, while the men were still in the hospital, the effort should be made to awaken hope and ambition. In order to fully carry out the plans for social reconstruction of the disabled, the effort of the home towns should be enlisted in the social reinstatement of the returned soldier. It was essential that these men should be placed back in their home environment, and to this end it was advisable to have many small vocational schools throughout the country and to have the schools and colleges co-operate in giving vocational training.

Mr. LAKEMAN of the American Red Cross said the American Red Cross stood ready to supplement the work of the Federal authorities. The Red Cross was to-day quietly doing a great work among the families of the soldiers through its local committees and Home Service Section. To help the families of soldiers the Home Service Section provided a doctor and a lawyer so that the interests of the family were all looked after. The lawyer would look after the soldier's insurance, mortgages, etc., and everything would be done to preserve the solidarity of the family. When the disabled men were replaced in civil life the Red Cross would follow them up and there would always be a "big brother" ready to stand by him. The machinery for this work was already set up and the Red Cross eagerly waited to discharge its duty in this way.

Mr. MICHAEL J. DOWLING of Olivia, Minn., delivered an address in which he related how as a young man he was caught in a Minnesota blizzard, became lost, and had both hands and both feet frozen so that amputation was necessary. His resources were limited and he soon became an inmate of the poor house. There he remained for about two years, when he proposed to the authorities that if they would get him artificial legs and give him one year in college he would never again be a public charge. He had "made good" and was to-day a prosperous banker and an influential man. He said there was no machine for making successful men out of cripples. He feared that the well-intentioned scientific men were making a mistake in planning for too much mollycoddling, if he did not mistake the tenor and tone of some of the addresses he had listened to. What the cripple wanted was a chance, not pampering. In a nutshell, it was a fight between General Gorgas and general despondency. To the right kind of a man a handicap was an advantage. This country had been pampered too much and that was the reason it took us so long to get ready to clean up Germany. Another point to be emphasized was that the public should be taught not to notice deformity in a man. Every man with a deformity was sensitive about it. Ministers should teach from the pulpits and the school children should be taught in the schools not to notice a peg leg or an empty coat sleeve. The message he wished to bring from his personal experience was that there was as much in life for the crippled man as for anyone else.

A number of motion picture films were shown which were a part of the educational propaganda for disabled soldiers and which furnished example of the "Cheer up" work that was necessary in order to develop the proper mental attitude in the disabled soldier. They showed crippled men engaged in various occupations and in sports. These pictures demonstrated very convincingly that there was no need for despondency on the part of the disabled soldier provided he had the courage, the ambition, and the determination to be again a man among men.

Army Surgeons Promoted.—Dr. J. M. T. Finney and Dr. William S. Thayer, Chief Consultants of the Medical Service of the American Expeditionary Forces, have received promotions advancing their rank from Major to Colonel. The following named officers have been promoted from Major to Lieutenant-Colonel: Thomas R. Boggs, James T. Case, George W. Cole, Harvey Cushing, Joel W. Golthwait, James F. McKernon, Charles H. Peck, Thomas A. Salmon, Hugh H. Young, N. Allison and E. L. Keyes.

Request That Gift to Red Cross Be Used for Research.—The War Council of the American Red Cross has received a request from Cleveland H. Dodge, who has subscribed over a million dollars to the Second Red Cross War Fund, that \$250,000 of this sum be set aside for the investigation of methods for the prevention and cure of diseases to which our soldiers and sailors may be exposed. The Red Cross is anxious to have gifts specially designated for the purpose of research work so that no work of that kind requiring animal experimentation would be done except with money specially contributed for that purpose.

American Hospital Sacked by Turks.—The Presbyterian Board of Foreign Missions has identified a hospital recently sacked by Turkish troops at Tabriz, Persia, as the Colton Memorial Hospital. Dr. W. S. Vanneman of Salem, N. J., was the physician in charge.

Gas Hospital in Charge of Women Physicians.—A 300 bed hospital for gas cases has been assigned by the French Government to the Women's Overseas Hospital. The French Service de Santé will maintain the beds, but the National Woman Suffrage Association will supply the doctors and nurses. Another cable makes an urgent request for more doctors, nurses, and nurses' aids for an extension of the Labouheyre refugee unit. These two units together with two other units in France are being financed by the women suffragists of America.

Three Ambulances for France.—The Sons of the American Revolution, Empire State Society, in a meeting in New York City, on June 18, presented three ambulances to the Republic of France, through General V. Vignal, representative of Ambassador M. Jusserand. One of these ambulances is already at work on the front in France, another is on the way there, and a third will soon be sent.

A New War Disease.—According to a dispatch to the Associated Press the attention of British Army doctors has been attracted to an affection called "trench mouth." It is said that the disease first appeared in the German Army and that observers think it is caused by a prolonged diet of canned food.

Harlem Physicians Prepare for Air Raids.—Fifty Harlem physicians have organized for first aid treatment in the event of an air raid on New York City. They are undergoing preliminary training under Lieutenant A. Lustgarten of the United States Army Medical Corps, who is giving a thirty days' furlough to this work. Any physician desiring to volunteer his services in this work will be accepted.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, June 29, 1918.

ADRENAL INSUFFICIENCY IN SOLDIERS.

SATRE considers this subject in the *Journal de Médecine de Paris* for April in connection with actual campaigning troops. Under excessive action he would include nervous tachycardia and certain cases of death after craniocerebral wounds. Hypoepinephria is of course the antagonistic condition and a number of syndromes of this nature have been described. The tremendous overexertion of the warriors entails exhaustion of many organs, endocrinic or other. A campaign seems especially calculated to wear out the adrenals. Even before the war a component of adrenal insufficiency was reckoned on in various affections as typhoid fever, scarlet fever, diphtheria, chloroform anesthesia, etc. During convalescence of any kind there may be seen hypothermia, low arterial tension, and other evidences of adrenal insufficiency. Another such syndrome was apparent after gassing. Still another is visible in the shock which follows major wounds—in fact, Satre believes that shock, so called is *per se* very largely adrenal insufficiency.

Of especial interest is the part played by adrenal insufficiency in the accidents sometimes seen after antityphoid immunization. The vaccine may exert a special action upon this gland, as shown by animal experiment, and a considerable literature on the subject already exists. The proportion of these accidents is not large, being 1 to 400 or 500, and is quite independent of the species, mode of preparation, etc., of the various forms of reaction known, only that is understood which is purely suprarenal in character. In a case cited there developed three hours after the second puncture intense pain and tenderness in the epigastrium, agitation, subdelirium, headache, fever, etc. The pulse could not be counted and unfortunately no attempt was made to measure the pressure. At fifteen hours there developed convulsions and apoplectiform symptoms. There was no response of the pulse to camphorated oil. At twenty hours the patient was almost comatose, and vomited. Sergeant's white line was obtained on testing. Not until then was adrenalin injected, in repeated doses, and gradually the symptoms receded, and consciousness returned, the patient complaining of the severe headache and backache. He

received adrenalin injections for a long period, until completely recovered. In a second case the syndrome appeared after the second puncture in a very simple form—hypotonia and prostration. There was no cerebral reaction. After the third puncture, however, there was high fever, pulse rapid, tension 80, embryocardia, abolition of reflexes. The symptoms became worse and the tension fell to 65. There were profound sweats and diarrhea. Sergeant's white line was in evidence. The lumbo-abdominal pains of the first case were reproduced. Cyanosis and coldness of the surface were marked. The syndrome could have suggested an intense poisoning. There was constant hiccough. The tension fell to 60 and the white line was strikingly present. The patient was given oxygen subcutaneously and 1 mgm. of adrenalin. In half an hour the tension was up to 80. There was a constant tendency to swoon. Ether and camphor were also injected. Convulsions and delirium developed, although other symptoms improved. After the patient had received 8 mg. of adrenalin there were still severe pains in the trunk and head. The tension was now 95. Before termination of the case the patient had received 30 cg. of adrenalin and 10 of pituitrin. the tension was 125. Headache was the last symptom to leave. The duration of treatment was only three days. In both cases narrated the offending puncture was made after trench life, which appears to indicate that immunization should be completed before the men enter upon campaign hardships. It was noted by the Germans that protection often failed in immunizing men in the midst of campaign hardships.

ETIOLOGY OF TRENCH FOOT.

OF the novel medical affections arising from modern warfare, trench foot is perhaps the most interesting, although the factors that operate to cause the condition are still very obscure, and treatment is far from satisfactory. It is very much a question whether trench foot is a disease or a symptom of a disease remote from the site of manifestation. Naturally the external manifestations of this disease such as the edema, the skin infections, and even the gangrene have made plausible the theory that the disease is a local one imposed on the extremities as a result of trench life. Treatment necessarily has been local. Good results have, indeed, occurred rather from prophylactic than active treatment, through the better care of the feet frequent relief from trench duty, sufficient rest, the establishment of wash houses, etc. Some clue is obtained as to the probable cause of the condition by the similarity that it bears to Raynaud's disease, intermittent claudication, erythromelalgia, etc. In these diseases local causes cannot be found, yet the symptoms have some resemblance. In the latter diseases, disturbance of the vasomotor apparatus is believed to be the principal cause. In trench foot it seems now more than probable that the same in-

ternal causes, vasomotor in character, operate under provocation of the adversities of trench life.

Sweet, Norris, and Wilmer (No. 16, Phil. U. S. A. Gen. Hosp., B. E. F.) found clinical evidence in cases of trench foot to corroborate the theory that it was caused by vasomotor disturbance. They found a marked increase in the blood pressure of the leg as compared with the arm. This increase of blood pressure is caused either by an undue vasoconstriction or by a loss of the vasodilator power, and the first indication for treatment according to these findings would be some blood pressure reducing substance. There is this discrepancy in the theory that while the edema and diapedesis are due to effusion from the capillaries, the increase of pressure that might cause the diapedesis would occur in the arterioles and not in the capillaries. After the blood leaves the arterioles, on account of the greatly increased capacity of the capillaries the pressure therein is markedly reduced. The arterioles are probably where the greatest amount of resistance is encountered by the blood current. Besides, the arterioles have the vasomotor mechanism of change. Neither the veins nor the capillaries have this mechanism. On the other hand, the circulation in the veins and the capillaries is dependent upon initial conditions of the heart pressure, the action of the skeletal muscles, and the peripheral venous circulation. The mere standing for an excessive period will affect this surface circulation even to entire stoppage. The resort to continual motion and rubbing of the extremities recommended by way of prophylaxis in trench foot is based upon this consideration.

It can be said, therefore, that trench foot is excited by such trench conditions as dampness, cold, and long standing, but occurs only in men whose vasomotor apparatus is primarily impaired. The vasomotor spasm in trench foot is incomplete; were it complete the pressure thrown back to the heart would cause a neutralization, but being incomplete the pressure manifests itself only in the extremity, causing such symptoms as tingling, numbness, burning, pain, edema, and an ischemia of the parts affected. Swelling of the foot, and even gangrene, are final results. The difference in pressure between the arm and the leg is sometimes as much as 10 to 30 mm. of mercury, and when this difference has been reduced improvement is likely to follow.

THE SYMPTOMATOLOGY OF HEMORRHAGE IN HYDRONEPHROSES.

BESIDES those complications of hydronephrosis which are well known there is still another which is less familiar, namely, a hemorrhage taking place into the hydronephrotic sac. This complication is uncommon, and usually results from traumatism, but from this very fact malignant urohematonephroses, likewise those resulting from distention of the sac, cannot be excluded from the differential diag-

nosis. Urohematonephrosis varies greatly as to its beginning. The patient may have sustained a fall, or, on the other hand, the symptomatic phenomena may be insidious. There are no disturbances of the digestive apparatus until the time when the hydronephrotic sac has by its increased size encroached upon the abdominal viscera, and gastric symptoms occur from the resulting compression.

The early symptoms of this particular process are frankly indistinct; these patients are usually well built, without loss of weight, the pulse and temperature are normal, so that nothing indicates the true condition of affairs. The urinary symptoms are most varied. Occasionally the urohematonephrosis is intermittent, in which case the emission of bloodstained urine is merely temporary. On the other hand, the patient may not have any disturbance in the urinary functions, but a renal tumor will be found. The renal area will be found enlarged, extending to the thorax and abdomen in some instances. Or the abdomen may present a one-sided enlargement from the costal border to the iliac crest. A point important to note is that the integuments overlying the tumor are normal; there is no edema, and the venous dilatation is never at all marked.

Palpation may at times be difficult, and if care be not taken a diagnostic error can easily be made, particularly when following a traumatism which has given rise to urohematonephrosis; there is some infiltration of the cellular tissue, itself the result of the trauma. Percussion is of great importance, but the results must be properly interpreted. In most cases it is safe to say that the tumor will be found directly under the anterior abdominal parietes without visceral interposition, and the colon will be found near the midabdominal line.

If, now, one tries to decide upon the nature of the tumor, it will be first noticed that it is movable over the underlying surface, but that it is not movable transversely. A pedicle may be detected. Pressure over the tumor does not give rise to pain, but rather to discomfort, and a sensation of dragging in the corresponding testicle. Compression of the nervous plexuses by the tumor mass readily explains this phenomenon. The tumor may be apparently quite hard and even, but usually some amount of fluctuation can be made out. In some cases the tumor has been the source of very severe pain, the result of intracystic tension, which is at once relieved by a urohematic discharge, in every way similar to that occurring in intermittent hydronephrosis. After this, things quiet down, and the tumor decreases in size and pain subsides. In some cases the symptomatology has been thoracic, and the true condition of affairs is made out only after a very detailed examination. From the varied and rather deceitful symptomatology of urohematonephrosis it becomes evident that a correct diagnosis will be made only after a most painstaking examination of the patient, since in quite a good percentage of cases urinary symptoms, other than the occasional appearance of blood, are wanting.

TREATMENT OF CHANCROIDS AND THEIR BUBOES.

POIRSON, in charge of a venereal service in the French army, has published a Paris graduation thesis on this subject, an abstract of which appears in the *Journal de médecine et de chirurgie pratiques* for April 10. This treatment is extremely simple, recalling the old management of these lesions with ethereal solution of iodoform, but apparently more efficacious, and free from the telltale odor. A solution of sodium arsenate in alcohol, one part to fifty, is said to be so efficient that a single application may suffice. There is no preliminary cauterization. The first step in the management consists in cleansing the sores with tampons soaked in ether. The process is continued until not a trace of pus remains in evidence. The arsenate solution—or rather suspension, because the salt is poorly soluble in 95 per cent. alcohol—is shaken well and applied with a camel's-hair brush thoroughly to the sore or sores. In order to hasten the evaporation of the alcohol a jet of air may be blown upon the lesions. The arsenic is thus left upon the latter as a fine coating. Soon afterward a second application is made and a piece of sterile gauze is placed over it. In certain locations this dressing will have to be renewed often because it is worn away by secretions, etc. Even under unfavorable circumstances, from 3 to 5 dressings will turn the ulcers into simple raw surfaces, which heal rapidly of themselves. The author advises, however, the use of alternative applications until healing is complete, iodoform being a good dusting powder. Much of the efficacy of the treatment is thought to be due to the preliminary treatment with ether. If a bubo has formed, but without the immediate menace of suppuration, the author injects a solution of arsenic directly into the mass, the strength being one-half of the preceding. If pus has already formed, it is evacuated by puncture with a small trochar, which is also used to break down any septa in the pus cavity. The solution is then injected as before. In ulcerated chancroidal bubo the treatment does not depart from that of the chancroid. The author has treated 250 patients with his method, the average duration of treatment being 18 days for simple chancroid and bubo up to 29 days for complications.

News of the Week.

Move for Militarization of State Health Boards.—It is reported that the Surgeon General of the Army and his staff have given their approval to a plan, all the details of which have not yet been worked out, for the federalization of all State and, perhaps, all municipal health organizations. A conference on the plans was held in Washington on June 21.

Doctor Arrested for Using Seditious Language.—A physician, long resident in Mount Vernon, N. Y., and for many years a naturalized citizen of the United States, but born in Germany, has been arrested on a charge of sedition. The alleged seditious language is said to have been used in a Yonkers restaurant in the presence of a number of people.

Exposition of Chemical Industries.—The fourth National Exposition of Chemical Indus-

tries will be held in the Grand Central Palace, New York City, during the week of September 23, 1918. The advisory committee of the exposition announces that this will be the largest and most interesting chemical exposition ever held in this country. Among the exhibits of special interest will be examples of what the chemists of America has produced since the world war began. There will be in connection with the exhibition a series of symposiums on the Development of Chemical Industries in the United States.

Hospital Building Destroyed by Fire.—The hospital building of the Erie County Poorhouse was destroyed by fire on June 19. Fifty patients were carried to places of safety by the nurses. The loss is estimated at \$75,000.

Trial Brings Out Tale of Suffering Among Insane.—The trial of Freeholders who are under indictment for unhealthy conditions obtaining in the hospital for the insane at Overbrook, N. J., brings out the fact that there were 92 deaths in that institution during November, December, and January of last winter as compared with 35 for these months of the preceding winter. It was stated that most of the time during December and January the temperature of the wards was never above 28°. Other evidence also indicated that the inmates of the institution were subjected to much suffering and discomfort.

Fined for Hoarding Food.—A medical director in the Navy who was recently charged with unlawfully hoarding foodstuffs, has been tried in the Supreme Court of the District of Columbia, found guilty and fined the sum of \$1,000. It is said that part of the illegally stored food will be confiscated by the Government.

Yale University Meets Requirements.—Yale University Medical School has now met the requirements of the General Education Board and the \$2,500,000 endowment for the medical school is complete. The medical school will receive interest on the board's subscription of \$582,900 as a part of its yearly income.

Gifts and Bequests.—Columbia University and the Presbyterian Hospital each receive bequests of \$610,345 by the will of Kate Collins Brown.

The Loomis Sanitarium of Liberty, N. Y., and St. Mary's Free Hospital for Children, New York, each receive bequests of \$1,000 under the will of Mary M. Irwin.

The Ossining Hospital, Ossining, N. Y., is the recipient of a bequest of \$1,000 under the will of Mrs. Julia Greer Simmons.

Hospital Drops German Name.—The institution hitherto known as the German Hospital of Cleveland has decided to change its name and will be known as either the Franklin Avenue Hospital or the Fairview Hospital.

Disease Ravaging Roumania.—According to a report from Amsterdam, Roumania is negotiating with Germany for large quantities of drugs and other medical supplies to combat diseases growing out of the war conditions. It is said that disease is raging with disastrous results in Roumania and that the population in some districts has been decimated.

New York Medical College and Hospital for Women Closed.—Women physicians interested in

the New York Medical College and Hospital for Women, who recently protested against the action of the trustees of that institution in voting to close the college and disband the student body, after a conference with the Board of Regents, have decided to accept the action of the Board of Trustees inasmuch as women are now admitted to most of the general medical colleges throughout the country. Another reason for agreeing to the closing of the medical school is that they the women see in it the opportunity to gain control of their own hospital which contains 110 beds. They are starting a campaign to raise \$50,000 with the idea of using the hospital to care for wounded soldiers.

Obituary Notes.—Dr. VALENTINE MOTT died suddenly of angina pectoris at his home in New York, on June 20, aged 65 years. He was widely known as a surgeon, a traveler, and a writer. He was graduated from Columbia College in 1872, and from Bellevue Hospital Medical College in 1878. He also had a degree from Trinity College, Cambridge, England. Dr. Mott was appointed attending physician of the outdoor department of Bellevue Hospital in 1879, and in 1887 was sent to Paris as the representative of the American Pasteur Institute to study with Louis Pasteur. He was entrusted with the first inoculated rabbit that was permitted to leave the laboratory to be brought to America. Following his return to this country he wrote many treatises on the Pasteur treatment of rabies. He was the grandson of Valentine Mott, a famous surgeon of his day.

Major EUGENE WILSON CALDWELL of the Medical Reserve Corps of the United States Army died at the Roosevelt Hospital, New York, from the effects of x-ray burns received many years ago, on June 20, aged 48 years. Major Caldwell took the degree of B.S. from the University of Kansas in 1892, and was graduated from Bellevue Hospital Medical College in 1905. He did experimental work in marine telephone for the United States Lighthouse Board, and later was an assistant in the engineering department of the New York Telephone Company. He was visiting roentgenologist to the Presbyterian Hospital and roentgenologist to the German and Orthopedic hospitals. He was a member of the American Roentgen Ray Society, the American Medical Association, and the New York Academy of Medicine. Major Caldwell was the inventor of the Caldwell liquid interrupter, of special forms of Roentgen tubes, and of a number of other appliances that are used in x-ray work. He had only recently completed an appliance for stereoscopic fluoroscopy especially adapted to war needs.

Dr. FREDERICK WEYGANDT of Brooklyn died on June 12, aged 70 years. He was educated at the University of Worms, and graduated from the College of Physicians and Surgeons, New York, in 1875. He was connected with the Eastern District Hospital of Brooklyn.

Dr. JAMES R. BERWICK, a graduate of Yale University Medical Department, in 1899, died suddenly of heart disease at his home in Methuen, Mass., on June 1, aged 49 years.

Dr. HENRY W. LITTLETON of Badin died at the Charlotte Sanatorium, N. C., on June 10, aged 30 years. He was a recent graduate of Jefferson Medical College, Philadelphia, Pa.

Obituary.

WILLIAM MECKLENBURG POLK, M.D., LL.D.,
F.A.C.S.

NEW YORK.

Dr. WILLIAM M. POLK, one of the last of the older generation of gynecologists of this city, died in Atlantic City on Sunday, June 23. He was born in Ashwood, Tenn., on August 15, 1844, the son of Bishop, later General Polk, the "fighting bishop" in the Confederate Army. The younger Polk also served in the same army with the rank of captain. Very soon after the close of the war he came to New York to study medicine, and was graduated from the College of Physicians and Surgeons in 1869. From 1876 to 1879 he was professor of therapeutics in the Bellevue Hospital Medical College; from 1879-1898, professor of obstetrics and gynecology at the New York University Medical School; and since 1898 dean and professor of gynecology at the Cornell University Medical College.

Dr. Polk was gynecologist to Bellevue Hospital and consulting gynecologist to St. Luke's, St. Vincent's, and the New York Lying-in Hospitals, and to the New York Infirmary for Women and Children. He was a member of the New York Academy of Medicine, of which he was president from 1910 to 1914, of the New York Obstetrical Society, of which he was president in 1884, of the Medical Societies of the County and State of New York, of the American Medical Association, the American Gynecological Association, of which he was president in 1896, the Southern Surgical Society, the Southern Gynecological Association, and of various gynecological societies in England, France, and Belgium. He was a not infrequent contributor in his younger days to medical periodicals, and was the author of a biography of his father, entitled "Leonidas Polk, Bishop and General," published in 1894.

Correspondence.

THE PROPER FORM OF QUININE FOR CHILDREN.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR: I read with interest Dr. Sheffield's very interesting article in the issue of the MEDICAL RECORD of June 22. I am rather surprised, however, to see him suggest bisulphate of quinine as a quinine salt for children. Being one of the most soluble of the quinine salts, it is naturally one of the most bitter; and it is quite cruel to give quinine bisulphate to children in solution. As to the extract of glycyrrhiza and syrup of acacia covering the taste of quinine in solutions, this is purely mythical. The licorice and the acacia add to the nauseousness of the mixture and take away very little of its bitterness. Even the quinine sulphate would be a much better salt to administer to children than quinine bisulphate, for while quinine bisulphate is soluble in about nine parts of water it requires about 725 parts to dissolve quinine sulphate. In other words, quinine sulphate is about 75 times less soluble in water than the bisulphate.

But there is a much better salt than either, namely, quinine carbonate, or the neutral carbonic

ester of quinine. That being absolutely insoluble, is absolutely tasteless, and may be administered to children without the least trouble. It can be given either dry on the tongue or rubbed up with milk sugar, or suspended in any aqueous or syrupy liquid. If Dr. Sheffield will try the neutral carbonate of quinine he will not say that "Disguise it as you may, quinine will taste after quinine as long as there is quinine in the mixture."

Quinine tannate and quinine salicylate are also practically tasteless, though they are to a minute extent soluble in water; when mixed with chocolate powder or chocolate syrup, the most fastidious and sensitive taste will fail to discover any bitterness. The quinine carbonate, however, is preferable, and, of course, in the stomach it is readily converted by the hydrochloric acid into a soluble quinine salt. So that there is no fear of lack of absorption.

WILLIAM J. ROBINSON, M.D.

NEW YORK.

OUR LONDON LETTER.

From Our London Correspondent

THE ORGANIZATION OF THE MEDICAL PROFESSION IN RESPECT OF THE WAR—POSITION OF THE STAFFS OF THE LONDON HOSPITALS—ORIENTAL DISEASES IN THE BRITISH ISLES—KINEPLASTIC AMPUTATIONS—TITULAR HONORS FOR DISTINGUISHED MEDICAL MEN—THE CASE OF DR. JOHN HENDERSON BELL.

LONDON, June 6, 1918.

THE position of the medical profession in this country, in general respect to man power and in particular regard to medicine, has again been undergoing revision at the hands of various Government departments. The situation is flattering for the profession but confusing in the multiplicity of regulations issued for our information. During this week, however, the Ministry of National Service has issued a statement to medical practitioners regarding the position of those liable under the Military Service Acts 1916 to 1918, which clears away certain difficulties, while introducing a new element into professional obligations. The age of compulsory medical service for doctors has now been raised to 55, as I have already reported (see MEDICAL RECORD, May 11, p. 820), and the Statutory Bodies entrusted with granting exemption, viz., the Central Medical War Committee, the Scottish Medical Service Emergency Committee, and the Committee of Reference of the English Royal Colleges, which had hitherto been advisory only, are now constituted the actual Tribunals by which applications for exemption are considered. The grounds for exemption are given as four: Physical ill-health, private disabilities, conscientious objection, and lastly, the needs of the civil community amidst which the medical man practises. Of course, the last is far the most important ground for appealing against conscription, and it is here that a new feature has been introduced, and it is here also that the Ministry of National Service comes to play a part in proceedings which have hitherto been conducted between the military authorities on the one hand and the medical practitioner on the other. (It has to be remembered that, while the words "military authorities" are used for brevity, they cover the Navy and the Air Force as well as the Army.)

Hitherto the practitioner was granted exemption because his professional work at home was considered to be of more importance to the State than any work that he could do as a medical officer in the Navy, Army or Air Force, while his combatant possibilities were not considered. If exemption was granted he remained in practice discharging public or private duties, as the case might be, in his own locality. But now, if exemption is granted, this means that, while he need not accept a Commission in the medical service either of the Navy, Army or Air Force, neither need he necessarily remain at his previous occupation. For the Ministry of National Service has a lien upon him, and may find that in the national interests it is more expedient for him not to continue to practise at his home, but rather to undertake such civilian medical work as the Ministry, in consultation with one of the Statutory Bodies, or in concert with any Government Department, may determine in his respect. The new development is not viewed with general approval by the medical profession. For example, the Edinburgh Branch of the British Medical Association has registered through its Council a distinct disapproval of the move. They protest against the exercise of any power over a medical man to compel him to undertake some new work in civil practice to which he may have serious and valid objections, and they hold the view that many of the medical men who may be treated in this manner are exactly the people perfectly able to act as military medical officers at home, giving thereby an opportunity to younger and stronger men to serve abroad.

The honorary staffs of all the hospitals of the London area are coming in for a special piece of organization at the hands of the Statutory Body particularly concerned with the question of their exemption, viz., the Committee of Reference. With the approval of the Minister of National Service who is playing a part here also, it has been decided that the staffs of the hospitals in the metropolitan area shall be arranged in new groups, whereby, while a sufficient service is reserved for each group, more medical men will be set free to join the Army. It is a fact that in a huge place like London many members of hospital staffs waste much time in long journeys to and from their work, while similar work, and much more of it, could be done by them at institutions nearer to their doors. How far this is constituting a waste of material will be discovered by an analysis now being undertaken by the Committee of Reference. When the detailed work of every member of the staff of the metropolitan hospitals is set down in tabular form it should be possible to decide what number of doctors possessing the qualifications generally held by the medical officers of hospitals are indispensable to the civil community. From among this number all the hospitals of the metropolitan area will for the future have to be staffed, discontinuing, perhaps, their services at their former institution and being transferred to another one. The surplus medical officers will be offered commissions in the Navy, Army, or air force, the Army having, of course, far the greatest need. This scheme of reorganization has been actually set on foot. It is recognized that it will cause great inconvenience to the medical men concerned, as well as to the Governors and

officers of the various hospitals, but the patriotism of all concerned is being relied upon.

British Medical Officers in Turkish Prison Camps.—The treatment of British prisoners in Germany has been horrible, but in Turkey a far higher standard of humanity has been reached. Turkish civilization has not the same material possibilities to offer as the German authorities could provide if they chose; but Turkey appears to do her best by her prisoners. It is now arranged that one British medical officer and five medical personnel of other ranks should be detained in Turkey per 1,000 British prisoners, the agreement being that the Turkish authorities will make a suitable distribution of their medical staff among the prison camps.

In times of peace the world-wide trade from British ports made it necessary for the port authorities to keep anxious watch upon arriving ships lest Oriental diseases should be introduced into this country. The value of the precautions taken at large ports like those of London, Glasgow, Leith, Hull, and Bristol has been many times shown, especially in regard to plague, a disease which has been most obstinate in its attempts to regain its medieval hold over Europe. The war has added to these risks immensely in one direction, while only slightly modifying them in others. Despite U-boat activities the trade of Great Britain remains enormous, and the risk that the population may, through commercial channels, be affected with Oriental diseases remains practically unaltered, but simultaneously we have the transmission to and fro between Arabia, Mesopotamia, India and East Africa of thousands of men who have either been in contact with Oriental diseases or in relation with contacts. The vigilance of port medical officers, and of the military officers detailed to assist them, has been of the greatest value to the country, and no cases of Oriental diseases have remained undetected on British shores for more than a few hours. It is probable, however, that in the future more may be heard and seen of various forms of Leishmaniasis and "oriental sore" among British troops returning home from India, Mesopotamia, and the Mediterranean seaboard. With regard to plague, the proceedings adopted are those in accord with the International Sanitary Convention of Paris in 1912, when the disease is found on board an arriving vessel. The ship remains moored in the river, the cargo is discharged bale by bale from deck into lighters, after which the ship is disinfected by methods which must result in the destruction of the rats, to whom no opportunity has been given for leaving the ship. All the crew and passengers on the ship after medical inspection are subjected to the quarantine regulations of the country. In this way there is little risk of the spread of plague among the British population; but plague is now a well-understood disease, whose symptoms are readily detected. More risk is really run in rarer forms of disorder, and the responsibility as port officer of health is distinctly heavy.

At a recent meeting of the Royal Society of Medicine Professor Putti, director of the Rizzoli Institute of Bologna, expounded the theory and practice of kineplastics to an interested meeting, whom he convinced that the conception of kinematization contained enormous possibilities for the future of

badly disabled men. The term kineplastics stands for the technique by which amputation flaps are constructed having a power of independent movement. The original exponent of the methods was Dr. Giuliano Van Ghetti and his experiments were originally suggested by his endeavors some 20 years ago to remedy the deformities among the Italian prisoners who had been mutilated in the course of the Italian war with Abyssinia some 20 years ago. In Italy, in Austria, and to some extent in Germany and Switzerland, kineplastics have been worked at during the interval, but Prof. Putti had right on his side when he called attention to the fact that in the United States, France, and England, little attention was paid to an important scientific innovation, namely, the possibility of full utilization of the functional resources of a stump. The application of kinematization entails a wholesale neglect of the previous methods of amputation, as muscular insertions, skin flaps and tendons, which would not only have been superfluous but mischievous if left in the course of an ordinary amputation, become the scaffolding on which the motor machinery of prosthesis is to be erected. The direction of incisions and the preservation of bony surfaces have also to be carefully observed, if the greatest recovery of motor power for the patient is to be obtained. The ardent advocates of kineplastics would consider that even at the First Aid Dressing Station the surgeon should operate so as to leave a fair field in the immediate future for kineplastic methods. This, of course, entails a general knowledge of the method and its aims and objects and a natural or acquired aptitude on the part of the operator in performing his contribution to the final success of the operation. These methods have now been applied to arm and thigh stumps with great success. In the forearm, for example, living terminal motors, one contrived with the tendons of the flexor muscles and the other with the tendons of the extensor muscles, form two kinds of "fingers" under complete voluntary control, and the contractions of these "fingers" can be transmitted to an artificial hand through metal rings covered with vulcanized rubber. The result is that the subject can give dissociated flexor and extensor movements to an artificial hand. The mechanical attachments appear to be remarkably tolerated, the rings playing through elaborately prepared tunnels in the muscles. What has been so successfully done in the forearm stumps has been proved possible in other directions, and there seems no doubt that the whole technique is capable of great development. Researches at the Rizzoli Institute show that the preparation of motor flaps is a well-defined surgical technique, and there is now sufficient experience on record to make it certain that many surgeons will try to work along the lines where Italian surgeons have been brilliant pioneers.

Dr. H. D. Rolleston, now a surgeon-general in the Royal Navy, and the learned collaborator with Clifford Allbutt in the "System of Medicine," has been made a K.C.B.; Colonel A. W. Mayo Robson, formerly vice-president of the Royal College of Surgeons of England and a famous pioneer in abdominal surgery, has been knighted; and a K.C.M.G. has been given to Colonel W. H. Horrocks, a leading exponent of military sanitation and a member

of the Advisory Board of the A.M.S. since the outbreak of war.

Dr. John Henderson Bell, a medical man of high standing and unblemished record, was condemned last year to serve a sentence of six months' imprisonment for a supposed "act preparatory to an act" to enable a soldier to evade military service. The circumstances in which the conviction was secured made all medical men, and those laymen who gave the facts and allegations close attention, perfectly certain that Dr. Bell was an entirely innocent man; and now the General Medical Council, at the summer session just expired, have shown this to be their official view of the case by confirming Dr. Bell in his legal status as a medical man, and retaining his name on the Medical Register. The evidence against Dr. Bell was suspect from beginning to end. The chief witness was a deserter who had left France with another man's papers, and the supporting testimony was given by a policeman, who set a trap for Dr. Bell with the assistance of other people, to one of whom a sum of money was paid! The actual facts of the case, though not disclosed in so many words at the trial, have become apparent. An intending malingerer had given money to somebody, who had received it on the understanding that it should be devoted to obtaining for him medical assistance to escape the army orders. The man who had received the money had to do something in return for it, and the something that he did was to represent to Dr. Bell that the patient required ordinary treatment, while informing the malingerer that the treatment which he was about to receive was given him with the object of enabling him to escape military obligations. Then the malingerer became a police informant, and then the police, having made up their minds that they had a real case, proceeded with any sort of evidence to secure a conviction rather than admit the error into which they had fallen. There was never any evidence that Dr. Bell received excessive payment for his medical treatment of the individual who laid information against him, while the treatment that was administered was properly directed to the condition in which the man was represented to be. The miscarriage of justice was assisted by the general air of prejudice diffused throughout the proceedings; an appeal failed, and Dr. Bell served six months' imprisonment, although surprise was manifested that there was no remission of the sentence, the *Lancet* stating definitely that the conviction was a miscarriage of justice, and other journals being critical of the legal procedure. The view that has now been taken by the General Medical Council to the common pleasure of the medical profession is that the conviction was wrongly secured, and the Council is the disciplinary body of the profession, and itself a standing committee of the Privy Council. By the General Medical Council a register of the medical profession is maintained at a proper professional standard, they remove from the list the names of all (to quote the awkward phraseology of the Act of Parliament) "who have been guilty of infamous conduct in a professional respect," as well as all those who have undergone, or who are undergoing, legal sentence for a criminal offense. If the General Medical Council had not believed in the inno-

cence of Dr. Bell, his conviction would *ipso facto* have ensured his removal from the list. The Council have departed from precedent and have retained his name, and Dr. Bell is thus recognized, in the public as well as in the professional eye, as a victim of a breakdown in the legal machinery of his country. There is a grave moral and physical debt owing to him which cannot be paid, but there is one side of the position where Dr. Bell can be assisted. His attempts to defend himself cost him a large sum of money—£800 or more, and I believe it is the intention of Dr. Bell's professional brethren to start a subscription in his behalf.

Progress of Medical Science.

The Boston Medical and Surgical Journal.

June 13, 1918.

1. Army Tuberculosis Examinations. Horace Gray.
2. A Study of the Physical Condition of One Thousand Delinquents Seen in Court. V. V. Anderson and Christine M. Leonard.
3. Identification of Soldiers after Death by Head Measurements. Arthur MacDonald.
4. Pathological Classifications of Pulmonary Tuberculosis. Herbert F. Gammons.
5. Idiopathic Epilepsy a Sympathicopathy. Edward A. Tracy.

4. Pathological Classifications of Pulmonary Tuberculosis.—Herbert F. Gammons points out that pulmonary tuberculosis may be divided, according to its pathology, into inflammatory and ulcerative types, and that these types may be subdivided into fibro-inflammatory or fibro-ulcerative of the incipient, moderately advanced, or advanced stage, according to the other manifestations of the disease. Diagnosis may be made clinically by stethoscopic examination and also by observation of the sputum and the use of the x-ray. As a rule, the inflammatory cases have bronchovesicular, or, in some instances, bronchial breathing, depending upon the site of the lesion; other cases show fine rales of a crepitant nature. The ulcerative case shows muco-purulent or purulent sputum with elastic tissue fibers, and stethoscopic examination demonstrates signs of cavitation, including marked variation in the vesicular respiration, increased sound transmission, and rales of a mucous character, depending upon the stage of the ulceration. X-ray examination shows all degrees of shadows, depending on the stage of the ulceration, while in simple inflammatory cases it has been negative. A faint shadow surrounding a deeper shadow usually means active inflammation in the faint, shadowy area which is surrounding an old fibroid or ulcerative process that gave the darker shadow. The treatment of these different pathological conditions varies for each type. For instance, a simple inflammatory incipient case does not need the rest that other types require. The moderately advanced ulcerative case often needs more rest than the advanced fibro-inflammatory case without constitutional symptoms. The prognosis depends to a certain extent upon treatment; the far-advanced case of the fibro-inflammatory type, with its acquired resistance, will often do better and live longer, with proper treatment than the active inflammatory type of the incipient stage. Gammons believes that by using the present classification of Rathburn, and adding the pathological type, it may be possible to give the patient more definite advice as regards prognosis and treatment of his disease.

New York Medical Journal.

June 13, 1918.

1. The Surgery of Laryngeal Malignancy. Hubert Arrow-smith.
2. Suggestions for Improving the Operation for Cataract. Max Talmey.
3. Clinical Significance of Intestinal Hemorrhage. Frank C. Yeomans.
4. Pyorrhea Alveolaris from the Medical Standpoint. A. L. Benedict.
5. The Treatment of Leg Ulcers. P. G. Skillern.
6. Preparation of Solutions of Salvarsan and Arsenobenzol for Intravenous Use. Herman Goodman.

3. Clinical Significance of Intestinal Hemorrhage.—Frank C. Yeomans points out that in every obscure case of intestinal bleeding the blood should be examined and a Wassermann test made. A leucocytosis suggests an inflammatory process, while eosinophilia may be a clue to intestinal parasites. The hemoglobin percentage and the red cell count are indices to the degree of anemia, and the morphology of the cells indicates whether the anemia is primary or secondary. In children, bleeding may be due to (1) partial or complete prolapse of the rectum, (2) polyp or multiple adenomata, (3) prolapse of the sigmoid into the rectum. In adults, hemorrhoids are the most frequent cause of bleeding, and the tendency of the lay mind is to ascribe all cases of bleeding to this cause. The danger here lies in overlooking other causes, and for this reason no case of bleeding piles should be submitted to operation before proctoscopy. Bleeding from hemorrhoids occurs in a rather copious hemorrhage at long intervals, which is often due to rupture of an overdilated vein from cirrhosis of the liver and as a safety valve in relieving portal congestion does not require treatment unless the hemorrhage is excessive; a spurting stream of blood from a single ulcerated pile; or a constant daily ooze. In the two last cases anemia results, and they should be considered as possible causes of secondary anemias. In the case of thrombotic external hemorrhoids a simple excision under local anesthesia usually ends the trouble; but if neglected these may lead to fistula, with its possible sequelæ—spasmodic sphincter, constipation, and alimentary toxemia, or abscess followed by fissure, or reflex symptoms referable to other organs or to the nervous system. Pain accompanying hemorrhoids usually denotes a fissure, which must be differentiated from other lesions, such as blind internal fistula, chancre, condylomata, tuberculous ulceration and epithelioma. Then again there is the bleeding from ulcerative proctitis and colitis, and here hemorrhagic colitis should be given special mention. This is a rare condition, which has been studied only comparatively recently, and which is probably of infective origin. The main symptoms are loss of weight, weakness, anemia, and diarrhea, with many foul passages, ten to twenty daily, containing some mucus and pus, but mostly blood. The proctoscope shows a typical bosselated mucosa, exuding blood freely. The entire colon is involved and sometimes all its coats. Prolapse of the rectum, partial or complete, occurs in adults as well as children; bleeding is less frequent, however, and its source is to be recognized only by instrumental examination. A polyp in the terminal ileum may be the exciting cause. Thrombosed varicose veins also may give rise to an alarming hemorrhage. Embolism of the mesenteric arteries is a very grave, and usually fatal, condition associated with endocarditis and valvular disease or atheroma of the aorta, while thrombosis may be due to a local endarteritis, calcareous glands, or injury. The only histological difference between polypi in children and multiple adenomata in adults is the greater proportion of glandular tissue in adults and of connective tissue in children. Histologically, these tumors are benign; clinically, without suitable treatment they become malignant in two to three years in about 50 per cent. of cases. Large, solitary, adenomatous growths of the sigmoid and rectum are of clinical interest because of the severe symptoms to which they give rise, and their liability to malignant transformation. The author reports a case of solitary polyp of the rectum in a gentleman aged seventy-six years which became an adenocarcinoma, a case of papillary adenoma, and one of adenomyoma of the rectovaginal septum in which the leading symptom was melena. Of malignant tumors, sarcoma of the rectum practically never occurs, while in the colon it is rare; on the other hand, carcinoma is very common. There is, unfortunately, no one symptom or group of symptoms characteristic of early cancer of the colon or rectum, but in a large series in one-third of all cases of cancer of the large bowel the passage of blood was the first symptom. Yeomans concludes with a mention of certain obscure causes of hemorrhage and with the warning that until a diagnosis has been made and definite indications for surgical intervention have developed it will be very much safer to employ expectant measures than to operate.

Journal of the American Medical Association.

June 15, 1918.

1. The Organization of the Medical Profession for War: Presidential Address. Arthur Dean Bevan.
2. The Effect of Tyramin on Circulatory Failure During Infections and During or After Operations. A. W. Hewlett and W. E. Kay.
3. A Bacterial Toxin as the Cause of Retinal Hemorrhage. P. Park Lewis.
4. Abnormal Reflexes Caused by Morphine Poisoning in a Tabetic. Michael Osnato.
5. Simple Methods for Prolonging the Visability of Meningococcus Cultures. Dolores E. Bradley.
6. Epidemic of German Measles in a City Adjacent to an Army Cantonment, and its Probable Relation Thereto. J. C. Geiger.
7. The Army in Relation to the Tuberculosis Problem. George E. Bushnell.
8. War Edema (Kriegsodem). F. S. Parks.
9. The Predisposition of Streptococcus Carriers to the Complications of Measles: Results of Separation of Carriers from Noncarriers at a Base Hospital. Robert L. Levy and H. L. Alexander.

3. A Bacterial Toxin as the Cause of Retinal Hemorrhage.—F. Park Lewis reports a case of retinal hemorrhage which was caused by the *Streptococcus hemolyticus*. The hemorrhages had occurred over a period of eight months, in spite of treatment. Pyorrhea was present, and roentgenograms showed that there were apical abscesses of several teeth with rarification of alveolar tissue. The infected teeth were removed and the infecting organism found to be the *Streptococcus hemolyticus*. Removal of the source of infection was followed by a cessation of the hemorrhage. In a subsequent case of recurrent hemorrhage an infected tooth was suspected of being the focus of infection. This was found to be so, and the *Streptococcus hemolyticus* again isolated. The author adds that since then, in almost every case of hemorrhage of the eyeball, some form of focal infection has been found, and the active organism has usually been the streptococcus, almost invariably the *Streptococcus hemolyticus*. The hemorrhage is not the result of force from behind, but is due to softening of the tissues of the capillary or arterial walls by the local action of the toxin, thereby producing lysis. Lewis points out that this conception has not heretofore been recognized as a cause of retinal hemorrhage. The importance of the subject is evident; it establishes a definite etiology, satisfactorily explains many pathologic changes otherwise obscure, and gives specific methods of procedure which may have a preventive value in conditions endangering sight, or even life itself. The author shows from a discussion of the literature that our fundamental knowledge of the cause of retinal hemorrhage is exceedingly indefinite. It has been generally assumed that the internal pressure becomes so great that it can no longer be resisted by the retaining wall of the blood vessel, which consequently ruptures, or that the vessel wall becomes so weakened that the normal pressure can no longer be resisted. Lewis points out, however, that little attention has been given to the manner in which structural changes take place, or on what they are dependent; on this point our whole conception of the actual etiology and, therefore, prognosis and treatment is based. He believes that a soluble protein poison which is given off from the focal infection is absorbed into the blood and has a solvent effect on the intercellular cement substance of the cell wall; and that the hemorrhage is not due to alteration of the blood pressure but to local lysis in the wall itself. It is known that several varieties of toxins given off by as many different bacteria are capable of producing hemorrhage; the effect, indeed, is not dissimilar to that of the snake venoms, which Flexner has shown contain a chemical substance which has a definite endotheliotoxic action on the intercellular substance. As to changes of blood pressure, Lewis points out that the force is practically negligible by the time it reaches the capillary terminals. The importance of this subject is more manifest when it is considered in relation to hemorrhages in other parts of the body in addition to those of the eye. In cerebral apoplexy, for instance, it is very doubtful whether the vessel breaks from internal pressure of the blood, but more likely the protein poison has so affected the nutrition of the endothelium that the normal elastic cellular substance is so softened that dissolution of the walls results and hemorrhage is precipitated.

The Lancet.

May 18, 1918.

1. The Milroy Lectures (Abstracts of) on the Teaching and Training in Hygiene; Some Criticisms and Suggestions. Lecture II. H. R. Kenwood.
2. "Botulism" and Heine-Medin Disease. (Notes on the Present Epidemic.) F. G. Crookshank.
3. On the Physiology of "Functional Paralysis" of "Voluntary" Movement, with a Description of a Case of Inversion of the Kinesthetic Sensations. Captains T. Graham Brown and R. M. Stewart.
4. Mastoid Disease in the Balkans: Some Notes on Diagnosis. Captain J. Arnold Jones.
5. A Preliminary Note on Graphic Records of Muscle Reaction. Fleet-Surgeon G. M. Levick.
6. Meningococcus Agglutinating Serum: A Method of Increasing the Yield from the Rabbit. Major A. S. Gordon Bell and Miss I. M. Harmer.
7. Note on 28 Cases of Ruptured Gastric Ulcer Amongst Soldiers with Two Deaths. Captain Charles E. Murphy.
8. A Plastic Operation for Apparently Lengthening an Amputation Stump. Major S. Alwyn Smith, D.S.O.
9. Notes on a Case of Botulism. W. Carey.

3. On the Physiology of "Functional Paralysis" of "Voluntary" Movement, with a Description of a Case of Inversion of the Kinesthetic Sensations.—Captains T. Graham Brown and R. M. Stewart discuss an interesting case of "functional paralysis" which resulted from a severe shock by lightning. On the twenty-fifth day—extensor rigidity being present—the patient was placed under chloroform narcosis and the objective motor phenomena carefully studied. At a certain depth of narcosis the patient was able to move the left limb; he was made to continue this movement while narcosis was diminished, and when perfectly conscious was shown that he was using his limb normally. This procedure was repeated and the patient made to move the left arm in the same way. He was then put to bed and given opium. He moved the limb freely during sleep, and upon awakening was able to move it readily. Left hemianesthesia and hemianalgesia persisted. There was a curious reversal of kinesthetic sensations, which, however, was quickly corrected by training. In this case the paralysis did not appear immediately after the shock, but succeeded a slowly spreading numbness. The paralysis was at first a flaccid one, but was succeeded by a state in which the limbs showed rigidity. As long as the kinesthetic sensations remained absent the return of "voluntary" power to the left limb was slow. The arm was usually held in a rigid position. The gait was "functional." When under a certain form of treatment, "voluntary" movements were much improved; this improvement was almost at once accompanied by reappearance of appreciation of kinesthetic sensations, and when once this had reappeared a further and rapid improvement of the "voluntary" movements occurred. However, failure of appreciation still persisted for movements at joints of left toes and fingers, and (to a less extent) for movements of left ankle and wrist; and it was at these joints that the "voluntary" movements were least fully established. Captains Brown and Stewart point out that "functional paralysis" is often accompanied by functional disturbances (depression) of sensation, and that the functional paralysis of a limb is almost always accompanied by anesthesia or analgesia of that limb. The "motor" mechanism of the cerebral cortex becomes inactive in that part of it which is cut off from the centripetal (sensory) nerve impulses of the part of the body the movements of which it subserves, but the mechanism itself remains a workable one. They suggest that the so-called "functional paralysis" is secondary to the anesthesia, a view which is supported in the case described by the fact that the paralysis appeared after the numbness, and persisted in those parts in which the kinesthetic sensations were absent longest. They offer in explanation of the cases in which the paralysis persists after resolution of the anesthesia, the suggestion that long disuse of the cortical mechanism may have rendered it relatively inexcitable to the impulses which normally play upon it. These observers next take up the question of "functional gait." In the act of progression two main types may be recognized, the phasic and the postural. Cortical reactions are characterized by their phasic nature; those of the red nucleus by their postural. The authors are of the opinion that "functional paralysis" is probably due to an abnormal exaggeration of a normal manner (postural) of holding and moving the limbs. This manner has been facilitated by use,

whereas the subject is conditioned by a relative difficulty in activating the cerebral (phasic) mechanism, which in turn is conditioned by the failure of certain centripetal (sensory) impulses to rise above the threshold of the cortical motor mechanism, a failure which is conditioned by some other factor. The "postural" state is, as it were, a bad habit. The obvious treatment, therefore, is one which lowers the threshold of the cortical mechanism, and, of course, should be undertaken as early as possible. This can perhaps be done by increasing the value of the impulses which play upon it—the authors ask, Is this how suggestion works?—and, when the mechanism becomes activated by them, by facilitating the mechanism by practice. However, in the view of the authors, the primary condition is the anesthesia, and when this is resolved the cortical mechanism will also be facilitated by the playing upon it of impulses which are ineffective in the state of "functional paralysis." (Does suggestion also play a part here by increasing the intensity of these impulses until they cross the motor threshold and then lower it constantly by their passage?) In any case, the authors wish to emphasize that in such cases of "functional paralysis" the most striking thing, the gait and the postural movements of the limbs, are probably but the symptom of a symptom, and must be treated as such.

British Medical Journal.

May 25, 1918.

1. The Bacterial Flora of War Wounds: Influence of Treatment. Sir Kenneth Goadby.
2. Notes on Vibrios Septique. Muriel Robertson.
3. Treatment and Prophylaxis of Malaria. Colonel C. A. Johnston.
4. Epidemic Poliomyelitis (So-called Epidemic Botulism). Part II. Charles H. Melland.
5. The "Thick Drop" Method for the Detection of Scanty Spirochaetes in the Blood. H. M. Woodcock.
6. Internal Derangements of the Knee-Joint. Lt.-Col. H. Bramwell.
7. Tubal Abortion with Cystic Degeneration of the Ovary on the Same Side. Robert B. Johnstone.
8. Avulsion of the Eyeball in Birth. J. H. Joyce.
9. Absence of Spleen. F. G. Rose.

1. The Bacterial Flora of War Wounds: Influence of Treatment.—Sir Kenneth Goadby gives the results of his observations on the bacterial flora of wounds carried out on convoy cases arriving at English hospitals since the commencement of the war. Routine bacteriological examinations were conducted throughout in a uniform manner. During the winter of 1914-15 a large number of spore-bearing organisms were found; these were of the following types: (1) Bacilli with a central spore, staining deeply by Gram's method; (2) bacilli containing a subterminal spore; (3) bacilli with a rounded or oval end spore. The presence of these organisms became less frequent during 1916, and in the latter part of 1917 they were only observed in limited numbers. During the first two years Gram-negative bacilli belonging to the coli and proteus groups were frequently met with, but the incidence, especially of the proteus group, later diminished. During the first half of 1916 there was an apparent diminution in the number of sporing anaerobes isolated from wounds, but from that period to the end of 1917 the incidence rose steeply. A considerable rise also occurred in the number of proteolytic and saccharolytic organisms in the second half of 1916. Sir Kenneth Goadby therefore points out that though the mass infection has diminished progressively from 1915 to the present time the persistence of anaerobic bacteria has not undergone similar quantitative reduction. He also states that no great diminution in anaerobic flora has been effected by the use of the two antiseptics of which statistics have been available (bipp and hypochlorite); that latent infection, as opposed to persistent infection, is of great importance in "subsequent operations," and that latent infection is determined by the treatment of the case in the first week of the injury, possibly in the first three days; that in latent infection organisms are found in close proximity to healthy tissue, and therefore in a region likely to become the site of an incision in a subsequent operation; that bone fragments split off at the original injury invariably become sequestra, probably due to the proteolytic action of the bacteria rather than to destruction of blood supply;

that of the various methods which have so far been made use of in the immediate treatment of wounds immediate excision of the lacerated tissues is apparently the only one that has produced a marked diminution in the anaerobic flora of the wounds.

Crónica Médico-Quirúrgica de la Habana.

April, 1918.

1. Homage to Dr. José I. Terralbas.
2. Homage to Dr. Serapio Arteaga.
3. The Alleged Cure of Leprosy. Victorino Cabrera.
4. The So-called Garcia Plan for the Treatment of Leprosy.
5. Latin-American Friendship.
6. How Should the Oculist Proceed in Hopeless Cases? Juan Santos Fernandez.
7. Maternal Feeding in Spite of Sickness. Thomas Hernandez.
8. Trachoma in Cuba. Jesus M. Benichet.
9. Circumcision in a Woman. Pelayo Pelaez.
10. Quackery in Cuba. F. Martinez de la Cruz.
11. Brazilian Trypanosomiasis. Eucario Novaes.
12. Prophylaxis of Syphilis of the Central Nervous System. Isadore Rosen.
13. The Medical Congress of Spain.
14. Medical Aspects of the Great War.
15. A Department of Public Health.

3. The Alleged Cure of Leprosy.—Cabrera denies any specificity in the so-called Garcia plan for the treatment of leprosy, which consists in the ingestion of certain herbs in order to make chaulmoogra more tolerable to the stomach. The method is antiquated, as the author maintains that nowadays the best way to give chaulmoogra is hypodermically or intravenously.

6. How Should the Oculist Proceed in Hopeless Cases?—Juan Santos Fernandez recommends that some caution should be observed in dealing with the hopeless blind. The diagnosis of total and irremediable blindness should be withheld for some time, and only given out after one is sure the case is such and the patient can bear to hear the truth. In the case of well-to-do people there is no such necessity of telling them their unfortunate condition as there is in poor people, who need reeducation in order to be able to support themselves.

Berliner klinische Wochenschrift.

April 8, 1918

Pulmonary Resection.—M. Zondek relates the history of a patient who received a bullet wound in the right thoracic cavity. A pulmonary fistula resulted, this being followed by a series of empyemata, which did not give way to drainage or various forms of irrigation. Finally Zondek decided to undertake a more radical interference. After having done an extensive thoracotomy, he freed the lung from all adhesions, peeled off the fibrous layers adherent to the lung and then resected the pulmonary parenchyma surrounding the fistula. A large cavity resulted which was closed by sutures. Later on a cutaneous flap operation was done to close the thoracic wound. The patient made a good recovery. Passing to general considerations of the subject, Zondek studies the distribution of the bronchial tubes since in resection of the lung, the operation must depend upon their anatomic arrangement which is as follows: the bronchi form cones with the apex directed towards the hilum; the base is oval in shape, the great axis being anteroposterior in direction, that of the lesser axis being vertical. As to operative indications, the writer mentions pulmonary fistula, especially when the pleural cavity is filled with adhesions. Resection is less to be recommended in cases of neoplasms, tuberculosis, extensive bronchial dilatation, and multiple pulmonary abscesses. Lastly, the writer insists upon the advantages derived from pulmonary amputation which ensues after removal of the atelectatic tissue and fibrous layers which fill the pleural cavity. (For a very complete paper on this subject the reviewer would call attention to: Roux-Berger et Policard, Plaies de Poitrine, *Lyon Chirurgical*, No. 6, 1917.)

Münchener medizinische Wochenschrift.

April 2, 1918.

Clinical Symptomatology of Alcapsonuria.—E. Epstein recalls that this affection is due to the elimination of homogentisin acid in the urine. This is a hydro-

quinone-acetic acid derived from tyrosin and phenylalanin by reactions which are almost all known. The writer has observed two brothers afflicted with this disturbance of the metabolism. Besides the dysuria which brought the patients to seek medical advice, the writer calls attention to the peculiar coloring of the cartilages of the ear, likewise that of the integuments of the face and pigmentation of the sclerotic. This ochronosis is found at autopsy of these cases. The cartilages are colored brown, while the joints even undergo changes, giving rise to osteoarthritis deformans. The writer particularly insists on the possibility of making the diagnosis simply from the clinical findings and case history.

Continued Rhythmical Spasm in Cerebral Foci.—H. Klien has observed three cases of lesion of the cerebral substance of the hemispheres in which spasms occurred in the muscles of the pharynx, larynx, and even the diaphragm. He concludes that there is a homolateral cerebellar localization exercising a permanent action on the centers of deglutition, respiration, and bulbar nuclei. The writer has met with a case of descending degeneration of the cerebello-olivary tracts, which has been considered until now as an ascending process.

The Treatment of Pulmonary Tuberculosis by Isolated Partial Antigens and by a Mixture of These Antigens.

—G. Deycke and E. Altstaldt are opposed to the views of W. Müller, and point out the fact that tuberculous cases in general react more to the fatty than to the albumin antigens, contrary to Müller's findings, which distinguish from this viewpoint, between pulmonary and surgical tuberculosis.

Revue Médicale de la Suisse romande.

February 1918.

Four Cases of Obliteration of the Superior Vena Cava.—Faure refers to obliteration from thrombophlebitis and the pioneer article on the subject, by Oulmont, 1855, which comprises an account of 19 cases reported between 1808-1852 of obstruction of this vessel. Of this number but three seem to have been due to primary phlebitis. The great majority were the result of compression from without or destruction of the vessel, and since 1852 numerous cases of the latter have accumulated in contrast to a very meager number of cases of primary obstructive phlebitis. The author has had the rare good fortune of seeing four cases of this most rare condition—almost equal in number to the entire sum of the cases on record—for only such cases are included as are reported in some detail with autopsy finds. No case before Oulmont's time is included, so that but five authentic cases had appeared prior to the present author's report, viz.: Oulmont (1855), Comby (1892), Achard (1896), Benda (1908), and Bonninger (date not given). The author's four cases, which made a grand total of nine, were all seen in the Geneva Medical Clinic between 1908 and 1915. The nature of the author's cases throws some light on our want of knowledge of this condition, which in the author's material, at least, was frankly syphilitic. Not all the cases have the same mechanism, however, for in addition to specific thrombophlebitis it is possible for a gumma to involve the perivascular tissues and cause a form of secondary phlebitis. In any case, these conditions are amenable to specific treatment, which may account in part for their great rarity. A third mechanism is seen in the compression of the superior cava by syphilitic aneurysm of the aorta. This appears to have been present in the author's third case. The first and fourth cases were examples of primary phlebitis, while the second was due to extension of specific mediastinitis.

Treatment of Amebic Dysentery by Enemata of Salvarsan.—Calame has tested this new resource, unaware, perhaps, of its employment by others. Two cases of typical dysentery are reported in one of which emetine was quite efficacious, in association with applications through the proctoscope, of nitrate of silver solution. The second case, however, proved quite refractory to all treatment. The author, before resorting to appendicostomy, gave enemata of salvarsan, apparently because he had obtained good results in rectal ulceration of ambiguous nature by these means. The results were surprising in the prompt amelioration obtained, and the patient was soon pronounced cured.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-ninth Annual Meeting, Held in Chicago, June 10-14, 1918.

(Special Report to the MEDICAL RECORD.)

(Continued from page 1114.)

SECTION ON SURGERY.

First day—Wednesday, June 12.

DR. E. STARR JUDD OF ROCHESTER, MINN., IN THE CHAIR.

Congenital Cleft Palate and Harelip.—Dr. TRUMAN W. BROPHY of Chicago presented fifteen forms of cleft palate which were considered as follows: Embryologically speaking the defect arose from failure of the primitive structures to close. They were always present, never absent. After birth the deformity was increased by subsequent lack of muscular development. It varied from a slight to a marked degree. The main etiological influence was heredity; if the defect was not seen in the immediate family, it certainly could be traced to progenitors, being definitely atavistic in nature. Prenatal influences were considered negative. Defective intra-uterine influence may have had some effect. Supernumerary teeth and faulty invagination of mucous membrane were believed to be important factors. Venereal and uterine infections were not underestimated. Some of the exciting causes were believed to be: the disproportion of the tongue to the mouth cavity in the embryo; in the uterus in a vertex presentation, where there was a marked flexion of occiput, the mandible was pressed against the maxilla. Operation must correct not only the deformity, but also restore phonation. Operation was indicated as early as possible, one month after birth being a good time. An underfed child must have its nutrition attended to. The author's rubber palate dam allowed perfect deglutition. Colds and other constitutional symptoms and mouth infections should be treated and cured before operation; as to operation—bone surgery was absolutely essential. First the bones must be united and held in normal position by non-absorbable sutures, silver wire and lead plates. The latter relaxes the tension on all tissues. The premaxillary bones were never removed as they were essential for the formation of features.

The maxillary bones were considered ununited fractures, hence to be approximated and immobilized. The second step, six weeks later, consisted in closing the lips. At the third step the soft palate was closed. The result of these operations produced a functional normality of deglutition and phonation. If operations were performed in later life, proper phonation was difficult and it was best to have a new language taught. The author strongly urged the necessity of a more thorough teaching of this subject in the medical colleges.

Dr. S. J. OCHSNER of Chicago compared this operation to the old Ferguson and Lannenbach procedures. He commented upon their crudeness and Dr. Brophy's improvement upon their technique, as well as his detailed study from embryological and other broad standpoints, and again laid emphasis upon the fact that cleft palate was not due to loss of tissue, and that if the palate was merely a cosmetic and not a functioning one, the procedure was a failure and better results were obtained with an artificial palate. Also he urged re-education, and in cases of long standing it was best to teach a new language.

Sir ARBUTHNOT LANE of England, did not agree in all points. He stated there was actual loss of substances in marked cases. He advocated early operation, and stated that he used the flap method. Infants at this age did not mind operation, and stood shock very well. He advocated the flap operation, and stated that a similar operation was performed in the war zone for maxillary injuries.

Dr. CHARLES H. MAYO of Rochester gave a detailed description of the causation of anatomical anomalies. He stated that anomalies were natural in lower types of life in passage from a unicellular to a multi-cellular organism; from the invertebrate to the vertebrate, and

that they were readily produced, experimentally, in certain vertebrates.

Dr. J. ROBERTS of Philadelphia stated that he borrowed part of Sir Arbuthnot Lane's and part of Dr. Brophy's technique, and that both had their special indications.

Dr. T. W. BROPHY of Chicago, in conclusion, stated that in Sir Arbuthnot Lane's technique the mucous membrane was brought in contact with the muco-periosteum, whereas in his method denuded bone was approximated with denuded bone.

The Principles of Thyroid Surgery.—Dr. CHARLES H. MAYO of Rochester stated that the thyroid gland was one of the endocrines first noticed, owing to its anatomical position. In the treatment of this gland, surgery was the last resort, and then only when obstruction to respiration and circulation existed. He reviewed the rapid progress and surgical success of the operative procedures in the past few years. Tissue, analogous to the thyroid, existed in the substance of the tongue in 3 of 12,000 cases. The pyramidal lobe was struck out at times. The blood supply of the gland was such that all the blood of the body passed through the gland in one hour. The action of secretion depended upon a hormone. He cited Plummer and Kendall's chemical studies showing that the gland contained 65 per cent. iodine content. Kendall in 1915 isolated a substance composed of an organic nucleus with indol and oxygen; thyroid oxy-indol-iodine, which increased the power of secretion. Plummer had shown that energy was controlled by this substance and that hypo and hyper-thyroidism depended upon the amount of this substance present in the individual—that approximately 15 milligrams was normal for the whole body, and a slight increase quickened excitability and metabolic rate. Since the amount bore no relation to the size of the gland, recurrence of symptoms after partial thyroidectomies have occurred. Very often the gland extended to the thoracic cavity, hence the value of x-ray examination. Laryngoscopic examination before operation was advised. It was best to leave some gland substance to the posterior capsule in order to avoid parathyroid injury or removal. The lower collar incision was the best exposure. He cited 70 per cent. cures.

Temporary Loss of Voice Following Thyroidectomy.—Dr. DONALD GUTHRIE of Sayre stated the principal causes for loss of voice following thyroidectomy to be: 1. Trauma to the inferior laryngeal nerves. 2. Trauma to the trachea and larynx. 3. Lues. 4. Hysteria. (1) Trauma to the nerves was generally caused by the clamping of blood vessels in a pool of blood. Stretching of nerves caused post-operative edema. If the non-vascular zone of Crile was observed this was avoided. Rough sponging and handling of tissue was objectionable. A ligated nerve caused absolute loss of voice. A blood clot caused pressure on nerve. (2) Trauma to trachea by delivery of the gland from above downwards if the gland was very adherent to the trachea, that portion of it was left which produced the undue traction. (3) Hysteria and (4) lues—emphasis was laid upon pre-operative laryngoscopic examination, as if partial paralysis already existed a guarded prognosis could, and should be given. In reference to adductor and abductor paralysis, the former always suggested hysteria; the latter luetic infection often followed by beneficial results when potassium iodine was given. In the hysterical type great stress was laid upon the psychological treatment which varied from subconscious suggestion under anesthesia to active hypnosis. At times months of treatment was required to cure the hysterical condition. A case of Dr. Judd's was cited in which the patient supposed an adhesion existed, which was finally cured by anesthesia and gentle neck massage.

Goiter in the Southeast.—Dr. EDWARD G. JONES of Atlanta reported a personal study of 400 cases of goiter and stated the incidence in the Southeast of the several types of goiter departed in no significant way from the incidence in other areas where thyroid troubles were not definitely endemic. He grouped them as follows: (1) Hyperplastic and toxic. (2) Non-toxic. (3) Non-hyperplastic and non-toxic. (4) Doubtful. He stated that 60 per cent of all goiters were listed as non-toxic; excluding from consideration the symptomless goiters of puberty, and that 64 per cent of the non-toxic goiters

were adenomas. Goiter in this territory was relatively rare; the colored race exhibited less tendency to thyroid pathology than did the white race; men are less frequently affected than published figures indicate; the occurrence of non-toxic goiters in families was suggestive, but not significant; no particular water supply was under suspicion. There appeared in this series no significant relation between pelvic disease and thyroid pathology. Maximum double resection in diffuse enlargements of the thyroid gland was advised, while in old people ligation of the thyroid arteries or injection of hot water was the procedure followed. The author has had no post-operative hypothyroid symptoms, but one aphonic case and no post-operative tetany.

Dr. DOWD of New York opened the discussion. He stated that Dr. Jones' statistical deductions were different from those in New York, where Graves' cases were in the majority. He considered Kendall and Plummer's adrenalin tests a good guide before operation. In New York the percentage of goiter in negro was much higher than in Dr. Jones' series of cases.

Sir ARBUTHNOT LANE of England advocated intestinal resection for certain forms of goiter as this method of procedure cured the condition. He was not so successful in the exophthalmic type.

Dr. M. O. PORTER advised removal of a permanent goiter as this condition, if not already toxic, would become so.

Dr. R. C. DUGAN of Chicago advocated the use of hot water injection in old and feeble cases with good results.

Dr. CHARLES H. MAYO of Rochester in closing remarked that gross myxoedematous and other hypothyroid types were often overlooked, because the supply of the secretion remained in the body 18 to 21 days after removal of the gland, which prevented immediate onset of symptoms. With the new laboratory methods the energy can be tested to an exact degree in these cases. The activating agent was more than the iodine content of the secretion. In answer to Sir A. Lane he stated that if the intestines really caused the thyroid enlargement, then only was an intestinal resection indicated.

Dr. GUTHRIE of Sayre discussed some of the anatomical anomalies of the blood vessels to the recurrent laryngeal nerve, and also spoke of the hysterical aphonia and its diagnosis.

Dr. JONES of Atlanta spoke of the value of the following test in the diagnosis of goiter. The injection of 15 minims of adrenalin would produce a greater rise in blood pressure, pulse, and tremors at times in a case of goiter than in a normal case.

Glycophilia.—Dr. WILLY MEYER of New York stated that at the Lenox Hill Hospital, New York City, arrangements were made last February in the service of the author for the reception of a limited number of cases of the so-called thromboangitis obliterans for the purpose of examining the blood and other body fluids by every known method. When sugar was tested for, a distinctive type of hyperglycemia was disclosed to follow upon the ingestion of 100 grams of glucose. These observations were made by Dr. S. Bernhard, pathological chemist of the hospital. In fifteen cases thus far examined, the same result appeared with such regularity that this chemical test had become a reliable method of diagnosing the disease. The findings gave added strength to the theory of the writer that the disease was primarily not one of the blood vessels but of the blood, probably of endocrine origin—adrenals in conjunction with the parathyroids and hypophysis. The name "glycophilia" was tentatively proposed on the basis of this theory. The similarity of the name to hemophilia was intended to point to sex limitation and other obscure features of the disease. Characteristic of the condition of glycophiliacs when first seen seemed to be dehydration of tissues. This condition suggested the therapy: saturation of tissues with fluid by cumulative action with intensive combination treatment of duodenal flushing and hypodermoclysis sometimes yielded the desired result. The diluted blood entered channels from which it had been excluded by its great viscosity. Ischemic pains might have subsided. Pulsations now and then reappeared in the course of the short treatment in seemingly occluded arteries. Amputations were made peripheral and it was hoped with greater and more frequent success. The treatment de-

scribed above was palliative. The cure was hoped for as soon as the real cause of this mysterious disease was found. A mild antidiabetic diet was suggested to the patients and they were requested to return from time to time for a blood test. Cooperation and a well-endowed commission was recommended for the future study of this interesting condition.

Dr. SCHRAGER of Chicago pointed out the association of pes planus. He also spoke in favor of Oppenheim's theory of the congenital smallness of the blood vessels and how Ringer's solution benefited certain cases. The epigastric spasm associated with this condition simulated gastric crisis.

Dr. MEYER of New York stated the superficial gangrene required immediate treatment. He again emphasized copious flushing of the system and cooperation in the further study of this condition.

End Results in Hodgkin's Disease.—Dr. RALPH E. MORTER of Milwaukee reported ninety-three cases, including those reported by Dr. J. L. Yates of Milwaukee prior to July, 1917, with additional cases. Sixty-three of these were reported by Yates and Bunting, the same treatment being carried out at present as described by them in the literature of previous years. Hodgkin's disease and a group of allied affections were considered a non-communicable infectious granulomatous process due to the *Bacillus hodgkini* and partook in effect of the destructive potentialities of both a malign infection and a neoplasm. The treatment prescribed was the detection and elimination of a portal or portals of entry followed by complete and extensive surgical removal of as much accessible pathological tissue as circumstances permitted, aimed to rapidly replace the balance of power on the side of individual resistance. All surgical procedures were promptly followed with x-ray and repeated from time to time. The x-ray was considered a valuable adjunct to the treatment if applied judiciously. The dosage and application were measured by frequent blood counts, the actual lymphocyte curve was the index. Immune serum was employed routinely in all cases and more uniform and better results were apparently obtained with its use than without. General hygiene and prolonged rest were employed to maintain results, no special form of medication proved of any value; tonics and the like were the only drugs used. Apparently there was a fairly distinct line separating a possibly curable and an incurable condition in Hodgkin's disease. On one side, which was curable, there was apparent absence of demonstrable deep involvements; on the other side, incurable, its presence. In the potentially curable group there were twenty-six cases reported. The fifth successive year of clinical freedom from all evidence of disease as the earliest period upon which to base any valid claims of recovery was taken. Seven cases were reported as such. Two are of ten years' duration since inception, one of nine, two of eight, one of seven, and one of six. One case, duration five years, fell in the three to four years' period; two, duration two and one-half and three and one-half years, in the two to three-year period; five cases, duration two to four years, in the one to two-year period. Periods of freedom of one year or less were of no prognostic evidence. Of these twenty cases, apparently the only types where recovery was possible, there were five deaths, one of which discontinued treatment and one refused to begin, gave an actual mortality rate of less than 12 per cent. to date and a fair estimate of severity to 80 per cent. as the probabilities of recovery. In the later cases, except where lethally involved, much can be done in the way of prolongation of life and comfort, life having been prolonged in one instance eight years, the interim between a potentially curable condition and a hopeless widespread invasion might be only comparatively short. This accentuated to the utmost the importance of early diagnosis and treatment. To obtain lasting results it was necessary to follow the patient for years with approximate treatments until the blood picture returned to normal. The paramount factor was early diagnosis followed by adequate treatment. Hodgkin's disease, if taken reasonably early and vigorously treated, was not necessarily fatal.

Dr. LA PENTA of Indianapolis stated that diagnosis was not easy and many mistakes were made in early diagnosis. There was no typical blood picture and the

Bacillus hodgkini did not follow Koch's laws. Complement fixation and agglutination reaction were negative. He stated that Rosenow isolated a strain of streptococcus.

Dr. W. C. McCARTHY of Rochester pointed out here allied similarity of this disease to tuberculosis and lymphosarcoma in certain stages.

Dr. MORTER of Milwaukee, in conclusion, believed that this condition was produced by the *Bacillus hodgkini* and that positive agglutination in part was obtained with a positive result by one of his co-workers.

Chairman's Address; Surgery of the Gall-Bladder and Biliary Ducts.—Dr. E. STARR JUDD of Rochester, Minn., considered the general circulation a portal of entrance for infections of the biliary passages. When infection of the appendix, duodenum and gall-bladder existed at the same time, it was difficult to decide whether there was a primary source of infection or a common one. During the operation all the organs should be carefully explored so as to determine if there was an involvement of more than one structure; infection was most common in the gall-bladder; evidence of malignancy was very rare. Varieties of biliary disease: (1) Chronic cholecystitis—histological picture was not definite; pain was atypical; jaundice was not common; it was noted that in a number of cases neuritis developed. Cholecystitis preexposed to gallstones, which were only formed after certain types of infection. The gall-bladder was apparently normal at times; more frequently, however, it was white and thickened and did not empty on pressure. Gangrene and rupture had occurred at times without the formation of stones. The lymphatics were softened and enlarged. In those cases where the gall-bladder appeared normal its removal was found advisable, as drainage was insufficient to prevent recurrence. (2) Cholelithiasis—The pain was colicky in nature; there weren't any symptoms of jaundice or fever. Here again it was noted that the gall-bladder was normal at times but was most often thickened and inflamed, in various degrees. Drainage of the gall-bladder was not considered sufficient treatment, as many stones were overlooked and reformed in the course of three to six years; therefore cholecystectomy was advised. (3) Stones in the Common Duct—In this type of case cholangitis, fever and jaundice existed, the gall-bladder was contracted, frequent distention of which caused pain. In all cases the ducts were explored for stones which if found were removed and the biliary ducts drained. (4) Jaundice—In this group of cases there was a painless jaundice and the diagnosis was difficult without an exploratory operation, as the symptom was produced by one of the following conditions: cirrhosis of the liver, pressure of the head of the pancreas, etc. (5) Stones in Common Duct Without Pain—In this type of case the patient was always in a poor condition; if the jaundice was very marked, waiting was advised until it subsided; oozing and hemorrhage complicated the condition and added greatly to the mortality; hence the necessity for transfusion in these cases. In cases where oozing occurred during the first week the abdomen was reopened and trocar and cannula inserted into the liver, which greatly relieved the pressure on the liver cells, with a subsequent flow of bile. Saline irrigations were found to relieve liver congestion. Mann in a series of experiments removed the gall-bladder in dogs and arrived at the following conclusions: The gall-bladder was not a reservoir, but it secreted mucus which made the bile less irritating to the pancreas. The gall-bladder regulated the flow of bile. Operative technique on the biliary apparatus—Cholecystectomy gave the best end results. The cystic duct was secured with or without the artery; complete isolation of the cystic duct was essential to avoid injury to the common duct. It was not found necessary to remove all of the cystic duct. The common duct was only opened when stones were palpable.

Reconstruction of the Common Duct from the Experimental Standpoint.—Dr. J. SHELTON HORSLEY of Richmond, Va., reviewed some of the experimental work that has been performed in reconstruction of the common bile duct. He reported sixteen experiments of his own in which he had used a segment of everted vein. The experiment showed that while the duct was reconstructed in this manner it contracted after a month; eventually occlusion occurred. Photomicrographs of

the layer of transplanted tissue that came in contact with the bile showed infiltration with round cells and inflammatory products, and eventually contraction had taken place. There seemed to be a biological law of immunity of tissue around the lining of the bile ducts, bowel and urinary apparatus which made such tissue partly immune from irritating effects of their discharges. Attention was called to the fact that contraction was not prevented by having an epithelium lining, as contraction was due to the tissue underneath the epithelium and not to the epithelium itself. The continual irritation from irritating discharges killed some cells and injured others and so called for much more hyperemia and scar tissue than clear cut mechanical injury. For this reason and on account of the fact that tissues at some distance from the bile duct were not immune to these discharges, he believed that the best permanent result was to be obtained in reconstructing the bile duct by uniting the mobilized mucosa of the duodenum to the stump of hepatic or common duct.

Clinical Report on the Reconstruction of the Common and Hepatic Ducts.—Dr. LEGRAND GUERRY of Columbia, S. C., stated that surgeons were occasionally forced to reconstruct the common duct. He reviewed some of the procedures and stated that experimental problems on animals were not always applicable in humans and that the plan herein devised was not original. He referred to Dr. W. J. Mayo's reconstruction operation. The reasons for operation were: (1) Permanent obstruction at head of pancreas. (2) Inflammatory stricture of common duct. (3) Common duct divided during cholecystectomy. During a cholecystectomy the observation was made that the juncture of the hepatic and the cystic ducts which formed the common duct was not a fixed one. Numerous anatomical anomalies were cited to prove this point. The three essential things that were accomplished by the operation were as follows: (1) Where duodenum was closely bound by adhesions its mobilization was most important as he was enabled thereby to effect the anastomosis with greater accuracy. (2) This depended on the first and in turn mobilized the mucosa of the duodenum that when the suture line was completed the mucosa and submucosa of the duodenum was directly united to the light structures of the hepatic duct, producing a continuous epithelial line, and contracture in all probability would not occur. (3) To avoid subsequent contracture, as was pointed out by Dr. Horsley in preceding paper. In this operation submucosa covering existed, the absence of which bore the same relation to contraction of the anastomosis as the corium did to a burn of the skin. The corium caused the contracture in the skin and the absence of a proper submucosa a contraction following anastomosis between common ducts and duodenum. In conclusion the author stated that this method was not the only way of remedying these defects in the bile passages and in some cases not suitable, but that the plan had a sound surgical and physiological basis.

Dr. ARTHUR SULLIVAN reviewed the various reconstruction operations, including Dr. Horsley's and Guerry's operations and their defects, together with his own where a rubber tube was used and the anastomosis performed around it. He stated he has had excellent results with this operation and that the epithelium will grow and bridge a gap if sufficient mucous membrane was not present for direct anastomosis; there was less shock attached to this operation and material for the reconstruction was always handy.

Dr. CARL N. DAVIS used several different methods, but he was in favor of the tube method of Sullivan. He brought out the fact that stricture was present at the site of incision of ducts and he tried an oblique incision in cutting duct, but no difference in the result was obtained in the end.

Dr. McCARTHY of Chicago was also in favor of the rubber tube repair. He used a longer tube with the idea that it took a greater time to be expelled by peristaltic movement, hence giving the anastomosis a greater time for healing.

Dr. MARCEY of Boston gave a brief review of biliary surgery and stated that the operative procedures were American and devised by American surgeons. He also was in favor of a long tube in biliary duct repair.

Dr. STRAUSS of Chicago cited his experimental work

with fascial reconstructions, and stated the success of the operation depended upon technical skill.

Dr. HORSLEY pointed out the advantage of the Sullivan operation, namely, that the tissue in the biliary neighborhood was used which was most ideal and had a natural immunity.

The Role of the Cystic Duct in Recurring Cholecystitis.—Dr. J. EARL ELSE of Portland, Ore., read this paper. He said the cystic duct had three layers—an inner mucous, a middle muscularis, and an outer fibrous. Projecting into the duct were semilunar-shaped valves, known as the Heisterian valves. These were broader, taller, and closer together at the upper end. They contained circular muscular fibers as well as the ends of longitudinal fibers belonging to the muscular layer. Mucous glands extended from the surface of the mucosa into the deeper layers. The lesions of the cystic duct were classified as: (1) obstructive, under which were the intrinsic, or those lying in or extending into the lumen, the intramural, or those involving the walls of the duct, and the extrinsic, or those lying outside; and (2) the processes which harbored infection, which were best classified as intrinsic, or those in which the organisms grew within the lumen, and intramural, or those in which the organisms were harbored within the walls of the duct. Of the obstructive lesions, he dealt especially with the pathology of the Heisterian valves, which sometimes became markedly enlarged, obstructing the duct. Of the processes harboring infection, he dealt principally with the changes in the mucous glands, showing that these became infected and distended so that they were a menace, both through organisms going into the cystic duct and up to the gall-bladder, and organisms going into the general circulation and producing infection elsewhere. Clinically, he classified the lesions as those producing transitory complete obstruction, permanent complete obstruction, transitory partial obstruction, permanent partial obstruction, and those which served as a focus of infection.

The Ultimate Results of Chronic and Subacute Pancreatitis.—Dr. EDWARD W. ARCHIBALD of Montreal, Canada, presented this paper, discussing pancreatitis from a clinical and experimental standpoint. (1) Clinically, the longer the drainage of the biliary passages the better were the chances for a cure of pancreatitis; if the drainage tube was removed too soon a recurrence of pancreatic symptoms returned. At least four weeks' drainage was advised, the length of time, of course, varying with the individual case. (2) Experimentally, general opinion believed, somewhat loosely, that pancreatitis was due to gallstones, and that in particular bile was forced into the pancreatic duct presumably by impaction of gallstones in the ampulla of Vater. It was obvious that the majority of cases clinically did not allow of such an assumption by reason of their being no stones present, or of stones confined in the gall-bladder. The author several years ago demonstrated that the pancreas could be flooded with a solution running into the gall-bladder through a cannula under a known hydrostatic pressure. The sphincter described by Opie was found to be easily set in spasm by rapid use of pressure in the biliary system or by application of acid to the duodenal mucosa. In experiments resumed this year, using bile from the ox and the human, sometimes infected, sometimes including mucin, sometimes freed from colloid constituents, the author was able to produce several types of pancreatitis. Consequently he was able to assert that many cases of pancreatitis in the human must be due to a disordered action, probably spasm of the sphincter of the common duct acting so as to force bile into the pancreas. It was observed that the underlying cause may frequently consist in hyperacidity in the first portion of the duodenum, with or without duodenal ulcer. Prolonged fasting, alcoholism, gastric and duodenal ulcer, hyperchlohydria, on the one hand; on the other, alteration in the bile in the way of inflammatory blockage of the cystic duct represented the probable clinical basis for the occurrence of pancreatitis.

Dr. W. HAGGARD stated that he had had cases where the removal of the gall-bladder resulted in the cure of pancreatitis.

Dr. JUDG of Rochester cited evidence of W. J. Mayo in favor of removal of gall-bladder in pancreatitis. Also a case of drainage of gall-bladder with return of symp-

toms after drain was removed and recurrence after second and third drainage, and finally cured after gall-bladder was removed.

Second Day—Friday, June 14.

The Therapeutics of Tetanus.—Dr. HERMAN B. GLENNER of New Orleans reviewed 350 cases of tetanus from the records of the Charity Hospital in New Orleans. A comparative mortality was shown under the different forms of treatment receiving serum hypodermically, intravenously, intraneurally, intraspinally, and intramuscularly, for those treated with sedatives only, including chloralton, for those treated with sedatives excluding chloralton; and lastly, a few cases treated with magnesium sulphate. The magnesium sulphate treatment was given in a few cases without any striking results. Sedatives when given made patients more comfortable. The mortality was compared with that of the period preceding the serum treatment, showing that the serum treatment was without question the one of choice and that there was a very large decrease in the mortality of the disease. A plea for the use of larger prophylactic doses and the importance of frequently repeating the dose was insisted upon.

Dr. MELTZER of New York strongly advocated the use of magnesium sulphate and gave a brief review of cases so treated with excellent results. He stated that there were at least four strains of the tetanus bacillus and that the present antitetanic serum only contained one of them, hence the lack of uniform results. The great value of magnesium sulphate in making the patient comfortable.

Dr. HUNTINGTON, who visited army hospitals in Italy, stated that ten times the normal dose of 1,500 units were given, and that the mortality was reduced to one-tenth of what it was before large doses were given. The giving of large doses was routine in his clinic. He cited cases where 61,000 units were given. Dr. Meltzer was asked how to administer the dosage of magnesium sulphate.

Dr. W. E. LEE of Philadelphia stated, regardless of Dr. Meltzer's success with magnesium sulphate, the great value of the prophylactic dose of antitetanic serum and cited several instances in the present war: the marked decrease of tetanus where serum had been given and the marked increase where serum was not available for use.

Dr. HOLBROOK cited several cases in which he had used tetanus in conjunction with magnesium sulphate with good results.

The Use of Dichloramine-T and Other Antiseptics in War Surgery.—Dr. W. ESTELL LEE of Philadelphia stated that dichloramine-T had been found to be a germicide which possessed to an unusual degree properties which made it possible to meet the conditions which Dunham said governed the success of disinfection: (1) mass, (2) time (3) contact. (1) Mass—The irritation which accompanied the use of most germicides, limiting their use and governing their permissible concentration, was negligible, with dichloramine-T, which could be used in solutions as strong as 10 per cent., the germicidal mass of such a concentration being forty times that of a 5 per cent. solution of hypochlorite. (2) Time—Because of its peculiar stability in oil solutions and unusual speed of disinfection, the required time of contact with the infecting organisms was readily maintained. Under average conditions its germicidal activity lasted about eighteen hours, in contrast to the thirty to sixty minutes of Dakin's hypochlorite solution. Dunham had found that its speed was eight times that of the hypochlorite, 800 times that of a 1 to 1,000 solution of bichloride of mercury, and at least 2,880 times that of a 2 per cent. solution of carbolic acid. (3) Contact—The development of a mechanical method to obtain in infected wounds the all-important contact between this agent and the infecting organism was entrusted to the writers by Dr. Dakin. At the present time records have been obtained from 18,700 completed cases in civil surgical practice which have been treated with this agent in different places. After this fifteen months' work, with a total of 18,700 cases, we feel that the use of dichloramine-T has definitely improved the results we have obtained in the primary closure of traumatic wounds of the soft tissues, bones, and joints; that in the treatment of superficial accessible surgical infection

the use of dichloramine-T has uniformly given us better results than any other germicide we have employed, and that the method of its application was simpler and the dressings more economical than with any of the other chlorine agents. That the best results with dichloramine-T were only obtained when actual chemical contact of the germicide with the infecting organism was maintained. To maintain such contact in superficial surgical infections was a simple matter, and in the last few months of the work a satisfactory technique for this class of wounds was developed. In deep and inaccessible infections the problem was more difficult and the greater part of these fifteen months were devoted to this aspect. Our confidence in the germicidal value of dichloramine-T had so developed that when it did not control infections we believed that the chemical contact had not been maintained. The mass of the germicide employed had not been sufficient or adequate surgical treatment had not been given. The striking intoxicating effect of the chlorine group of germicides, which has become common knowledge through the general use of Dakin's hypochlorite solution, was just as satisfactorily exhibited with dichloramine-T.

Dr. EDWARD OCHSNER gave a brief historic review of the present and past antiseptic days, showed how each antiseptic had its day, and then the false over-enthusiasm removed the good points from many antiseptics which have almost fallen into disuse. He complimented the author on his conservative statements and in closing said that each antiseptic—bichloride, carbolic, or vaccine—had a special attraction for some specific organism.

Dr. F. B. TURCK of New York brought out his views on the destruction of tissue causing devitalization and autolysis with a subsequent formation of a toxic protein which caused death. Dichloramine-T, he stated, furthered the destruction of tissue and this point should not be lost sight of in the treatment of wounds. He illustrated these phenomena with lantern slides.

Dr. LEE thought Dr. Ochsner's outline very interesting. He stated that Lord Lister's idea was to prevent and not cause infections. He believed in part in the specificity of antiseptics for infection and stated in conclusion that the immediate removal of foreign bodies and devitalized tissue was just as important as antiseptics in the treatment of wounds.

The Hodgen Extension Suspension Splint and Its Simplification in Both Civil and War Surgery.—Dr. FRANK G. NIFONG of Columbia, Mo., stated that during our Civil War a wire cradle extension suspension splint was devised by Dr. John Hodgen, a great Western surgeon, which had never been excelled. The recent and most successful methods of treating fractures of the femur had incorporated the most essential principles involved in the Hodgen splint. A close study of the mechanical and anatomical factors involved demonstrated how peculiarly applicable was this type of splint to the lower extremity. It was devised by Dr. Hodgen as a war splint for the treatment of compound and gunshot fractures but had proven equally as applicable in civil practice, where most fractures of the femur were simple ones. The relative value of the several principles of treatment varied with the kind and site of fracture to be treated, age, environment, etc. Immobilization of the seat of fracture was of first importance. Extension and counterextension was absolutely the most essential and important of all factors of treatment. Suspension was peculiarly valuable in compound fractures where treatment of wounds was desired. The mobility of the limb and the patient were of much consequence. Physiological flexion at the joint made far better functional results. The Hodgen splint was superior and excelled other devices because (1) It immobilized the site of fracture satisfactorily; (2) It gave any required degree of extension with counterextension. (3) Abduction and adduction and varying positions were secured as the case demanded. (4) Extension was not from a fixed point but within the splint mobile. (5) Physiological flexion of knee was secured, preventing hyperextension and muscle strain with consequent bad fusion or paralysis later. (6) It left the patient freely mobile and the thigh as well, which made comfort for the patient and promoted recovery. (7) Suspension of the limb was obtained which was especially valuable in treating compound fractures, making drainage, irrigations, and dress-

ings easy. (8) It was an open splint allowing for inspection, massage and care of soft parts which were factors of much value. (9) It was a splint easily modified and forces were applied to meet the indications for treatment of any fracture from the pelvis to the foot. (10) A modification herein shown may not be excelled as a transport splint for war service.

Dr. WOOD of New Arkansas stated he was a student of Dr. Hodgen 48 years ago. He was in accord with what Dr. Nifong had said and demonstrated a modified Hodgen splint which was applicable to fractures of the upper extremity. The position of pronation and supination were made possible when the indication arose.

Dr. H. EISENDRATH of Chicago stated the Hodgen splint was an ideal war splint. He also spoke in favor of the Bucks' extension apparatus. The failures in using the latter were due to faulty applications. He absolutely condemned the plaster cast and agreed in general with Dr. Nifong's principles of flexion of limb. Extension of leg was not on the fragments but the fascia and intermuscular septor encircling the fragments.

Dr. REIDER of St. Louis stated the successful treatment of fracture of femur depended on good common sense treatment. He reviewed the history of fractures and splint in part and concluded by saying that muscular relaxation and contraction was the main principle in the treatment.

Dr. MOORE of Minnesota endorsed the Hodgen splint.

Dr. SANDERS of Tennessee stated that the Hodgen splint was of great value in old people where plaster cast and Bucks' extension were contraindicated, and its greatness rested in its simplicity.

Dr. NIFONG, in conclusion, was gratified by the discussions. He again emphasized that the extension was made by fascia lata and intermuscular septa and there should be just as much tension so as to allow the fragments to unite properly, and that it was especially used in old age to prevent bed sores and static pneumonia.

The Fall of the Alkaline Reserve Under Surgical Conditions: Its Effects and Prevention.—Dr. HOWARD W. HAGGARD of New Haven, Conn., presented various conceptions or theories of alkaline reserve, the difference between the alkaline reserve of metabolic diseases and that of surgical cases. The study in the latter had been sadly neglected. The alveolar CO₂ tension determined the factor in surgical conditions. Several interesting problems from the experimental surgical standpoints were presented. The alkaline reserve was increased by CO₂ inhalations; lowered by traumatism. If it fell below a certain point death was inevitable, and there were no known methods at present of restoring it. Certain variations in venous arterial and blood plasma occurred and the respiratory rate, character, etc., had a definite control over the alkaline reserve, through its CO₂ coefficient. An ideal anesthetic by the open method was therefore not always the best. By devising a method of inhalation of proper gaseous interchanges in respiration with a constant CO₂ factor, the maleffects of low carbon dioxide levels on temperature, oxygen consumption, venous return, arterial pressure, and intestinal peristalsis could be avoided.

Dr. TURCK of New York stated that the study of alkaline reserve was a great piece of American work, but as applied by Dr. Haggard in surgical shock overlooked the fundamental principle of the condition and only treated a symptom of shock. He again stated his conception of devitalization of tissue and formation of toxic proteose which was the only factor to be considered—this was the causation of shock.

Dr. HAGGARD stated that the theories advanced by Dr. Turck were taken up by European experimentalists and after extensive studies were abandoned. How CO₂ would prevent autolysis was hard for the author to understand.

Gastropostosis: Its Cause, Prevention and Cure with Special Reference to the Duret-Rovsing Operation.—Dr. GEORGE M. KREIDER of Springfield, Ill., stated that Glenard's paper in 1881 was a classic and opened a new era in medicine, and that his observations were based on palpation and percussion of the abdomen. Numerous cases of hysteria, neurasthenia, and hopeless invalids have been restored to perfect health by proper exercise, belts, etc., and lastly by operation. The writer

emphasized a greater study of this most interesting condition. The symptoms in brief were: Emaciation, constitutional weakness, nervous irritability, pain in various regions, relieved by lying on back; pulsation of the abdominal aorta, vomiting, etc. The varieties were: Gastropsis, enteroptosis, coloptosis, mobile cecum, prolapse of spleen, kidney, or liver, varicocele, hemorrhoids, and numerous others, existing alone or in groups. In prolapse of stomach and bowel, considered in this paper, the x-ray has been of considerable aid. It has shown the classical anatomical location of the stomach to be erroneous. The etiological facts were bad habits of eating and drinking, exercise, improper clothing and footwear, infections of teeth, air passage, etc. These factors were taken up separately and discussed. These cases were always treated palliatively first and operation only as last resort. The use of proper fitting belts, the author's modification of Galland's binder, absolute rest with special diet, nurses, and elevation of bed often resulted in absolute cure. If all these measures failed operation was performed. The author was in favor of the Duret-Rovsing operation. The abdomen was opened from the ensiform to the umbilicus in the midline. If necessary, the liver and colon were fixed. The stomach was fixed by three large silk sutures passed out of the abdomen and tied over a glass plate.

Dr. CARL E. BLACK of Jacksonville, Ill., stated that thanks were due to Dr. Kreider for bringing this condition to our attention. The x-ray was of great help. The careful study of many cases of hysteria and neurasthenia placed these on a sound pathological basis. He stated it was difficult to diagnose the extent of ptosis at times.

Dr. ROBERT C. COFFEY of Portland, Ore., laid special stress upon making a proper diagnosis in reference to the organ or organs which were producing the symptoms, and if the patient had a retroverted uterus causing her symptoms not to perform a gastropexy and expect a cure.

Dr. KREIDER in closing laid special stress on x-ray examination and that the nervous conditions are caused by the ptosis and not the ptosis by the nervous conditions. Treatment of the ptosis cured the nervous diseases.

A New Principle in the Surgical Treatment of Brain Tumors.—Dr. ARTHUR C. STRACHAUER of Minneapolis stated that craniotomy for brain tumors, with or without focal symptoms, not infrequently failed to disclose the neoplasm, owing to its deep situation or variety as an infiltrating glioma or the position of the craniotomy. The decompression relieved certain symptoms, as severe headache and ocular symptoms, for the time being and then the individual case was left to die. In brief the writer urged a dual operation, combined with simplicity in technique and absence of all mechanically driven tools. He urged all the well known points in favor of preliminary decompression and concluded that there was a very bright outlook for the future of brain surgery.

Kondoleon's Operation.—Dr. WALTER E. SISTRUNK of Rochester, Minn., stated this operation was described by Kondoleon of Athens, Greece, in 1912 for elephantiasis, the object being to secure an anastomosis between the superficial and the deep lymphatics. Technique—two long parallel incisions on each side of the leg were made. The skin was removed; also the superficial fat at this stage undermining the skin edge. The aponeurosis was removed in a large separate layer and the incision was closed with silkworm gut sutures without drainage of the wound. Matas reported two cases in 1913 with good results. The elephantiasis usually followed infections or recurrent attacks of erysipelas. The author reported seven cases in all, three arm cases and four leg cases. All cases improved after operation. Two immediate results were obtained. From one case a streptococcus was isolated from a vein removed with fusion. The writer first followed Kondoleon's operation and later modified it by removing more skin. He stated few vessels required ligation. Patients were usually up in ten days. Sometimes the operation was performed in two sittings. A bandage for several months was applied, removed, and replaced if the swelling returned.

Dr. ROYSTER cited a case showing that the filaria is not a common cause of elephantiasis in this country. He

advised the reading of Dr. Matas' exhaustive article. In his own case of elephantiasis following a recurrent erysipelas in a colored man he operated on the patient with fair results. A subsequent operation was required.

Dr. GESSNER of New Orleans congratulated Dr. Sistrunk on his excellent results. He cited three cases of his own. All the cases were improved, but not one was cured.

Dr. SISTRUNK, in closing, answered the question that the internal saphenous vein was cut with impunity. He thanked the gentlemen for the discussion of the paper.

SECTION OF THE PRACTICE OF MEDICINE.

First Day—Wednesday, June 12.

DR. LAWRENCE LITCHFIELD OF PITTSBURGH IN THE CHAIR.

Dextrose Intravenously as a Therapeutic Agent.—Dr. LAWRENCE LITCHFIELD of Pittsburgh delivered the chairman's address on this subject. He said, in part, that the intravenous injection of dextrose was far reaching in its effect and life saving in results. It was used to overcome dehydration, intoxication, and nitrogen starvation. Dehydration was the most potent for evil. It might be caused by nausea, vomiting, diarrhea, sweating, hemorrhage, acidosis, inflammatory exudates, etc. The most characteristic picture of dehydration was seen in cases of Asiatic cholera, Shiga dysentery, and acidosis, characterized by small, thready pulse, rapid respirations, pinched face, sunken eyes, cold, clammy skin, restlessness, hallucinations, delirium, and coma. Following the intravenous injection of dextrose the picture changed; the pulse became fuller and stronger, face brighter, disinclination for taking water disappeared, the kidneys were stimulated, restlessness disappeared and the patients frequently went to sleep while receiving the injection. Results were due not to the water alone but to the stimulating action of dextrose upon the metabolism of the cells, which was seen by the fact that desperately sick patients, after a single injection of 400 to 500 c.c. of a solution of dextrose, frequently recovered without any further interference. If dehydration was marked extra water might be supplied by mouth or by the Murphy drip, but often it was necessary to repeat the injection after six, eight, or more hours. For over nine years Dr. Litchfield had been using a twenty-five per cent. isotonic solution of dextrose where salt solution had been previously used. He had used it in cases of pneumonia, purulent pericarditis, meningitis, alcoholic intoxication, and in surgical cases before operation, and after operation for vomiting and acidosis. The technique of administration was that of salvarsan injection. Occasionally sharp reactions, characterized by a chill and a rapid rise of temperature to 107° or more occurred, but the patients usually got better. It was possible to inject a large amount of the solution; as much as 1,700 c.c. had been given in 11 hours. The solution should not be injected rapidly; one hour for injecting 200 c.c. was a safe method.

Further Studies in the Treatment of Acute Poliomyelitis with Immune Horse Serum.—Dr. EDWARD C. ROSENOW of Rochester, Minn., presented this communication in which he said he had succeeded in isolating a streptococcus-like microorganism, which when injected into animals caused paralysis similar to that of poliomyelitis. That microorganism had strong anaerobic properties, resisted glycerization, and could be demonstrated and isolated from every case in which poliomyelitis virus had been used. The serum which he had obtained from horses, which had been immunized against that streptococcus-like microorganism had been found to possess high agglutinative powers for the poliomyelitis virus. The curative action of that serum had been first tried upon rabbits. Dr. Rosenow showed by means of lantern slides pictures of rabbits in which various degrees of paralysis had been produced by injection of the microorganism and in which the paralysis had disappeared rapidly after the injection of immunized horse serum. During the epidemic of poliomyelitis in Davenport, Iowa, he tried the efficacy of the serum upon humans. The results had been excellent. In all cases, with slight or no paralysis, re-

covery followed the injection of serum. Cases with very marked paralysis with evidence of respiratory involvement all showed marked improvement. Sixty cases in all of epidemic poliomyelitis were treated with the serum. He had also treated five sporadic cases, supposed to be the most fatal, with recovery in every case. He felt that the evidence of the efficacy of the serum was so strong, that the observations had not been faulty. He had seen nervous children go to sleep after an injection and patients almost at death's door had promptly recovered after an injection of serum. Since the serum was beneficial in sporadic cases he hoped that many physicians in private practice would give it a trial. There was a large supply of serum on hand and it would be sent free to any physician upon application. As to its harmlessness there could be no question.

Dr. ROY of Washington, D. C., asked Dr. Rosenow to explain what changes could have taken place in the nerve tissues where a paralysis had disappeared so quickly. He had observed that paralyzed pigeons promptly recovered from their paralysis upon the administration of a teaspoonful of brewer's yeast. Dr. Rosenow replied that there was evidence that the paralysis was a physiological one. In the beginning of a flaccid arm there was no destruction of motor cells, there was merely a cessation of physiological function. Much of the apparent paralysis was due to a cessation of physiological function and not to death of nerve cells. In rabbits death was due to cessation of physiological activities and not to death of nerve cells and an injection of a neutralizing serum produced a restoration of the function.

Pulmonary Compression Signs Associated with Fibrinous Pericarditis.—Dr. HENRY A. CHRISTIAN of Boston read this paper. He said that in cases where the heart showed physical signs of acute pericarditis, one very frequently found over the lower portion of the left back an area of dullness of varying size with bronchial breathing and bronchophony. Writers of text books and others had called attention to modified areas of dullness in the left lower back in the presence of pericarditis with effusion; they had all, however, emphasized the presence of large quantities of fluid in the pericardial sac. His experience had been different. Of fifty-seven cases of acute or fibrinous pericarditis he had studied thirty-nine, or seventy-three per cent., had shown pulmonary signs in the left lower back, but in none of the cases had there been any indications of the presence of extensive pericardial effusion; there might have been some fluid in the posterior portion of the sac but none in the anterior portion as the friction rub was heard all over that area. One of his patients, a woman forty-eight years of age, was admitted to the hospital with a history of rheumatism one week prior to her admission. Examination of her heart and lungs upon admission was negative. On the seventh day after her admission to the hospital she suffered from an attack of rheumatism; on the twelfth day a friction rub over the pericardium appeared; on the twenty-third day heart-block developed; several days later dullness and bronchial breathing appeared over the lower left back; and in about ten days the signs disappeared. During the development of the pericarditis and the appearance of the pulmonary signs the temperature had fluctuated between 100° and 101° and gradually returned to normal. In two patients who had died, autopsies showed an absence of fluid in the pericardial sac, and in one there had been a small amount of fluid present in the plural cavity with atelectasis of lung tissue of the left lower lobe. The pulmonary signs might be explained as due to consolidation of lung tissue or to fluid in the plural sac, the result of the extension of the inflammatory pericardial process to the pleura and lungs. He thought that the pulmonary signs had resulted from compression rather than from consolidation of lung tissue or fluid in the plural cavity. In his experience there had been no large amount of fluid observed in the pericardial sac and there had been no indication for tapping the pericardial cavity. The pulmonary signs had no relation to the condition of the patient, there had been no pain and the respiration had not been changed. Most patients recovered, but the pulmonary signs had no bearing on the prognosis. In some cases

the pulmonary signs had appeared before the pericardial friction rub.

Dr. ROBEY of Boston said the subject was a very important one, for the physical signs were to be misinterpreted. McKenzie had described a case of pericarditis in which he had tapped the pleural cavity, mistaking the signs in the left lower back for pleural effusion. The literature mentioned cases where in the presence of such pulmonary signs pericarditis had been suspected but aspiration of the pericardial sac had failed to bring fluid. In one case some pleural fluid had been removed, but the pain had persisted and two days later fluid was removed from the pericardial sac. When the heart was pushed forward by the fluid in the posterior portion of the sac the diagnosis might be very difficult as the heart sounds were so prominent that fluid was doubted. In such cases the x-ray revealed presence of fluid. Pericarditis, even of the purulent type, was seldom accompanied by pain; when present it was apt to occur early. He quoted Dr. Chapin who had said that he had practically never aspirated a pericardial sac. Whether the pulmonary signs observed in such cases were due to compression or extension of the inflammatory process to the lung was a hard question to answer.

Dr. POWER of San Francisco said that pulmonary signs similar to those described by Dr. Christian had been frequently observed by him in cases of chronic nephritis, and in one of his cases where the patient had died similar pulmonary signs had been observed three days prior to death. The autopsy in that case showed a small heart with very little fluid in the pericardial sac, but there were definite signs of pericarditis on the anterior surface of the sac; the lungs showed no consolidation at all, but some slight congestion. In that case the pulmonary signs could not have been due to compression or extension of fluid as the heart had not been enlarged.

Dr. WYNN of Indianapolis said that the explanation of the presence of the pulmonary signs observed in pericarditis would depend on our conception of the *modus operandi* of rheumatism. When there was a history of rheumatism followed by the appearance of a friction rub over the pericardium it was usually thought that infection had started in the tonsils and from there through the blood stream affected the heart. It was his opinion that many cases of pericarditis had resulted from contiguity of inflamed pulmonary tissue. He thought the subject was a very timely one. In many cases autopsies frequently showed white spots over the pericardium which were suggestive of a previous pericarditis but which had not been diagnosed during the life of the patients. He thought many cases of pericarditis remained undiagnosed. He thought that pericarditis often arose by contiguity of pulmonary tissue in a bronchopneumonia and that it was possible that in some of the cases mentioned by Dr. Christian the pericarditis had been due to some pulmonary trouble and not that the pulmonary signs were due to the pericarditis.

Dr. HEAD of Minneapolis said that the difficulties of actually determining from physical signs whether fluid was present in the pleural or pericardial cavities were baffling to the best of men. Where there was a dry tap with a moderate enlargement of cardiac dullness the fluid might be in the posterior position. He wished to know whether in the case of Dr. Christian's patient, where an autopsy had been performed, there had been found in the posterior portion of the pericardial sac a quantity of a heavy fibrinous exudate.

Dr. LITCHFIELD of Pittsburgh, chairman, said the subject was very timely. More would be learned about such conditions in the next few years. Experience in army camps had shown many cases of pericarditis to have been due to a streptococcal infection. In cases that were tapped it was often difficult to state where the fluid came from. The fluid might be pocketed in every conceivable form, making it very difficult to be certain as to its source. He thought he knew where fluid came from until in his last case he had tapped over the pericardium and had obtained pleural fluid. As a diagnostic aid for such cases repeated fluoroscopic examinations by one experienced in that work were most invaluable. In his experience that was the most important method of diagnosing the presence of fluid.

Dr. RYAN of Des Moines said he wished to emphasize the point mentioned by the chairman regarding fluoroscopic examinations. In camp Dodge excellent results had been obtained by fluoroscopic examination. In a number of cases with a beginning pericarditis following rheumatism signs of hypostatic congestion of the left lower lobe had been present. By placing the patient in an upright position and examining him with a fluoroscopic a shadow could be seen. By expectant treatment all physical signs disappeared. In many cases the physical signs had followed a streptococcic infection of the throat. Those infections were often neglected. If timely treatment were given for throat infections many cases of pericarditis and pneumonia would disappear. Some cases of hypostatic congestion often cleared up under ordinary antiseptic treatment of the throat.

Dr. CHRISTIAN in closing said he wished to emphasize that the prognosis in those cases was good. From the physical signs observed in those cases one was apt to consider them serious; pneumonia was often suspected; they all got well and without tapping. In his experience x-ray did not give much information in such cases. Frequently cases were definitely diagnosed by the x-ray as pericardial effusions, but no fluid had been found. Fluid in the pericardial sac sufficient to embarrass respiration was rare. He had had two cases of pericardial effusion. In one he had removed by tapping 400 c.c. of fluid and in the other 600 c.c. In the second case the patient died and a chronic fibrinous pericarditis had been found upon autopsy. Neither of those cases with rather large amounts of fluid had shown the pulmonary signs he had described. He did not think there were many indications for tapping of the pericardial sac. He was by no means sure as to the cause of the pulmonary signs he had observed in his cases, but he was inclined to attribute them to compression rather than to consolidation of lung tissue or fluid in the pleural cavity.

Ulceration of the Soft Palate Resembling Syphilitic Perforating Ulcer Due to Fusiform Bacilli and Spirilla (Vincent's Angina).—Dr. SYDNEY R. MILLER of Baltimore read this paper in which he reported the case of a man forty-five years of age who had been suffering with a circumscribed ulcer of the soft palate; the ulcer had a punched out appearance with undermined edges and was on the point of perforation. The patient had noticed three days previously some soreness in the mouth which had spread and had rapidly become worse. The case had been thought to be specific and the throat examiner made a diagnosis of gumma of the palate. As the patient had stoutly denied specific infection and the Wassermann reaction with the blood serum was negative, a smear was made, which under the dark stage had shown the presence of fusiform bacilli and spirochetes; the latter, however, did not, either by their morphology or motility, resemble the *Spirocheta pallida*. A diagnosis of Vincent's angina was made and under local antiseptic treatment a rapid cure had resulted. Dr. Miller thought the importance of Vincent's angina was not being sufficiently recognized. Among the British and French troops sporadic cases of stomatitis caused a great deal of invalidism, and 23 per cent. of all the mouth and throat affections were due to spirochetes and fusiform bacilli. The disease was supposed to have been infectious, and there were also supposed to have been carriers. There were two types of lesions, the *superficial*, presenting the appearance of a diphtheroid membrane, which was friable, and upon removing came off easily, leaving a bleeding surface, and the *ulcerative* type, which was usually located on one tonsil and presented the appearance of a creamy pulaceous surface, leaving upon removal a bleeding area. The parts most frequently involved were the gums, the tonsils, and the buccal mucous membrane. It would be best, Dr. Miller thought, to limit the name of Vincent's angina to lesions of the tonsil alone and to apply the name of Vincent's disease to other lesions. The striking point in connection with Vincent's angina was the lack of constitutional symptoms in proportion to the appearance of the lesion. In the French army, however, the men had seemed to suffer from depression of spirit; they were sulky, irritable, and seemed to have lost their "pep." Predisposing causes were not known, though tobacco and lack of oral sepsis might be con-

sidered predisposing causes. It had been proven that the affection was definitely contagious and was being transmitted through the use of the tooth brush, pipe, etc. As to the exciting cause, there were still differences of opinion; some did not accept the fusiform bacilli and the spirochetes as the exciting cause. In the early lesions fusiform bacilli predominated, but in the later ulcerative stages the spirochetes were more frequent. Some considered the bacilli and the spirochetes one and the same organism, but he did not think so, for the theory of pleomorphism had been long ago exploded. The condition must be differentiated from acute tonsillitis, diphtheria, and luetic infection. Acute tonsillitis showed more severe constitutional symptoms. Diphtheria could be diagnosed by bacteriological examination of cultures, and luetic infection by the Wassermann reaction.

Dr. MARSHALL of Camp Grant said that he had seen a good many cases similar to those described by Dr. Miller while he had been with the British forces. Bowman of Toronto frequently found in such cases *Ameba buccalis* associated with spirochetes. In forty cases observed by himself he had used a mixture of wine of ipecac, for its action upon the ameba, potassium arsenite, and glycerin to sweeten the mixture; all the cases had cleared up quickly under that treatment.

Dr. SLADEN of Detroit said that there were three reasons for non-recognition of cases of Vincent's angina. One was due to the intimacy of the doctor and the dentist; the latter considered mouth infections his domain; the second reason was that most of the cases responded promptly to ordinary household throat remedies, and the third reason was the similarity of the lesions of Vincent's angina with the punched out syphilitic ulcer. In many cases where no syphilis was present the lesions had responded to arsenical preparations. Fatalities were met with occasionally. He had observed one case in which the patient had died; the larynx was involved and bronchopneumonia was also present. Injection of salvarsan had been tried without any relief.

Dr. CHRISTIAN of Boston said there were two points of interest in the study of the cases presented, the similarity to a syphilitic lesion, and the question whether the organisms described were the cause of the infection. There were many cases of perforating ulcers which were considered as due to an old syphilitic infection and where the Wassermann reaction was negative. Many perforating ulcers of the nasal system might not be syphilitic. As to the exciting cause he thought the fusiform bacilli and spirochetes which had been mentioned were too often and too easily found. They had been seen in ulcerative conditions anywhere in the body; they had been found in stomatitis which had followed the administration of mercury, in cases of noma following measles, and in ulcer associated with chronic nephritis. There was considerable reason for doubting that the organisms were the cause of the conditions described. They were useful, however, for diagnostic purposes.

Dr. MILLER, in closing the discussion, said he hoped he had not left the impression that the situation was very clear. The specificity of the organisms was still questionable. They were found in healthy conditions, but possibly the tissue had to be damaged before the organisms could produce their deleterious effect. The fact that they had been found in mercurial stomatitis showed that apparently mercury had a strong relation to that disease. In the French army many cases in which salvarsan had been administered had developed Vincent's angina.

The Early Diagnosis and Intravenous Treatment of Epidemic Cerebrospinal Meningitis.—Dr. WILLIAM H. HERRICK of New York presented this communication, in which he said that as a result of a study of 250 cases of cerebrospinal meningitis which had occurred in Camp Jackson he had come to the conclusion that the disease was primarily a general sepsis and that the meninges were secondarily involved. As a result of that conception of the disease diagnosis had been made early and the treatment was given to combat a general infection and not a local one. They had studied a large number of cases with all sorts of suspicious symptoms, and as a result they had learned to recognize the disease in the premeningitic stage, which was character-

ized by general systemic symptoms, and which lasted from a few hours to a few days. In 40 per cent. of the cases a diagnosis had been made in the premeningitic stage. The symptoms during that stage of the disease were a temperature rarely above 102°, slow pulse, with vagal irritability; the manner and facial expression of the patients were characteristic; they were dull, apathetic, resented interference; they used the least possible amount of effort to answer questions, the voice was low, and they quickly lapsed back into quietness; the face, and especially the ears, showed cyanosis; the secretions were viscid; the tongue, when protruded, was covered with sticky saliva; the upper respiratory tract was frequently involved; a petechial rash usually appeared very suddenly. In milder cases there was a papular rash like that of chickenpox; there was a lack of balance of the deep reflexes, one side showing an exaggeration, while the other showed a normal, diminished, or absent reflex. A lumbar puncture when any of the above symptoms were present usually revealed a clear fluid containing meningococci. If the spinal fluid from the first puncture failed to reveal the presence of meningococci another puncture was made two hours later, when meningococci were found to be present. The failure to find the germs in the fluid obtained from the first puncture was due to the fact that the germs were frequently confined to the upper spinal spaces. Once the diagnosis was made, the treatment aimed to sterilize the blood stream and rid the system of the meningococci. The treatment consisted in an intraspinal injection of 1 c.c. of antimeningococcic serum, for the purposes of desensitization, which was followed one hour later by the intravenous injection of a 100 to 130 c.c. of antimeningococcic serum. It was very important to inject the serum slowly at the rate of 1 c.c. per minute during the first 15 minutes and stop the injection at once if any untoward effects appeared. The injection was repeated in 8 to 12 hours in severe cases and in 24 hours in milder ones. The average case received four to six intravenous injections, getting on an average about 400 c.c. of serum. In addition the patient was receiving repeated intraspinal injections of 20 c.c. of serum, the spinal canal being drained before the intraspinal injection. As a result of that form of treatment the course of the disease was shortened, complications were less frequent and less severe, and the mortality was reduced from 40 per cent. with the old form of treatment to 14 per cent. with the new one.

Dr. GUTHRIE of the Army said the Section was very fortunate in receiving such an early report from Dr. Herrick. He wanted to know the type of serum Dr. Herrick had used and the maximum dose he had given to any one patient. The general conclusions of Dr. Herrick were correct with a few reservations. Out of 138 cases he had seen in Camp Beauregard, Louisiana, the picture during the premeningitic stage was that of respiratory disease, so that from the first they called that stage meningitis-grippe. In his experience the most frequent mistake in diagnosis was to call meningitis pneumonia. He could not agree with Dr. Herrick that the occurrence of the rash marked the case as a severe one; in his experience cases with extensive rashes yielded to treatment. He wished to emphasize the possibility of reinfection; the spinal fluid was able to harbor the meningococci for a long time. In some cases the clinical picture of the disease suggested yellow fever; the black vomit of yellow fever had been very strikingly reproduced in some of his cases, and the pathological findings upon autopsy had also frequently suggested yellow fever. He felt humiliated to confess that in his camp the mortality with the same method of treatment as outlined by Dr. Herrick had been about 50 per cent., and that was why he wished to know the type of serum Dr. Herrick had used. In his own camp they had been compelled to use a serum which the manufacturer had admitted was not ripe. He agreed as to the efficacy of the intravenous serum treatment.

Dr. SCHENCK of Norfolk wished to know about Dr. Herrick's experience with carriers of the disease. In a naval base in his vicinity there had been a number of meningitis cases, and later on 32 cases developed among the civil population. As six cases had resulted fatally, they had taken special precautions regarding carriers. In the 32 cases they had traced 400 contacts,

but none of these had developed the disease, while the 32 cases had given a history of 90 contacts with the naval base, and it had been thought that the disease had spread from the naval base to the civil population. At the naval base they had been at first very careful in weeding out the carrier, but later on they had abandoned that plan.

Colonel RUSSELL of the Army said that the question of carriers was a very complicated one. There had been no definite opinion reached. The difficulty was to know which carrier was negligent; some carriers carried pure cultures all the time, while others carried them only occasionally. If it was possible to take care of the chronic carrier, much would be done. In camps where "carrier" work had been done early and carefully the epidemic was controlled quickly; in other camps where this had not been done the epidemic had persisted longer. There was an interesting hypothesis regarding the infectiousness of meningitis, namely, that the disease was easily transmitted, but most people did not acquire meningitis because they had an immunity against it.

Dr. HAMBURGER of Chicago wanted to know whether in Dr. Herrick's series all the cases had been the result of general primary infection. In a number of cases he had observed no meningococci had been found in blood cultures. In 40 cases treated by the old method the mortality had been 16 per cent.

Dr. HERRICK, in closing the discussion, said he had not made up his mind about carriers. He believed every case of meningitis was a systemic infection as every case of pneumonia was a general pneumococcic infection. As to the type of serum, they had first used a commercial product, but had not gotten such good results, so they had used sera prepared by the Rockefeller Institute, the New York City and New York State laboratories. If a case did not respond to one type of serum they had tried another type. The maximum amount of serum given one patient had been 150 c.c. for 10 doses. Preliminary respiratory symptoms were quite frequent. The similarity between pneumonia and meningitis was so striking that when the first cases had been observed the physicians in camp had thought they had discovered something new, but Osler and others had described that similarity. In cases of reinfection it was necessary to repeat the entire cycle of treatment. He had not observed any hemorrhagic vomiting in meningitis cases. Hemorrhages into the meninges had not occurred in many cases. In only one case an autopsy had shown a hemorrhage into the meninges.

The Training of the Medical Officers in the Army.—Dr. WILLIAM N. BISPHAM of Fort Riley, Kan., presented this paper. At the outbreak of the war, he stated, three officers' training camps were established, Camp Harrison, Fort Riley, and Fort Oglethorpe; Camp Harrison was soon abandoned. From the inception of the camp idea we went on the principle of making the medical officer a 100 per cent. military man, after which he could utilize his medical knowledge to better advantage. The actual treatment of the sick was by far the least of the medical work; prevention of disease and keeping the enlisted men in good health was far more important. Although military medicine had not been neglected, the keynote of instruction was discipline. Another point emphasized was physical development, with great benefit to the many civil practitioners who had not had time to cultivate this feature. On account of the medical officer's close association with the enlisted men in his duties he was given the same training as the enlisted man, and in some instances prominent physicians were disciplined for violations of military law. After a short time medical instruction was instituted and the courses now being given were second to none. Preventive medicine, divided into sanitation and epidemiology, received most attention. The instruction was practical rather than didactic; officers were given camps to inspect and their reports were checked up. Epidemiology appeared to be little known by the civil practitioner and careful instruction was given in it. Some physicians did not take kindly to the train-camp idea at first, but those who went through the course testified to its value and the *esprit de corps* developed.

(To be continued.)

Miscellany.

Evolution of Hygiene in Argentina.—This subject is partially covered by Coni in a series of articles which appear in the *Revista de la Asociacion Medica*. In the January-February number the animal industry is discussed from the standpoint of hygiene. Meat inspection goes back to 1881 in which year the municipal veterinary chief in Buenos Aires inaugurated the practice at the public slaughter house in association with the head executive of the latter. The printed regulations comprised twenty-three provisions. Gradually the number of official veterinaries was increased while in 1887 a service of slaughter houses and butchers was organized as part of the municipal chemical office. In 1892 the meat inspectors became part of the department of technical hygiene.

In 1894 it was realized that no official provision was in existence for dealing with epizootics. The first real move in this direction was a small bacteriological laboratory established under the auspices of the Argentine Rural Society, which became the nucleus of a veterinary sanitary police control, in which all contagious diseases were reported and a record made of the morbidity, mortality, etc. Quarterly reports were published.

In the course of time the animal industry became an integral part of the agricultural department, while the agricultural and veterinary school became a part of the national university.

In 1881 the medicohygienic inspection of school children began in Buenos Aires. At that period the movement was already active in Brussels, Boston, and a few other cities. Since this form of preventive medicine began in Brussels, in 1875, Argentina was early in the field. In addition to medical inspection in the narrower sense the subjects of light, heat, ventilation, furniture, latrines, etc., were covered. Gymnastics were introduced and attention given to anthropometry. Schools with running water were provided with shower baths. Errors of refraction were corrected and carious teeth filled. Vaccination and revaccination were practised in the school buildings. The administration of school hygiene seems to have been patterned largely on that of Brussels. The results obtained in the schools first tested led to the generalization of the movement in Argentina. Colonies for weak children were first established in 1902.

The Interallied Scientific Food Commission.—The first meeting of the Interallied Food Commission, formed in November last, according to *Science*, May 10, 1918, was held in Paris on March 25, and the following days. At their first sitting the commission was received by M. Victor Boret, minister of agriculture and food. In his opening address M. Boret pointed out that the object of the conference was to study the best means of utilizing the very small food resources at the disposal of the allies, having proper regard to the facts of physiology and political economy. He sketched shortly the work of the commission and his suggestions were embodied later in a series of questions which were adopted by the commission as the problems which would immediately occupy its attention. The commission agreed to

establish a permanent central secretariat in Paris, M. Alquier being appointed secretary. In addition to the central secretariat it was agreed that a secretary to the commission should be appointed in each of the allied countries. At its meetings, which lasted till March 29, the commission considered many important questions relating to the minimum food requirements of man, and to the production and distribution of food supplies. The commission will reassemble at intervals, in Paris, or in one other of the allied capitals.

The Birthrate and Infant Mortality.—Dr. Eric Pritchard, writing in the *Eugenic Review*, November, 1917, says that so far as numbers of population are concerned, a high birthrate is infinitely more important than a low deathrate among infants, as Dr. W. G. Hope very clearly proved in his report to the Carnegie Trust, 1917. To quote Dr. Hope's own words: "Take a town with a population of 750,000 having a birthrate of thirty persons per thousand and an infant mortality of 120 per 1,000 births; if the birthrate falls 3.6 per 1,000, namely to 26.4, and every infant lives, not one death taking place under twelve months of age, an impossible eventuality, the increase in the population is precisely the same as it was when the higher birth rate prevailed with the high infant mortality rate of 120 per 1,000. Following this line of argument, it suggests itself that if, in the national interest, our object is to maintain the population without consideration of quality, it would be more logical to encourage such conditions as obtain in Sunderland and Middlesborough, where the birth rates are respectively 30.2 and 28.5 and the death rates 151 and 152, than to multiply garden suburbs where the birthrates are correspondingly low and the death rates negligible. Although it does not necessarily follow that the quality of the national stock will deteriorate from the preponderating increase of the physically defective elements of society to which modern industrial conditions in Great Britain dispose, it is highly probable that the national interests will suffer by such a proceeding, although we are not in a position to say exactly what physical or mental type will fit in with future developments. For his part, Pritchard would rather put his faith in those stocks or in those families which have proved their superiority throughout the centuries than in those which have proved their inferiority by remaining permanently submerged and who are content to live in crowded unsanitary areas. If this is wrong, he says, little faith can be reposed in the principles of eugenics and heredity is a fraud. Pritchard concludes that, speaking generally, one may say that the great war has stimulated human endeavor to find a satisfactory solution to the problems of infant mortality and of the falling birthrate, and has materially modified public views with regard to the true significance of these important factors in the national life.

Although economics, housing, and industrial considerations greatly influence both the birthrate and deathrate, there can be no question that so far as the deathrate is concerned the most important factor is the intelligent application of the known principles of hygiene and mothercraft to the problem of rearing children.

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